Making Sense of Rifkin's Third Industrial Revolution: Towards a Collaborative Age

Thesis submitted to
The University of the Sunshine Coast
for the degree of PhD

by
Michael McAllum
B.A. (Hons)., Victoria University of Wellington, NZ
Dip. Tchng., Christchurch Graduate Teachers College, NZ
Dip. IR., Victoria University of Wellington, NZ

Under the supervision of
Dr. Sohail Inayatullah
& Dr. Marcus Bussey

Final Submitted: June 7, 2016

ABSTRACT

The published works of the global, social and economic theorist Jeremy Rifkin are increasingly influencing planetary debates, yet few have explored his central contentions with a critical eye. In essence, Rifkin asserts humanity must either transform or collapse, with the latter being likely unless there is a significant change in trajectory. In Rifkin's view this scenario has developed as a consequence of unsustainable 'entropic debt' and an economic system that cannot continue to sustain itself, given that it has successfully reduced margins (through technology) to almost zero. However, he maintains that transformation is possible if disruptive (paradigm shifting) energy and networking technologies are adopted in a timely fashion, and a post-capitalist economic system emerges as a consequence of lower transaction costs: the privileging of access over ownership; and the development of Commons based markets. The process of transition Rifkin describes as a *Third Industrial Revolution* and the new civilisation that emerges from it (the transformation) as a *Collaborative Age.*

The transdiciplinary nature and pan-civilisational scope of Rifkin's contentions extend beyond conventional (historical, sociological, political and economic) thinking and the applied/empirical frameworks that are central to most Western academic enquiry. Thus a broader framework is required; one that examines not just the litany of the proposed changes, but the deeper patterns that underpin both the transition and the transformation. Consistent with this requirement for a more integrated and holistic perspective, it is asserted that 'macrohistory' (the study of the patterns in societies and cultures over the long time) provides the means to frame, interrogate and understand propositions such as the *Third Industrial Revolution*.

Drawing on the insights and writings of selected macrohistorians from diverse historical periods, cultures and worldviews, this thesis identifies patterns in the rise and fall of past civilisations/cultures. These are also evident in contemporary society and are central to Rifkin's theorisation. It posits that the *Third Industrial Revolution* represents a decisive

technological juncture and cultural evolution that goes beyond a mere artful bundling of a number of smaller shifts, which will at some future time seem mere blips on the radar. Further, it asserts that in this (partially) technologically determined transformation there will be a substantive reframing of both socio-economic relational dynamics, and the notions of time, form and space upon which those relationships depend.

However, this thesis argues that in an interconnected world, these different conceptions of reality cannot be constituted inside of those senses of reality currently privileged by modernity and its deconstructed successor, post modernity. It contends that a different kind of (biosphere) consciousness and philosophy (beyond the spectrum of contemporary 'isms') is necessary to reconstitute collaborative identities in a networked future. Such a future will be ecological in its relationship models, and complex, chaotic, contradictory and uncertain in its system effects. Consequently, over time, as these different identities interact, a new metanarrative will develop that will define a counter hegemonic 'beyond the horizon of modernity' culture. Finally, emerging from this consideration of Rifkin's work, the work of selected macrohistorians and of those engaged in the contemporary transformational discourse, this thesis postulates a 'causally layered' theory of civilisational revolution, together with descriptors of the emanant 'relational' scaffolding and the distinctive social morphology of a Collaborative Age.

DECLARATION OF ORIGINALITY

The work submitted in this thesis is original, except as acknowledged in the text. The material herein has not been submitted, either in whole or in part, for a degree at this or any other university.

Michael McAllum

7 June, 2016

ACKNOWLEDGEMENTS

This thesis represents an important step in a personal and professional journey that, whilst initially focused on systemic and transformational change, now demands a profound reflection of what it means to be human in an increasingly chaotic context. This reflection is premised on the belief that it is neither sensible nor sustainable to address the future simply through the cultural lenses that have framed either the present condition or the recent past.

Few journeys are taken alone, and this was certainly not one of them. In particular, I wish to thank my supervisors Dr's Sohail Inayatullah and Marcus Bussey for their guidance, erudition and encouragement in this endeavour. This has included their ability to gently steer me away from many interesting byways that in the moment distracted me from the main task, while at the same time pushing me further into important fields of enquiry. Although I was introduced to Dr. Sohail Inayatullahs's early work in the field of macrohistory in the late 1990's whilst working on the NZ Foresight Project, it was only recently that I was able to see how useful it would be in considering the substantive question of this thesis and to accept his challenge to pursue this enquiry with some rigour. As I have explored the limits of 'what is,' and the potential of 'what might be,' it has become very evident that his consequent theorisation of Causal Layered Analysis represents one of the most significant and easiest-to-use approaches available in contemporary society to deepen understandings of current realities and to frame the conversations it so desperately needs to have. In this pursuit I had considerable support from my other supervisor Dr. Marcus Bussey. I would also particularly like to acknowledge the investment in scholarship evident in Dr. Bussey's identification of key areas of research I needed to explore, as well as his recommendations of 'articles on the fringe' that enabled me to so link and deepen the central arguments of this thesis.

I want to also acknowledge the assistance of many future focused individuals, including colleagues at the Centre for the Future, who have both been interested in, and challenging

of, my thesis. Although each in their own way has been able to suggest bodies of academic work that have assisted in my understanding of the many critical questions under consideration, what unites them is their interest in what lies beyond the current condition. So too my children Kirstie, Sarah and Rebecca, who are all exploring in their own unique ways futures on roads less travelled, have provided food for thought and useful contemplation in a manner that would not otherwise have occurred. At a metaphorical level my interactions with this eclectic group conjures up an image of people gathering at a well, perhaps on the ancient Silk Road, at a resting place where the need for water symbolises a shared humanity and (in Alexander Pope's terms) the depths of the classic 'Spring of Knowledge'. This is a place of collisions, both planned and accidental, where the views of people of vastly different worldviews are shared through story, in the hope that a very different narrative might emerge.

I would also like to acknowledge my editor Lynda Sampson whose unique blend of journalistic skills and interest in this field of study is both uncommon and much appreciated.

Finally, I would not have been able to complete this work without the support of my life long partner and soulmate Marianne Bridgart, who gave me the space to stay focused and whose own inspirational academic journey and ongoing encouragement sustained me in the difficult moments. As she did with my last book, Marianne read parts of this thesis back to me and for that I am immensely grateful. However as I listened it was salutary to see the difference between what I thought I had written and how it was actually expressed. It underscored just how much of reality is contained within the self.

Michael McAllum,
March, 2016

TABLE OF CONTENTS

TABLE OF FIGURES

CHAPTER 1

INTRODUCTION

CONTEXT

Our collective societies now confront a series of environmental, demographic, social and economic limits without precedent. Furthermore our shared collective learning and wisdom seems, at least in the first instance, unable to assist us in understanding how to move past these limits; a problem that is further complicated by the fact that while there are many who have enjoyed benefits in the contemporary situation, a few of those who benefit wish to maintain that advantage in spite of the evidence that such continuation will ensure unsustainable futures for the many. However the question of limits is characterised, it is mostly a consequence of effects from our general non-genetic adaptive capacity[1] and our particular mastery of resource extraction and energy management. While this adaptive capacity has delivered spectacular successes, it has also made humans the most voracious species the planet has ever witnessed. We are now at a point where the right of many other species to exist is imperilled.[2] As this unfortunate existential dilemma is manifested in a myriad of micro and macro situations, attention is now turning to the nature of the change that is required, and there are some who argue that in its quantum it must necessarily be revolutionary.

No longer are such considerations simply held by those on the margins. Recent announcements by the Chinese government, who have traditionally favoured quantitative change over qualitative change, are illustrative. They have placed the 'Third Industrial

[1] The 'Big History' theorist David Chritian argues that the use of symbollic language and collective learning are at the core of human non-genertic adaptive capacity. Christian D. 'World History in Context ', *Journal of World History,* 4, 437-58, 2003, pp. 444-446.

[2] Scientists estimate that the planet is currently losing species, as a consequence of human activity at 1,000 to 10,000 times the naturally occurring background rate (1-5 species per annum). This could see as many as 30-50% of all species extinct by mid century. Chivian, E. and A. Bernstein (eds.). *Sustaining life: How human health depends on biodiversity*. Center for Health and the Global Environment. Oxford University Press, New York. 2008.

Revolution' ideas of American social and economic theorist Jeremy Riffkin at the core of that country's next five-year plan, in the hope that the platform for a different future can be established.[3] Similar aspirations are evident in Europe. The EU parliament has resolved to make the pillars of the Third Industrial Revolution the basis for the future design of Europe[4], and there are also master plans for a number of provinces and cities that use the same framework. Therefore, it would appear that there is at least some level of top down support for Third Industrial Revolution precepts. But the question remains: if they are truly revolutionary at a systemic level (and that is what Rifkin maintains), then their manifestation would rapidly extend beyond the ability of political agents to affect its direction and impacts.

Notwithstanding the useful construct afforded by Rifkin's advocacy within which to fashion an alternative energy system[5]—perhaps even one that will, over decades, replace the current fossil fuel regime—the question that needs to be considered is whether these ideas go at least part of the way to effecting a revolution (change) of the necessary scale and timeliness. This thesis contends that, unless the causes, nature and consequences of the revolution advocated by Rifkin (and others) is understood, then there is no reliable way of knowing. Put simply, global society may embark on a great transition, or series of transitions, where the intent is noble but the impact is insufficient for necessity.

What is therefore both concerning yet unsurprising is that Rifkin's Third Industrial Revolution and the ideas that support and extend it, as a counter hegemonic narrative, have received surprisingly little explicit support or criticism other than through citation. In fact to date, no substantive thesis that explores his collected works has been identified[6]. While this in no way denies the validity of his views *a priori*, many of the contentions of *The Third Industrial Revolution*[7], together with those of his underpinning philosophical tome

---

[3] N. Gardels, 'China's New Five-Year Plan Embraces the Third Industrial Revolution', Huffington Post [website], 2015, http://www.huffingtonpost.com/nathan-gardels/china-third-industrial-revolution_b_8478954.html?ir=Australia (accessed 15 December, 2015).

[4] EU Parliament 'Declaration on Energy and the European Economy', available at http://www.ueapme.com (accessed 25 June, 2014).

[5] The Finnish Futures Research Centre is an archetypal example of how Rifkin's works are used. Cited in S. Heinonen, J. Karjalainen and J. Ruotsalainen, *Towards the Third Industrial Revolution: Neocarbon Futures Clinque 1*, 2015, (Finland Futures Research Centre: FFRC, 2015), loc. 959.

[6] In making this assertion the following data bases were scanned: ProQuest (search.proquest.com), Oaister (oaister.worldcat.org), Networked Digital Library of Thesis and Dissertations (NDLTD.org), Br. Lirary ETHOS (ethos.bl.uk) and Australian Libraries Gateway (nla.gov.au).

[7] J. Rifkin, *The Third Industrial Revolution: How Lateral Power Is Transforming Energy, the Economy, and the World,* New York, Palgrave Macmillan, 2011.

The Empathic Civilization[8] and a more recent work, *The Zero Marginal Cost Society*[9] (which elaborates in some detail the concept of a Collaborative Commons), merit more rigorous examination. Of particular importance is how the contentions contribute to the idea that major civilisational transformation is underway (the revolution) and a new Collaborative Age is emerging. Rifkin posits that this revolution is, and will be, driven from substantive and discontinuous shifts in the nature of energy (from fossil fuels to post-carbon) and communications (telephony and mass media to network interconnectedness). Alongside this he identifies the need to conceive an alternative economic system (post capitalism). Rifkin also asserts the current system is unsustainable, both from an environmental perspective and because the successful use of technologies has reduced margins in economic exchanges to almost zero, thus destroying the viability of the market process upon which the system depends.

The Third Industrial Revolution defined.

Rifkin postulates that global society is in the early stages of a Third Industrial Revolution. This will see societies transform from unsustainable, mechanistically designed and constructed entities, to an environmentally sustainable, economically distributed and socially networked ecology. The core drivers of this transformation, in the Rifkin thesis, are twofold. Firstly, fundamental changes in the nature of energy production, distribution and use are emerging. In this scenario society moves to a post-carbon future; from supply-centric fossil fuel energy systems to demand-driven renewable energy networks. Secondly, ubiquitous communications and social interconnectedness, enabled by the discontinuous effects of networking technologies and available on a global scale, replace information systems that for the most part are in the control of oligarchies. In essence this change in both energy and communications, acting together as a new form of infrastructure, provide an unstoppable counter-hegemonic force that, as was true in earlier revolutions, will rapidly transform almost every part of the current global socio-economic fabric. This reconceptionalisation of how humans work, live and play, he suggests, is necessary if humanity is to confront and find ways past the many limits and adverse system effects evident in modern society (modernism). For Rifkin's revolution to succeed there is a requirement that one sense of reality replaces another as the dominant model.

[8] J. Rifkin, *The Empathic Civilization: The Race to Global Consciousness in a World in Crisis*, New York, J.P. Tarcher/Penguin, 2009.
[9] J. Rifkin, *The Zero Marginal Cost Society: The Internet of Things, the Collaborative Commons, and the Eclipse of Capitalism,* New York: Palgrave Macmillan, 2014, Amazon, (accessed 1 April, 2014).

Rifkin has long been concerned that contemporary society, if it continues on the same trajectory, will rapidly become unsustainable. This he describes as *Collapse*. He contends this can be avoided because there is a capacity to *Transform;* to (re)evolve. For Rifkin, the re-evolution is essentially nomothetic, that is, it acts as a law or rule in the systems where it applies. If this is so then it almost beyond the capacity of vested interests to block its progress. It is in this framing that it can be characterised as revolutionary. Therefore, the storyline of the Third Industrial Revolution:

> ...begins with an understanding that the great economic transformations in history occur when new communication technology converges with new energy systems. The new forms of communication become the medium for organizing and managing the more complex civilizations made possible by new sources of energy. The infrastructure that emerges annihilates time and shrinks space, connecting people and markets in more diverse operations[10].

However, it is suggested that it is a mistake to simply characterise Rifkin's Third Industrial Revolution as just an economic revolution, although it is has important economic elements. It is perhaps better described as a transformation in the nature of civilisation (or culture); one where economics plays an important role but is not the centre of the system (beyond econo-centric). As Figure 1.1 suggests, this is because in reframing societal conceptions of time, form and shape, through a change in the nature of dominant infrastructure (energy and communications), there is consequential shift in settlement patterns, power arrangements, and institutional form. Further as the experience of these new conceptions of time, form and shape become widespread, their representations are reflected in how people think (consciousness and philosophy) and how they experience 'reality', on both a day-to-day, and at a systemic level (infrastructure and ideology). In Rifkin's view this will be

> ….the last of the great industrial revolutions and [this] will lay the foundation infrastructure for an emerging collaborative age. Its completion will signal the end of a two hundred year saga characterized by industrial thinking, entrepreneurial markets and mass labour workforces.[11]

A small but important definitional issue in Rifkin's descriptor of both the Third Industrial Revolution and an emerging Collaborative Age requires highlighting. Whilst the Revolution and the Age are intimately related ideas they are not the same thing. The distinction is that the Third Industrial Revolution might be described as the process of

[10] Rifkin, *The Third Industrial Revolution*, p. 35.
[11] ibid., p. 5.

transition or *becoming* and the Collaborative Age as the actualisation, the *transformation* or *the become* that occurs as a consequence of that transition.

	Agricultural Revolution	**1st Industrial Revolution**	**2nd Industrial Revolution**	**3rd Industrial Revolution**
Time Frame	5000BC-18th C	19th C.	20th C.	21st C.
Civilisation Morphology	Hydraulic	Mechanistic	Technological Informatic	Collaborative Networked
Energy Construct	Horse power & Water	Steam	Oil & Electricity	Renewable
Communications technology	Writing	Cheap printing (Convergence of linotype and press)	Telephony & Media	Digital Networking
Form of social organisation	City States	Factory based cities	Suburban conurbation	Interconnected 'village' ecologies

Figure 1.1 Outline of the key elements and relationships in J. Rifkin's Theory of Revolution

As Figure 1.2 suggests (which the previous one does not) the relationship is consequential rather than sequential. In this sense, Rifkin's Third Industrial Revolution can be distinguished from, but is often confused with, both event-based and technology revolutions. Moreover although these other kinds of revolution are significant and transformative, under some definitions, they do not alter commonly accepted societal senses of time, form (including infrastructure institutional arrangements) and shape in the profound way that a social (civilisational) revolution does.

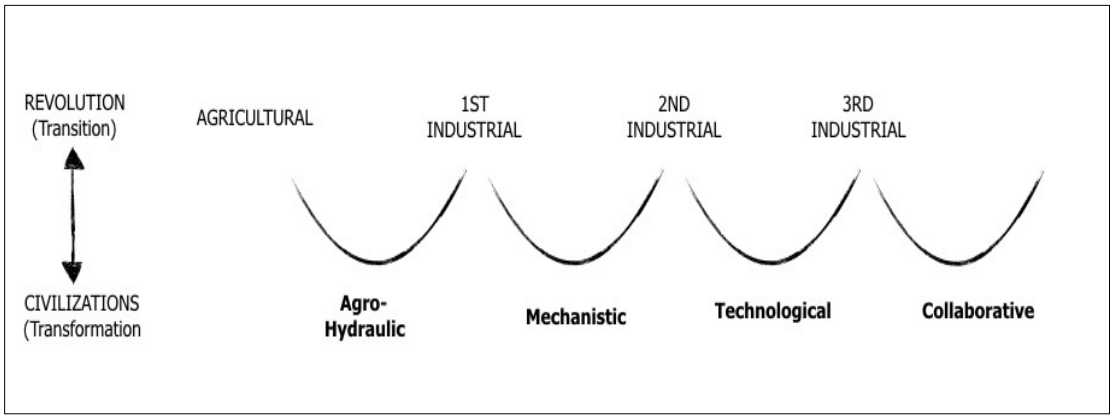


Figure 1.2 Showing the nature of the relationship between revolution (transition) and the civilisation that emerges (transformation)

In Rifkin's theorising two important conditions must be fulfilled if the revolution is to be successful. The first relates to what Rifkin terms 'entropic debt'. He contends that the activity of the first two Industrial Revolutions, "the burning of coal, oil and natural gas, has resulted in the release of massive amounts of carbon dioxide into the Earth's atmosphere." This spent energy is now at a level where it "threatens a catastrophic shift…with potentially devastating consequences for the future of life"[12]. A Third Revolution must therefore occur, before those consequences of excessive spent energy are systemically impossible to undo (speed of change). Further, the society created by this revolution must be able to exist within the constraints that the Planet imposes (design of change). A second and associated condition is that in the proposed revolution an escape from a future of *Collapse* as a result of entropy can only occur if there is a privileging of collaborative sensibilities over competitive instincts (the necessary logic that underpins the form-shape of a Collaborative Age), and an acknowledgement that our personal wellbeing ultimately depends on the wellbeing of the larger communities we inhabit[13]. In other words, changes in the nature of energy and communications at a systemic level are both dependent on and interdependent with shifts in mentality, what Rifkin terms a 'biosphere empathic consciousness'[14].

Because the revolution Rifkin envisages is economic, technological and social he necessarily locates its conception within multiple discourses, including those that relate to technological discontinuity, civilisational change, societal form, social consciousness (mentality) and environmental sustainability. His contentions of a Third Industrial Revolution and an emerging Collaborative Age frame a possible, systemically different,

[12] Rifkin, *The Third Industrial Revolution,* p. 24.
[13] Rifkin, *The Zero Marginal Cost Society,* p. 302.
[14] Rifkin, *The Empathic Civilization,* p. 592.

holistic future image, "one that (if we) harness holistic thinking to a new global ethics that recognises and acts to harmonise the many relationships that make up the life sustaining forces of the planet, will (mean) we have crossed the divide into a near-climax economy and a biosphere consciousness"[15]. His advocacy, reflected in the style of his writing, is to blend his conceptions of an unsustainable current state and a possible way forward (by way of theory and case study) into a coherent tapestry that, when viewed at a distance, provides a compelling logic. Necessarily it must also, when inspected at close quarters, invite contemplation and thoughtful response from those interested in particular aspects of the transition, whilst keeping 'whole of system' change at the forefront of the debate.

Why critique Rifkin?

In a world concerned with the increasingly alarming biophysical limits (climate, fresh water, ocean acidification, loss of biodiversity, soil fertility, air quality)[16] there are three important reasons for examining the notion of revolution and civilisational shift, as espoused by Rifkin.

- Firstly the nature of his assertions requires access to frameworks, which by design, assess the scale of the transformational propositions whilst revealing the epistemological biases and framings of understanding inherent in such propositions.
- Secondly, because Rifkin's views are influential, it is useful to situate them in a context with others who are also exploring possibilities beyond the limits (escape). This context might be generally defined as 'the contemporary transformational discourse'.
- Thirdly, if one can identify and then characterise some of the key elements of the Collaborative Age as a 'design fiction' (the use of prototypes to map the imaginable through narratives which transcend their constitutional elements)[17], then there is a basis upon which to explore possibilities, contrasts and tensions belonging to this fiction or future image as it engages with contemporariness. This comparative process assists in determining the power of Rifkin's propositions as an alternative narrative.

[15] ibid., p. 600

[16] Many global institutions including the World Bank, the IEA and the IPCC have expressed concerns over limits. So have many private think tanks. S. Adams, F. Baarsch, et. al., World Bank. 2013. *Turn Down the Heat: Climate Extremes, Regional Impacts, and the Case for Resilience - full report*, (accessed 18 January, 2014), is illustrative.

[17] B. Sterling, 'Design Fiction', [online pdf] 2012, p.4. *http://interactions.acm.org/content/?p=1244*, (accessed 7 August, 2015).

The revolution that Rifkin describes is not just a theoretical construct of a possible near future. Rather, it is an emergent narrative intended to define the dynamics of transition and cohere widely dispersed, formative fragments of a new Collaborative Age. The German philosopher Spengler describes this interregnum as a time of pseudomorphosis[18], or deceptive cultural formation. In pseudomorphosis, the still-developing features of an alternative narrative appear constrained by a need for outward conformity with the dominant discourse, and thus, seem almost hidden. It is, as the English historian Toynbee notes:

> ...like a hermit crab who fits himself into a shell that is not his own. But an observer would be allowing himself to be misled if here he were to take appearances at their face value. He must look below the surface, study what underlies it and take due note of the differences between the two[19].

Thus it is contended that identifying pseudomorphic, socio-economic elements of a Collaborative Age is part of an evidential process that asserts alternative realities are both possible and viable.

Therefore this thesis considers ways to explore Rifkin's contentions of a Third Industrial Revolution and an emerging Collaborative Age, and how *the becoming* and *the become* act together to frame both the narrative and pseudomorphic morphology (form-shape) of a possible future. It looks to understand his view of its causes, nature and implications. It also proposes to situate these ideas within the contemporary transformational discourse. It does so with the intent of finding ways to make these propositions 'heard' at a time when, as the corporate philosopher Richard Hames suggests, human-centric rationalism, the way we now 'see' the world, has created dilemmas (including entropic debt) which we must now confront. These dilemmas, Hames asserts require thinking and actions that are beyond, and cannot be solved within, the 'progressive' ideologies that created them[20]. Thus this discourse is 'not normal' in the way that 'those who are like us'[21] currently understand normality, yet an 'other than normal' framing is essential if any fundamental difference is to actualise.

---

[18] O. Spengler, *The Decline of the West*, H Werner (ed.), Abridged edn., New York, Vintage Books, 2006, pp. 111-13.
[19] A. Toynbee, 'Reconsiderations', *A Study of History, vol. 12,* Oxford University Press, 1961, p. 670.
[20] R. Hames, *The Five Literacies of Global Leadership: What Authentic Leaders Know and You Need to Find Out,* Chichester, England, Hoboken, NJ, Jossey-Bass, 2007, p. 11.
[21] In line with Wallerstein's contention that the endless accumulation of capital has generated the need for a constant expansion of frontiers, this has also, as Dussel suggests, created in the process oppression, either within the system, or enemies – those 'outside' the system; "those who are not." Hence the use of the term 'those who are not like us' from a modernity-centric perspective. I.M. Wallerstein, *World-Systems Analysis: An Introduction*, Durham, Duke University Press, 2004, p. 1.; E. Dussel and E. Mendieta, *Beyond Philosophy: Ethics, History, Marxism, and Liberation Theology* (New Critical Theory), Lanham, MD, Rowman & Littlefield Publishers, 2003, p. 207.

One way to explore the complexity of the Third Industrial Revolution, having created a (beyond disciplines) framework within which to consider what is being proposed, is to synthesise what is being posited and then deconstruct it. In doing so it is important not to lose sight of the whole, yet search at the same time for emergent understandings that reach beyond the empirical or the applied (the privileged mode of evidence in an Enlightenment scientific mentality). In this thesis this will be primarily achieved through using constructs and frameworks developed by a selected group of scholars who have focused on large-scale shift of the kind Rifkin considers. This group is often described collectively as 'speculative' historians or macrohistorians. The futurist philosopher Inayatullah suggests:

> [T]hose who write macrohistory — are to the historian what an Einstein is to the run-of-the-mill physicist: in search of the totality of space and time, social or physical. Macrohistorians use the detailed data of historians for their grand theories of individual, social and civilizational change[22].

Through Inayatullah's definition of macrohistory there is a suggested capacity or framing to contemplate the richness of multifaceted effects—integral to the reconceptionalisation of time, form and space—at the core of Rifkin's contentions and the affairs of humans as societies and cultures.

What makes macrohistory so valuable in this regard is that it operates in a manner that the design thinker Berlant terms as a 'supervalence'; a means of stepping outside the experienced present. This supervalence, she argues, enables us to objectify ideas so that we can walk around them; to make a place for experimental thought that is "not only inconvenient to the reproduction of power and its symbolizations but to our image of power and the fantasies that make us think that we can make worlds for our idealizations"[23]. However, finding common meaning can still be problematic. It depends on where one is located in time and space. For macrohistorians, each establishes their own episteme and has their own theory about how societies rise and fall across time. However, what they share is theorisation of a time scale that permits consideration of Rifkin's propositions and the multiple senses of reality they encompass. What emerges from their collective explorations of how great transformations have occurred across civilisations (or cultures depending on the units of analysis), is almost always, despite the interests of the dominant hegemony, a 'next' that is different from the norms that preceded it. Such

[22] S. Inayatullah, 'Macrohistory and Futures Studies', *Future Studies*, vol. 30, no. 5, 1998, p. 381.
[23] L. Berlant and J. Cooke, 'Transformations and Challenges in Politics, Teaching, Art and Writing: An Interview with Lauren Berlant', *Textual Practice,* vol. 27, no. 6, 2013, p. 965.

explorations therefore provide an appropriate 'fit' for consideration of Rifkin's contention of a Third Industrial Revolution.

The concept of societal transformation, together with determinations of causes and consequences, requires an examination of not just specific components of Rifkin's contentions, but with the complexity that arises from their integration and interaction. Understanding how to create discourse that allows confrontation with, and navigation of, this complexity is difficult in contemporary sensate cultures that seem to prefer slogans, the simplicity of the binary option and, as the Australian economist Garnaut opines, the maximisation of our private interests in every interaction, over the longer term public interest.[24]

Therefore, juxtaposing Rifkin with a body of macrohistorical thought produces an interesting paradox. On the one hand the transformations macrohistorians examine and Rifkin contemplates are nomothetic: the subject of forces almost beyond agency. As the theorist Galtung remarks this is not an examination of (ideographic) 'world history', rather it is "the history of social systems along separate trajectories in search of regularities – laws"[25]. The change in societal form and shape as a result of energy transitions is a prime example. On the other hand, as Rifkin suggests, human action or inaction, in the contemporary situation, defines a particular future evolutionary path; a state of *Collapse* (at least from a human perspective) if the transition does not occur quickly enough[26]. One might conclude that, not only is contemplation of the tensions between agency and undesirable nomothetic system effects central to the works of Rifkin, macrohistorians, and others who consider contemporary civilisational shift, it is axiomatic to the nature of Revolution being considered, and the conceptualisation of a consequent Collaborative Age.

Research Question

Given the attention and influence that Rifkin's collective works appear to have among global leaders, the focal question of this thesis is:

[24] R. Garnaut, *'Dog Days: Australia after the Boom'*, Redback, 2013, loc. 235, Amazon, (accessed 19 November, 2013).
[25] J. Galtung.and S. Inayatullah., *'Macrohistory and Macrohistorians : Perspectives on Individual, Social, and Civilizational Change'*, Westport, Connecticut, Praeger, 1997, p. 3, www.meta-future.org., (accessed 15 September, 2011).
[26] Rifkin, *The Empathic Civilization,* 2009, p. 612.

How does one make sense or understand contentions of a Third Industrial Revolution and an emerging Collaborative Age, its causes, nature and consequences, through the works of Jeremy Rifkin?

Implicit in this question are a number of second order questions. They are as follows:

- What does 'understanding' mean in this context, particularly if empirical proof is not an option? Furthermore what counts as evidence?
- Given that the concept of Industrial Revolution, as articulated by Rifkin, stands outside of and beyond normative, event based, historical descriptors of revolution, and that it crosses multiple disciplinary boundaries, what are the theoretical constructs, frameworks and reference points through which understanding (in multiple meanings of the word) might be explored?
- What does Rifkin mean by a Third Industrial Revolution and an emerging Collaborative Age?
- Do Rifkin's contentions of Revolution and a Collaborative Age have a logical consistency beyond a simple narrative or litany? In other words, are they systemically and structurally coherent and do they reflect changes in mentality (ways of thinking) aligned with the changes he is proposing?
- How might Rifkin's propositions be situated within what might be described as the contemporary transformational discourse, and are the themes of that discourse broadly in line with Rifkin's assertions?
- Does Rifkin's Third Industrial Revolution and an emerging Collaborative Age, and insights into those same contentions, point to a conditional escape from the many, large scale, complex, environmental and energy issues confronting global society?
- Finally, is there a conception of transition and transformation—that is, civilisation in nature—that all societies might consider as they face the existential challenges that confront them?

Framing Enquiry

Given the scope of Rifkin's propositions and their evolution in nineteen books across three decades, his theorising cannot easily be confined to any particular modern discipline. This poses significant epistemological and ontological challenges. These include: identifying a

framework for synthesis that is transdisciplinary in scope, considering how others (macrohistorians) have contextualised the process of transformation from one society/culture to another, how to situate Rifkin within the contemporary transformational discourse and how to consider issues of social grammar (or cosmology). These challenges become even more problematic, given their global reach, for as the future philosophers and macrohistorical chroniclers Inayatullah and Galtung remind us, "there is only one world, we have no comparative, not to mention interactive world histories"[27]. How to therefore contemplate what might *become* is difficult, given our collective location in the present. Certainly both applied and empirical approaches are problematic under this definition. However, the philosopher Putnam argues the comparative is available; it is possible to create a mental construct, a 'Twin Earth' to explore meaning and reference at this scale[28]. There are also challenges that are almost ontological in nature, including *what is reality* and *what is evidence*. Consequently, one must conclude that care must be taken in framing 'understanding' as it relates to Rifkin's revolution.

Beyond disciplines

It has already been asserted that notions of revolution and civilisational shift are truly about the study of human affairs. As the macrohistorian Toynbee suggests, this conceptually extends across and beyond disciplines. He argues "the study of human affairs is really one and indivisible. The convenient academic dismemberment of the vast subject into disciplines is a convenient and perhaps unavoidable device but it is an arbitrary and surgical operation"[29]. Ibn Khaldun, writing well before such dismemberment was commonplace, suggests something similar:

> The inner meaning of history involves speculation and an attempt to get at the truth, subtle explanation of the causes and origins of things and deep knowledge of the how and why of events. History is therefore deeply rooted in philosophy and deserves to be accounted a branch of philosophy[30].

If this proposition is accepted there are two immediate consequences for Rifkin's work. Firstly, this 'beyond disciplines' definition of revolution cannot be located within the conventions used by (discipline based) historians and sociologists. For, as the American sociologist Charles Tilly

[27] Galtung and Inayatullah, *Macrohistory and Macrohistorians, p.8.*
[28] H. Putnam, 'Meaning and Reference', *The Journal of Philosophy*, vol. 70, 1973, pp. 699-711.
[29] Toynbee, 'Reconsiderations', p. 8.
[30] Ibn Khaldun, *The Muqaddimah; an Introduction to History*, Franz Rosenthal (ed.), vol. 1 (of 3) [Bollingen Series], New York, Pantheon Books, 1958, vol. 1, p. 6.

writes, the basic units for historians are place, time and subject[31]. For the discipline practitioner this definition of revolutionary theory that, while now extended or broadened beyond conceptions of state and class revolution[32], still privileges 'the event' as the unit of analysis. In doing so it asserts the primacy of agency in the revolutionary process. However, Rifkin's revolutions are not of this kind and therefore must be defined differently (this is the second point). Because of their scale they necessarily must be conceptualised at a distance beyond events and leaders, in a way where these (events) are rendered invisible. They are instead what the French historian Braudel described as the study of *la longe duree* (the long time) and Inayatullah defines as macrohistory, "the study of the history of social systems, along separate trajectories through (long) space and time, in search of patterns, even laws of social change" [33]. It is through this latter lens, as Figure 1.3 illustrates, that it is possible to consider Rifkin and selected macrohistorians. This is at both an epistemological and a content level, in a manner that is beyond a disciplinary frame, although it is not being argued that Rifkin is a macrohistorian per se.

1	Episteme and context of macrohistory and macrohistorians
2	Causes and mechanisms of change
3	Stages of history and patterns of change
4.	Metaphysical choices and the role of the transcendental
5	Units of analysis and their weights or role in creating change
6	Metaphors used to illustrate theory
7	Role of Vanguard of Change (Who will create the new order?)
8	Exists and escapes from theoretical constructs
9	Perspectives on the future
10	Perspectives on historiography

Figure 1.3. A transdisciplinary framework for considering macrohistorical contentions and macrohistorians, as developed by Inayatullah[34]

[31] C. Tilly, 'As Sociology Meets History', *CSRO Working paper,* no. 193,1979, p. 17.
[32] Fourth Generation Revolutionary Theory will treat "revolutionary processes and outcomes as emergent from the interplay of multiple actors". J. Goldstone., 'Towards a Fourth Generation of Revolutionary Theory', *Annual review of Political Science,* vol. 4, 2001, pp. 139-87, p. 175.
[33] Galtung and Inayatullah, *Macrohistory and Macrohistorians,* p. 5.
[34] S. Inayatullah, *Situating Sarkar: Tantra, Macrohistory and Alternative Futures,* Maleny, Qld., Gurukula Press, 1999, p. 137.

Understanding 'understanding'

The word 'understanding' is used extensively throughout this thesis and it is therefore useful to consider its etymology. Inayatullah, in exploring our understanding of understanding, suggests that there are at least eight ways in which one might look to understand; thereby suggesting that understanding is a series of thought processes not a single act[35]. The three most commonly used contemporary usages in the Western episteme are applied, empirical and comparative, but understanding may also be derived from translational, framing, phenomonological, transmodern (postnormal or structuralist) and 'beyond discourse' approaches. Thus, it is possible that any may be used either in the singular or together, depending on the circumstance and especially if a particular way of understanding provides insights (senses of reality) that might not otherwise be heard.

A consideration of how one might understand issues of energy change and consciousness are illustrative of the value of having available multiple senses of understanding available. For example, Rifkin's assertions about the changing energy forms being fundamental determinants of a civilisation can usefully be seen from a 'framing' or systems perspective on the one hand or from a phenomemological perspective on the other. Framing introduces into dialogue contemplation of how energy systems transition. They alert us to theories such as Kondratieff Long Waves as systemic descriptors of transition[36]. Framing is also used by the futures thinker Dator[37], and the anthropologist Tainter[38], to support two contentions: firstly, that technological discontinuity is the main agent of social and environmental change; and secondly, that an emerging post-carbon regime provides an escape from the ongoing entropic effects of the mechanistic society. Alternatively, phenomenology (understanding how an individual or group constitute their sense of the world), on the other hand, allows exploration of the structures and the instrumentalisation of consciousness. In Rifkin's Third Industrial Revolution the shift in empathic scope, from a psychological consciousness to a biosphere consciousness, is essential for a spatial and temporal orientation. This encourages the creation of a "new complex political organism that operates like the biosphere it attends, synergistically and reciprocally"[39]. Here phenomenological understanding offers new metaphors for social arrangement (organism not machine) and consequential new institutional form (globally interdependent and

[35] Inayatullah, *Situating Sarkar,*1999, p. 137.
[36] Y.V. Yakovets, 'The Kondratieff's Waves and Cyclic. Dynamics of the Economy and Wars: Theory and Prospects', *IOS Press*. 2006
[37] J. Dator, 'The Unholy Trinity Plus One', *Journal of Future Studies*, vol. 13, 2009, pp.33-48.
[38] J. Tainter, 'Sustainability of Complex Societies', *Futures,* vol. 27, no. 4, 1995, pp. 397-407.
[39] Rifkin, *The Empathic Civilization,* p. 615.

symbiotic governance institutions that may or may not be nation states). It also suggests that if empathy is neurologically wired (Rifkin's contention), the technologies of interconnectedness enable the scope of that empathy to be significantly expanded in the same way that previous civilisations have. What these few examples illustrate is that an exploration of understandings beyond the empirical and the applied invite contemplation of questions that might not otherwise be considered and the possibility of patterns that are really visible in the obvious.

The Postnormal

The understanding of anything is almost always conditioned by a tacit and often shared perception of what constitutes 'normality' or context. In 'modernism' normality privileges simplicity, coherence, order and certainty. This 'normal' asserts that growth and expansion are constant conditions and, as many of our deep 'conquest' mythologies remind us, the environment is there for humanity to master. Anything that deviates from this condition is considered undesirable and something to be remedied, at least in the eyes of those who are its main beneficiaries. However the cultural theorist Sardar argues that this perception of a now 'dromological normal'[40] (our lives are lived at speed, as in a movie where we focus on what is appearing before us and rapidly forget what has been) no longer exists because the technologies of interconnectedness have changed the fundamentals of social dynamics, both inside modernity and with those outside of its compass. Instead the world is 'postnormal': that is, it is complex, chaotic, contradictory and uncertain[41]. Postnormal, as Sardar defines[42], has significant implications for the starting and desired end points of discourse, the framing of shared conceptions of time and space and the relationship with form in political and socio-economic settings. In all cases it creates a different context for the nature of understanding that extends beyond those privileged in modernism. Thus acceptance of the postnormal is, in a sense, a portent of a potential revolutionary shift in societal context.

[40] The concept of 'dromology' was coined by the French urban philosopher Virilio, as discussed in I. James, 'Phenomenology in Diaspora', *French Cultural Studies,* vol. 17, no. 3, 2006, p. 325.
[41] Z. Sardar, 'Welcome to Postnormal Times', *Futures* vol. 42, 2010, pp.435-44.
[42] The term 'postnormal' has been used by a number of sustainability theorists and scientists to describe the change of context in which we now live. Ravetz in particular used it widely to explore complexity in science. J. Ravetz & S. Funtowicz, 'Uncertainty, Complexity and Post Normal Science', *Environmental Toxicology and Chemistry,* vol. 13, no. 12, 1994, 1881-85. However, in this thesis, it is used explicitly in reference to Sardar's definition as it appears in his article of the same name.

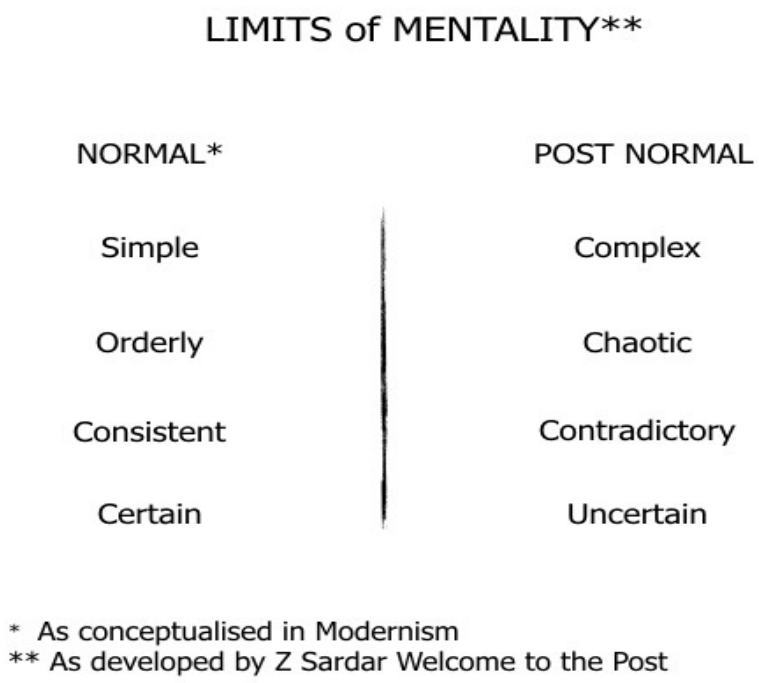


Figure 1.4 Table showing alternatives to the modernist mentality pattern

Macrohistory and macrohistorians

While consideration of macrohistory provides a framework for deconstructing Rifkin, the collected works of various macrohistorians provide context and content within which to consider Rifkin's Third Industrial Revolution narrative, in that they theorise on the rise and fall of significant social systems over time. In this thesis, Rifkin's work is principally interrogated through the lens of five macrohistorians who come from different eras, cultures and epistemes. They are; Arnold Toynbee, Ibn Khaldun, Oswald Spengler, Pitirim Sorokin and P. B. Sarkar. Each has their own theory of macrohistory, and given their distance from the other in time, space and culture, they produce unique perspectives through which to explore the central tenets of the Third Industrial Revolution and the emergent transformational discourse. As the following paragraphs in overview illustrate and Figure 1.5 later summarises, each macrohistorian asserts how social systems develop, sustain themselves and then decline. These theories of rise and fall can then be compared to the contemporary situation, in order to understand if the conditions for Rifkin's revolution exist.

Arnold Toynbee (1889-1975), a lifelong classical scholar, whose reputation has only recently been somewhat rehabilitated[43], has been preferred, as it is his definitions of Industrial Revolution that Rifkin relies on[44]. He contends that civilisations rise through their ability to respond again and again to challenges, and in turn, they fall when the creative minority, who help shape both understanding of and response to challenges, fail to sustain an appropriate level of response, thus triggering breakdown, disintegration and dissolution[45]. When considering the contemporary condition, Toynbee suggests the Western culture is in decline as it has lost the support of its creative minority. Thus it is a system with no sense of belief and spirituality, a body without a soul where the interests of the West will give way to a new universalism. "We may expect a new world wide culture to start on a Western basis (because of technological dominance), non Western elements just below the surface will break through the Western crust"[46]. In this reading Modernity (the Second Industrial Revolution) is in late stage decline and a new civilisation (the Collaborative Age) is just emerging.

The Andulusian scholar, Ibn Khaldun (1332-1406), who predates Toynbee by some five hundred years, was preoccupied with "understanding the inner meaning of history"[47]. He contends history is a series of cycles driven from a generational sequence of conquest, consolidation, unsustainable abundance and finally, waste and squander. The state of the cycle for Khaldun depends on the societal sense of shared destiny and 'group spirit', what he terms as *asabiya* (the sinew that binds). From Khaldun's perspective, Rifkin's end of the Industrial Age might be explained as the late stage of an urban-centric civilisation that has lost touch with the ideas that initially drove it (enlightenment and progress), with a consequent loss of value driven social capital. As the contemporary sociologist Gierer suggests, what is left is a tension between urban consumerism and an anthropological need to create empathic entities[48]. Several questions emerge. Firstly, has the *asabiya* of contemporary society run its course? Khaldun contends that this normally extends over four generations (120 years). Secondly, does the notion of 'biosphere consciousness' that Rifkin argues for constitute a post nation state *asabiya*? Thirdly, is this modern *asabiya* the

[43] C. Navari, 'Arnold Toynbee (1889–1975): Prophecy and Civilization', *Review of international studies,* vol. 26, no. 2, 2000, p. 289.
[44] A. Toynbee, *The Industrial Revolution*, Beacon Paperbacks, Boston, Beacon Press, 1956.
[45] A. Toynbee, *A Study of History*, Sommerville, D.C. (ed.), (2 Vols.), (First American edn.), New York, Oxford University Press, 1947.
[46] Toynbee, 'Reconsiderations', p. 674.
[47] Ibn Khaldun, *The Muqaddimah,* Vol. 1, p.5.
[48] A. Gierer, 'Ibn Khaldun on Solidarity ("Asabiyah") - Modern Science on Cooperativeness and Empathy: A Comparison', *Philosophia Naturalis,* vol. 38, 2001, pp. 91-104.

basis for a new network-centric civilisation; one that has at its core a requirement for strong collaborative relationships?

Oswald Spengler's (1880-1936) work *The Decline of the West*, provides a completely different perspective. Spengler, whose preferred unit of analysis is culture rather than civilisation (civilisation is merely the lifeless form of a culture that has died), suggests that cultures, as with other living things, are born, grow and die. Further, while cultures can be understood through various forms (philosophy, art, literature and music) what matters is their level of plasticity and the way they articulate conceptions of time and form in the periods in which they are actualised[49]. For Spengler, who describes modernism as a Faustian culture, dominated by money thought[50], the West is in decline, and its only options are to "either do the necessary or nothing"[51]. While Spengler's concerns about the decline of the West add weight to Rifkin's assertion of a system at its limits, the real value in his theorising, aside from his prescience on the current societal condition, is in his conceptualisation of the links between time, form and space and the nature of the systems they define and interact with.

The Russian born Harvard scholar Pitirim Sorokin (1889-1968), like Spengler, argues that culture is at the heart of the societal condition. He asserts that each culture can be seen as a system that contains within it the seeds of its own downfall (immanent change)[52]. When these seeds of downfall manifest themselves the societal mentality swings away from the system of decline towards a different culture and mentality. In Sorokin's view this swing is part of an observable pendulum-like super-rhythm (from ideation to idealistic to sensate [53]), which, although different in its precise manifestation, shares the characteristics of previous super-rhythms. For Sorokin therefore, contemporary society exhibits all the characteristics of a sensate society in decline and therefore a swing in imminent; "before our very eyes this culture is committing suicide (and) a new sociocultural order must go beyond the old regime of the sensate culture"[54]. Sorokin therefore provides explicit endorsement for Rifkin's revolution, while also defining in some detail the nature of limits and the morphology of what might emerge, before the pendulum swings again.

[49] Spengler, *The Decline of the West,* p. 230.
[50] ibid., p. 413.
[51] ibid., p. 415.
[52] P. Sorokin, *Social & Cultural Dynamics : A Study of Change in Major Systems of Art, Truth, Ethics, Law and Social Relationships*, Boston, Massachusetts, Porter Sargent, 1957, pp. 27-36.
[53] ibid., p. 24.
[54] ibid., p. 645.

The final macrohistorian is P.R. Sarkar (1921-1990). Through mainly interpretative commentary Sarkar provides a unified logic that, whilst metaphysically centered, and of the Indian episteme also extends beyond it[55]. He therefore explicitly stands outside the Western episteme, while offering an alternative to it. Sarkar's goal is to develop narratives of alternative political economy and distributive justice[56] that draw from his spiritual conception of the real, rather than modern economic theory. These narratives propose that there is a need to "continuously distribute wealth to all members, humans and non human"[57]. Central to his theorising are two important but integrated concepts. Based in what Sarkar terms neo-humanism[58], a theory of relational culture is a central framework defined as Progressive Utilization Theory or PROUT[59]. Conceptually it provides an integrated ethical relationship model of economy and self-reliance. This is predicated on ideas of humanism (attachment to species) framed by the spirituality and economics of relational justice that are not present in Rifkin's theorising, although most of the elements are. Sarkar also explores both the cycles of human 'relational' evolution (Worker, Warrior, Intellectual, Capitalist) and the potential to escape from this historical condition[60]. Escape, he argues, can occur if *Sadvipra*—authentic leaders who have 'spiritual intellects'—can lead, thus liberating other intellectuals, allowing them to move past nationalism and other 'isms'[61]. Their role is to ensure sustainable existence, appropriate development and happiness (asti, bhati and ananda)[62]. What Sarkar provides through a philosophy that is centered in a deep spirituality, PROUT and the *Sadvipra,* is a contemporary *asabiya,* through which it is possible to evaluate both Rifkin's contentions and the contemporary transformation discourse as a whole.

---

[55] S. Inayatullah, *Understanding Sarkar : The Indian Episteme, Macrohistory, and Transformative Knowledge* (International Comparative Social Studies), Boston, Brill, 2002, pp. 71-77.

[56] Conceptualising distributive justice is gaining significant attention in societies where algorithms and robotics are rapidly replacing humans in the workplace. If there is no work how will wealth be created for the many? See further in Inayatullah, *Understanding Sarkar* 2002, p. 304, and T. Pearson, *The End of Jobs. Money Meaning and Freedom without the 9-5,* Lioncrest Publishing, 2015, Amazon, (accessed 5 September, 2015).

[57] M. Ford, *Rise of the Robots: Technology and the Threat of a Jobless Future*, New York, Basic Books, member, Pereus Books Group, 2015, Amazon, (accessed 3 October, 2015).

[58] This positions the ego, family, geosentiment (that in a networked world is geo-cohesion rather than geo-location), socio-sentiment and humanism within both an environmental and cosmological context. Inayatullah, *Understanding Sarkar*, 2002, p. 9.

[59] ibid., p. 26, and K. Avadhuta in J. Fitzgerald and S. Inayatullah , *Transcending Boundaries : Prabhat Rainjan Sarkar's Theories of Individual and Social Transformation,* Maleny, Qld., Gurukula Press, 1999, pp. 91-104.

[60] The concept of escape or exit is a constant theme in contemporary transformist discourse. At the core of such theories are conceptions of linear, cyclical or transcendental social change. See Inayatullah in Fitzgerald and Inayatullah, *Transcending Boundaries,* pp. 19-23.

[61] Inayatullah, *Understanding Sarkar,* p. 251.

[62] In his *Future of Civilization* discourse Sarkar suggests that these *Sadvipra* require a spiritual ideology, spiritual practice, an equitable socioeconomic theory, a fraternal social outlook, agreed points of reference and preceptors or pathfinders. ibid., p. 212.

	Toynbee	Ibn Khaldun	Spengler	Sorokin	Sarkar
Ability of a system to sustain itself	Societal capacity for challenge and response	*Asabiya* is necessary for social cohesion	Cultures define the form and shape of a society	Every system has the seeds of its own destruction in it	Everyone and everything operates within a geo-cohesive cosmology (PROUT)
The nature of social system decline	The creative minority withdraw from role in facilitating change inside the system	Sensate conditions corrupt asabiya over generations	All cultures are born, grow and die	As one system is exhausted it swings to another system (Sensate > ideational > idealistic)	Only the Sadvirpa can lead an escape from the cycles of history (Worker, warrior, intellectual capitalist)
Application to the contemporary condition	Change cannot occur without a spiritual basis?	What constitutes a modern *asabiya*	Western culture is a Faustian culture in decline	The world is now in a late sensate phase	An outside of modernity spiritual humanism is required for self reliant development

Figure 1.5 High level summary of selected macrohistorical thought and its use in understanding Rifkin's revolution

Further it is postulated that macrohistorians have significant value in more ways beyond simply theorising how particular social systems emerge and disappear. Theirs is a contemplation of the nature of thought, of consciousness and humanity's relationship to the spiritual. Therefore, in the same way that Sardar's 'postnormal' reflects a different morphology of how the world is constructed, some consideration needs also to be given to the form-shape of the thought process itself. The developmental psychologist Gidley posits that just as 'normal' has reached its limits, so has the 'formal' thinking (as defined by Piaget and others within the psychological discourse) that accompanies it[63]. Gidley, in similar fashion to Spengler, Dussel, Sardar and Inayatullah, challenges the primacy of the binary logic model; a model she suggests has "dangerous limitations in complex human situations… some of the worst cultural atrocities of the last three centuries have resulted

[63] "Formal thinking as defined by Piaget implies an acceptance of a Cartesian-Newtonian mechanistic world that is caught in a cause-effect, hypo-deductive system of reasoning." L. Steinberg, J. Kincheloe, & R. Shirley, 'A Tentative Description of Post-Formal Thinking: The Critical Confrontation with Cognitive Theory', *Harvard Education Review,* vol. 63, no. 3, 1993, p. 297.

from the Faustian combination of hegemonic political power with the binary logic of dualistic thinking"[64]. In its place 'post-formal' frameworks are required that encourage complex thinking[65], paradoxical reasoning, creativity and imagination. This is because;

> [W]e need to learn to consciously play with the paradoxes inherent in chaos and complexity and place them at the service of our growing wisdom, to activate and embody our imaginations to revision our way out of the multiple challenges of post normal times by creating and telling each other new narratives that serve the common good, thus creating bounties of active hope for future generations[66].

In sum, the capacity to understand and reflect on what Rifkin is asserting is entirely dependent on the unspoken and often unrecognised 'context' and 'thinking or 'reality' prisms through which we consider those assertions.

The Contemporary Transformation Discourse

Rifkin is one of a growing number of contemporary theorists who advocate the need for rapid transformation. As a whole, this group argue the contemporary situation is systemically unsustainable, and thus there is the necessity for response; one that requires a different socio-economic fabric in a post-disruption society. In situating Rifkin within this discourse, the tension between the role of agency and nomotheticism helps in distinguishing three emergent schools of thought. They are:

- those who advocate a stepping back or descent (agency-centric). They include Holmgren, Slaughter and Klein[67];
- those who advocate stepping forward with the aid of technology (a mix of agency and technological nomotheticism, with agency in the ascendant). They include Brynjolsson and McAfee, Ford and Shirky[68]; and
- those who advocate stepping beyond; a complete systemic change in socio-economic arrangements, including the capitalist model that has been integral to the notion of progress and wealth in previous industrial revolutions (also mixed

[64] J. Gidley, 'Postformal Priorities for Postnornal Times - a Playful Paradox', *Futures: The Journal of Policy, Planning and Future Studies,* vol. 42, no. 6, 2010, p. 627.
[65] Gidley suggests that "complex thinking involves the ability to hold multiple perspectives in mind while at the same time being able to meta-reflect on those perspectives and the potential relationships among them." ibid., p. 628.
[66] ibid., p. 626.
[67] D. Holmgren, *Permaculture: Principles & Pathways Beyond Sustainability* (1st UK edn.), East Meon, Permanent Publications, 2010; R. Slaughter, *The Biggest Wake up Call in History,* Foresight International, 2010; N. Klein, *This Changes Everything: Capitalism Vs. The Climate,* New York, Simon & Schuster, 2014.
[68] E. Brynjolfsson & A. Mcafee, *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*, (First Edition. edn.), New York, W. W. Norton & Company, 2014; M. Ford, *Rise of the Robots*; C. Shirky, *Here Comes Everybody: The Power of Organizing without Organizations,* New York, Penguin Press, 2008.

but with nomotheticism in the ascendant). They include Toffler, Eisler and Taylor[69].

It is suggested that Rifkin belongs to this last school of thought.

However those that argue for 'stepping beyond' into a new construct necessarily need to consider the issue of complexity and limits. As will be argued in this thesis, the history of the rise and fall of civilisations has seen each new society and culture become more complex than its predecessors[70]. Rifkin would suggest that this complexity has been a result of newfound abilities to master more complex and powerful sources of energy. Further, almost concurrent with each new energy regime in the industrial era, there have been paradigm changes in how societies connect (the means of communication and ways of organising), adding even further to the complexity. These new ways of connecting across space and time have not only reframed our spatial awareness: they have increased the number, reach and scope of interactions. The issue is: does this increase in complexity—potentially inherent in Rifkin's Third Industrial Revolution—accelerate rather than solve the issues of unacceptable limits which the revolution is designed to overcome? If it is the former, then the proposed scenario of *Transform* simply ends up as *Collapse,* probably sooner than might have otherwise been the case.

Four questions therefore arise:

- Firstly, are Rifkin's propositions consistent with other contemporary theorists in describing the nature of transformed society, beyond the limits?
- Secondly, can this collaborative, networked society be less complex in terms of its energy and other demands than the current mechanistic construct?
- Thirdly, will the network technologies enable a more sustainable form and shape?
- Finally, can any of the above occur without the emergence of a new philosophical construct?

These questions provide a context in which to situate Rifkin and perspectives on his theorising that emerge from macrohistorical exploration. They also help define the basis for selecting the transformational theorists to be referenced.

---

[69] A. Toffler, *Future Shock*, Random House, 1970; R. Eisler, *The Chalice and the Blade: Our History, Our Future* (1st edn.), Cambridge, MA, Harper & Row, 1987; G. Taylor, *Evolution's Edge: The Coming Collapse and Transformation of Our World*, Gabriola Island, B.C., New Society Publishers, 2008.

[70] J.A. Tainter, (1995), 'Sustainability of Complex Societies', *Futures,* vol. 27, no. 4, pp. 397-407.

Cosmology

Galtung defines cosmology as " a social grammar; one that is embedded in individuals and can be seen as a social program"[71] that in turn frames how connection or relationship is conceptualized. Within this definition the posited Collaborative Age must be characterised as a fundamental change in the way that human beings relate to each other and to the natural environment. In terms of human relations the relationship dynamics would move from vertical to lateral power arrangements and from the privileging of competition as the basis for advantage (however that is defined) to collaboration as the basis for advantage. With respect to the environment the shift is one from a relationship, built upon the false assumption of mastery of nature, to one that is both respectful and constrained by the replacement capacities of the planet. For Rifkin this cosmology is encapsulated in what he terms a planetary empathic consciousness and the opportunities afforded by the Collaborative Commons. At its most fundamental levels it marks a shift from a mechanistic to a biologically networked 'superorganism' cosmology. It is what underpins the (postnormal) ordering of the world considered earlier by Sardar. In this sense the success of the Revolution will be determined by the relational mentality[72] of those that support it and it will be reflected in a different social morphology, episteme and institutional form. On the other hand it is equally possible that changes in form-shape will reframe mentality, or that both might occur in a mutual, self-reinforcing feedback loop. Thus what matters is not really what affects what, but what kind of reality is perceived in re-conceptualisations of time, form and shape.

Reality is not a one-dimensional idea

It is suggested that reality is not a fixed idea, nor is it one-dimensional. This potentially makes consideration of Rifkin's Third Industrial Revolution somewhat problematic. For example there are some who argue that reality is entirely socially constructed.[73] If that is the case then every civilisation, tradition and culture is also socially constructed and without foundation. There is nothing that can be ultimately relied on or that cannot be deconstructed in some way. Within this definition the words, images and the actions of the past have little consequence and all that prevails are the articulated interests of the

[71] J. Galtung, 'Social Cosmology and the Concept of Peace', *Journal of Peace Research,* vol. 18, no. 2, 1981, pp.183-99.
[72] P. Sarkar's neo-humanism suggests an appropriate framing for the kind of relational mentality being posited here: "A post-human model of society where rights are given to all, thus flattening centre-periphery distinctions, creating a world where the self is no longer located strictly in religion, territorial nation or historic race but as part of a co-evolutionary mix of plants, animals other life forms and technologies." Inayatullah, *Situating Sarkar,* 1999, p. 44.
[73] The philosopher Jean Baudrillard took this postmodernist stance to its logical conclusion by arguing that reality is now absorbed into fictionality to create what he terms hyperreality. As quoted in Z. Sardar, *Postmodernism and the Other,* London, Pluto Press, 1998, p. 24.

powerful. However, there are others, including Inayatullah and Ramos, who suggest there are structural layers to reality that, despite diversity in their constitution, have a universal common-ism—a sense of presence or being in touch with reality[74]—that identifies them as part of that layer, and of the structure that emerges from the layer's relationship, one to the other. It is this latter definition that is preferred in this thesis.

Inayatullah has developed a futures oriented methodology known as Causal Layered Analysis (CLA) as a means to comprehend the nature of these structural layers.[75] In summary terms the layers are:

- Litany – commonly held and widely known views about trends and problems, often disconnected one from the other;
- Systems / Context – looks behind and below litany to understand causation and relationships with other issues of a similar class;
- Worldview – mentality or way of thinking that is both generated and informed by systems and litany; and
- Myth and Metaphor – the deep stories and shared archetypes that are often unconscious, emotive and rarely interrogated.

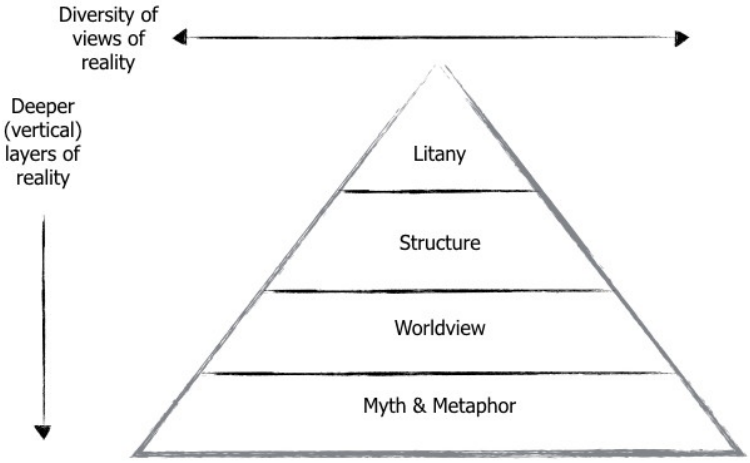


Figure 1.6. Causal Layered Model as developed by S. Inayatullah[76]

As Figure 1.6 illustrates these layers have both horizontal and vertical elements. The vertical elements relate to the causal relationship between the layers. They explore the depth of reality and the "existence of the structures that underlie one's social and cultural

[74] Inayatullah, *Understanding Sarkar,* p. 68.
[75] S. Inayatullah, 'Causal Layered Analysis - Deepening the Future', in *Questioning the future: Methods and Tools for Organizational and Societal Transformation*, Tamkang University Press, 2005/07.
[76] ibid.

existence"[77]. The horizontal elements refer to the diversity or plurality of comprehensions of reality (*presence)* both within layers and between them. There is a consequential tension between the patterns that arise through the interaction of these horizontal and vertical dimensions. These are not tensions that can be resolved through right and wrong or 'proof.' Rather they can only be 'accommodated' through an acceptance of what it is that a person or a group 'understands' is simply just that. However, these tensions can be 'overcome' through the willingness to explore both 'held' and 'possible' understandings that are different from the understandings where the dialogue began. Within this framing CLA is used throughout this thesis as a 'scaffolding' to explore Rifkin's contentions, macrohistorical insights and contemporary assertions.

What is evidence?

For an interrogation of Rifkin, CLA is useful in that it encourages consideration of more nuanced and layered perspectives, of macrohistorical and contemporary theorising, as deconstructed through the units of analysis defined in the macrohistorical framework (Figure 1.3). Further, CLA provides a scaffold through which 'evidence' (that does not always need to be empirical or applied) might be organised and resultant tensions (between the current hegemony, the pretender and emergent possibilities) explored. Therefore firstly some identification of what (layer) is being used 'frames' the kind of 'evidence' that is even possible. Secondly, other viewpoints that are either supportive or consistent with what is being considered give weight, perhaps even depth to a particular understanding. Consequently what emerges from this 'framing' and 'sourcing' is a definition of evidence that is not limited to any particular assertion of 'fact based proof'. For example, Rifkin's contention of a significant energy discontinuity can be seen as either a change in litany (from a macrohistorical perspective) or a change in system (from a contemporary perspective). If it is the former then the systemic shift is a recalibration of accepted senses of time, form and shape: a new morphology. If it is the latter, then the shift in time form and shape aids in developing new worldviews (from vertical to lateral power).

This conceptualisation of evidence is very different from the scientific reductionist definition that many bodies of research privilege. In this thesis what is being considered is ascientific, ahistorical and holistic. It contemplates constructions of evidence that are complex, non linear and potentially contradictory. As an approach it relies on both

[77] *Chapter 2* explores the evolution of the study of social systems and the role of nomothetics and is supportive of the evidential approach suggested here. S. Inayatullah. and I. Milojević, (ed.), *C.L.A., 2.0. Transformations in Theory and Practice*, Tamkang University Press, 2015, p. 28.

macrohistory and CLA for a scaffolding of reference, that forms part of a hermeneutic (interpretive) circle the reader is invited to explore. It is also generally aligned with the methodological approach of World Systems Theory, which contends that rather than "reducing complex situations to simpler variables the effort should be made to complexify and contextualise all so-called simpler variables in order to understand real social situations"[78]. However it also departs from the core premise of Wallerstein's contention that the nation state should be considered as the primary unit of analysis. This is because that entity and its institutions are integral to the constitution of modernity (the market, the state and civil society), which in Rifkin's revolution will undergo considerable modification and will almost certainly not be central in an evidential sense. Again this is not to assert that the nation state has no place, rather that if Rifkin's revolution is to occur then the role of the nation and the nature of its institutions must also be rethought in a post capitalist world. What is being postulated here is that 'evidence' is a slippery word that privileges particular ways of catergorising that are central to modernity and the domination of the powerful over the powerless. Therefore any consideration of Rifkin's theorising (given that it is founded in transformation) needs to explore considerations beyond the framing implied in the evidence of the analytical and the empirical.

Intentions

Given that no research of Rifkin's contentions has been identified,[79] this thesis has four intentions:

- To demonstrate that macrohistory and macrohistorians provide a useful, even preferred, way to explore and understand contentions of revolution and civilisational shift of the kind that Jeremy Rifkin is advocating, as a response to concerns about the limits global society is now facing;
- To provide an intellectually rigorous critique of Rifkin's meta-narratives and their underpinning causes, nature and consequences through both macrohistorical and causal layered enquiry;
- To describe a theoretical framework for the contemporary discourse exploring transformational possibilities, using a 'Causal Layered Analysis' framework,

[78] Wallerstein, *World-Systems Analysis,* p. 19.
[79] There are no known or substantive academic critiques of Jeremy Rifkin's work, with the exception of book reviews and citations. Google Scholar records (as of December 2015) 516 citations for *The Empathic Civilization,* 417 for *The Third Industrial Revolution* and 43 for *The Zero Cost Marginal Society.* Note*: The Zero Marginal Cost Society* was only published recently.

and then situate Rifkin within that framework; and

- To identify some of the design elements that determine the necessary conditions of the shift; from on the one hand, a mechanistic to a distributed society and, on the other, whether Rifkin's Third Industrial Revolution and Collaborative Age constructs consider these design elements.

Because this enquiry is transdisciplinary in nature, there are a number of assertions made that, if the focus was on a particular discipline, would merit further investigation[80]. However, it is not the intention in this thesis to explore some of the deeper questions that Rifkin's work raises (for example various philosophical theories of reality) nor the variety of views about the evolution of historical thought as it relates to definitions of 'revolution', unless such contentions directly relate to the central focus of this enquiry: the nature of the revolution and the emergent Collaborative Age. Every attempt has been made to identify where such exploration is merited but not pursued. In similar vein, many of the emergent features of a Collaborative Age (e.g. the nature of post capitalist society, the evolution of the Internet of Things, diversities in the nature of Collaborative Commons, the spectrum of views in the evolving postmodern/transmodern philosophical construct) are necessarily covered at a summary level in ways consistent with the literature reviewed and the current understanding of what is an evolving field. What is emphasised throughout this thesis is that the central contentions cannot be 'proven,' they can only be understood. Further that in many cases there are multiple understandings available: some in contradiction with the others, often with either both or neither being true, depending on the mentality in which they are located.

The intent of this process is to highlight frameworks and ways of thinking that reveal not just what lies beneath (the systemic shifts Rifkin is proposing), but also the changes in worldviews that emerge from immersions and interactions with different senses of time, form and shape. In contends that very few of the challenges contemporary society confronts can be understood or solved at a litany level and that as alternatives are explored in a deeper way, what Tilly describes as 'superior narratives' will emerge[81]. Finally, it is posited that these new superior narratives necessarily need to do more than simply provide an escape from the limits confronting the current civilisational construct. They need to

[80] The disciplinary scope of this thesis is explored in detail in *Chapter 2*, and *Figure 2.2* provides a conceptual model that links both Rifkin's contentions and the disciplines considered.
[81] C. Tilly, *Stories, Identities, and Political Change*, Lanham, MD, Rowman & Littlefield, 2002, loc. 179, Amazon, (accessed 4 June, 2014).

articulate relational arrangements whereby most can prosper, as few in an interconnected world will accept structural marginalisation as a result of those arrangements.

Thesis Logic

While it is the nature of holistic enquiry that it is possible to start anywhere and go anywhere, every map requires a shared logic to facilitate navigation. As Figure 1.7 illustrates a logic based on both macrohistorical enquiry and contemporary discourse suggests a number of framing, understanding and situational considerations.

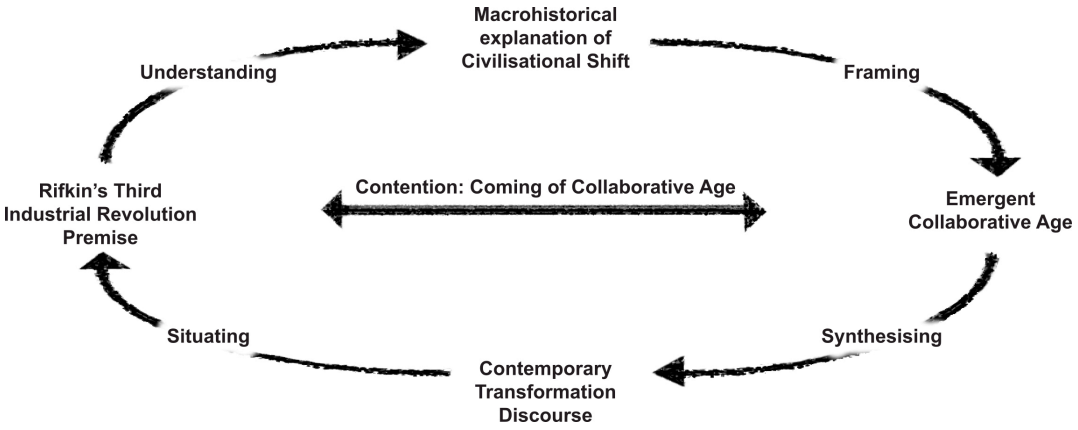


Figure 1.7 Towards a Relational Map for Exploring Contentions of Civilisation Shift.

This relational map suggests why an exploration of 'why macrohistory' and how to understand 'understanding' provides the initial starting point for a detailed examination of Rifkin's collected works, with an emphasis on those works published since 2000 (see Figure 1.8).

Early Works reviewed	**Date Published**
Entropy: Into the Greenhouse World	1980
Time Wars	1987
Beyond Beef: The Rise and fall of the Cattle Culture	1992
Works since 2000	
The End of Work (2nd edition)	2000
The Hydrogen Economy	2002
The European Dream	2004
The Empathic Civilization	2009
The Third Industrial Revolution	2011
The Zero Marginal Cost Society	2014

Figure 1.8 Table showing Rifkin's works used as prime sources in this thesis

This then enables the complexity of Rifkin's contentions to be reconstructed as a series of theories that in turn make macrohistorical consideration of his theorising possible. From this exploration a number of patterns of thought emerge that are then used to situate Rifkin inside what might be characterised as 'the contemporary transformational discourse.' Finally, from this process (Figure 1.9), a number of insights and extensions are developed around the central question of this thesis.

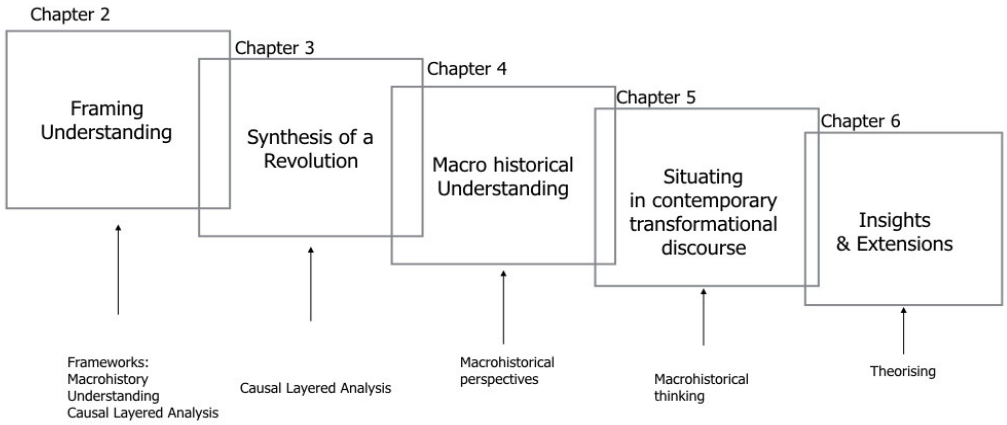


Figure 1.9. Logic map for exploring Rifkin's Third Industrial Revolution and an emerging Collaborative Age.

Therefore *Chapter 2* provides a 'scaffold' for discourse. It frames the heuristic and epistemological challenges that arise from considering Rifkin's collective works and establishes a methodology for a discursive examination of Rifkin's contentions. In doing so, it explores in some detail the transdisciplinary nature of the revolutionary proposition, the inability to situate the same within accepted historical frameworks and the acceptability of Rifkin's metonymical style, one that is distinct in 'voice' from 'disciplinary' academic endeavour which holds to a heuristic objectivity; a premise that under scrutiny cannot be sustained. As a consequence it argues for an alternative framing, without entirely rejecting the value of the disciplines: a 'both' rather than an 'either-or' approach. It extends the argument about 'why macrohistory'; the nature of enquiry required if the macrohistorical framework (Figure 1.3) is used to explore Rifkin's work; and a detailed consideration of nomotheticism, patterns of change and the role of agency in the revolutionary discourse. Finally it examines in more detail the nature of understanding 'understanding' and the use of Causal Layered Analysis (CLA) as a way of deconstructing Rifkin's work and the nature of 'reality' it suggests.

Having established a scaffold for discourse, *Chapter 3* focuses on synthesising Rifkin's assertions of revolution and the nature of the Collaborative Age, using the macrohistorical framework proposed in *Chapter 2*. In doing so it then deconstructs Rifkin's work into seven theories (Figure 1.10) in order to understand both synchronic and diachronic interpretations (important in his conceptions of time) and what particular meanings are privileged. These are then interrogated using CLA and compared with the theorising from a range of macrohistorical and contemporary writers. For example having defined what appear to be the limits in Rifkin's work, it then asks the same question of selected macrohistorians and others. The intent is to establish commonalities, differences, coherences and uncertainties that require consideration if the central contentions are to be sustained. What emerges is a series of core contentions, developed over many works that cumulate in the Third Industrial Revolution and an emergent Collaborative Age premised upon a post capitalist economic construct.

1	Theory of Limits
2	Theory of Discontinuous Change
3	Theory of Industrial Revolution
4	Theory of Empathic Consciousness
5	Theory of Leadership
6	Theory of Post Capitalism
7	Theory of Transformation

Figure 1.10. Summary of Rifkin's collected works deconstructed as a series of theories

Chapter 4 then situates the understandings that have emerged from synthesising and exploring Rifkin's theorisation, as a series of hypotheses, within a wider macrohistorical discourse. In doing so the intent is to deepen the understanding of the nature of revolution, not just as a one off event, but something that has occurred before. It also considers changes in morphology that revolution engenders, before situating the same in the contemporary discourse. In summary these hypotheses are:

- Social systems have limits, and when exhausted, they will change;
- Infrastructure frames mentality;
- Social evolution at a macro level is linear;
- Revolution is conditional on a shift in consciousness and philosophy;
- A Collaborative Age defines new identities and leadership;
- A Collaborative Age will create a new economic reality; and

- The Third Industrial Revolution cannot be characterised as simply an extension of modernism.

What develop from this consideration are (emergent) patterns that help frame an interrogation of Rifkin and the contemporary transformational discourse.

It is asserted that there is a growing body of work focused not just on limits in the current system (the imperative for transformation) but on the nature of the response to those limits (the nature of transformation). Clearly Rifkin is in this category and it is therefore useful to situate his work with other contemporaries before contextualising both through the emergent patterns identified in earlier theorisation. In *Chapter 5,* three broad schools of thought are identified within this discourse (Descent, Technological Optimism and Civilization Transformation). These are defined by the way they characterise response (Toynbee's challenge and response). It is contended that Rifkin belongs to those who consider civilisation transformation as the only appropriate alternative. This Chapter then explores how Rifkin and other 'Transformists' characterise: the dynamics of limits in the contemporary system; the rethinking of infrastructure and space; the post capitalist proposition; the social morphology of a Collaborative Age; the emergence of a postnormal philosophy, and the nature of identity in a 'beyond modernity' future. It argues that there is global cross-disciplinary support for Rifkin's central contentions about limits, revolution actuated by changes in dominant infrastructures, for his Collaborative Age construct and finally for the speed at which transformation must occur.

The final chapter returns to the initial research question detailed at the beginning of this chapter. It looks to synthesise key insights and potential extensions that broadly affirm Rifkin's central tenets. It suggests that as societal tensions increase and the environment degrades, because of limits in the current system, there will be increasing interest in transformational discourse, to avoid confronting the unthinkable consequences of *Collapse*. It uses macrohistory to frame that discourse and considers how some of the deeper issues of reality, made evident through CLA, will be necessary in the design of the pathway forward, as will a 'beyond modernity' conceptualisation of that pathway. It also uses CLA to better understand social revolution of the kind Rifkin advocates through the horizontal and vertical changes it engenders in multiple levels of reality. Finally, it canvases some of the necessary conditions and morphology of a coming Collaborative Age.

CHAPTER 2

FRAMING HOW TO UNDERSTAND RIFKIN

It has already been established that the ideas of Jeremy Rifkin are globally influential and, therefore given the substantive investment they appear to have garnered across the globe, it is important that they are critiqued. However, there are a number of hermeneutical and epistemological challenges in considering: what he posits (content); how he argues (process); and why he advocates (world view). An exploration of these challenges reveals possibilities that, by nature, are both horizontal (that is, they relate to the body of knowledge through which they are considered) and vertical (that is, they relate to considerations of societal systems, weightings and arrangements). The horizontal challenges include the use of macrohistory to explore alternative realities and an understanding of Rifkin's contentions, with other linear or pluralistic models of civilisational theory. Contextualisation of these challenges has been termed by some as 'speculative history' and it is a distinctly different (and recently rejected) sense of history from that discipline-centric approach generally accepted in the Western episteme. The Dutch philosopher Eelco Runia described this process of acceptance and rejection as a time, "when Arnold Toynbee published the last volume of the epitome of speculative history and Karl Popper bullied historians to stick their sources"[82]. The vertical challenges require explanation and exploration of paradigmatic systemic effects; consequences for the construction of identity and worldviews; and finally, articulation of overarching narratives that emerge from constructions of how events were shaped and how any given society or culture was, in turn, shaped by them.[83]

As the figure overleaf suggests, this chapter 'frames' the way in which an enquiry of Rifkin's work might be undertaken. It asserts that unless care is taken to establish how that

[82] E. Runia, *Moved by the Past: Discontinuity and Historical Mutation,* (European Perspectives), New York, Columbia University Press, 2014, loc. 3594, Amazon (accessed 30 June, 2014).
[83] Tilly, *Stories, Identities, and Political Change,* loc. 1013.

enquiry is done, the understandings that emerge will reflect the tacit assumptions and implicit mythologies upon which the enquiry is built. If that were to be the case then other possibilities may remain unexplored and the process compromised accordingly. Given that Rifkin's intent is for a planetary revolution, it would also mitigate the voices of the other; 'those who are not"; whose prescribed futures are frequently determined by the praxis modernity privileges.

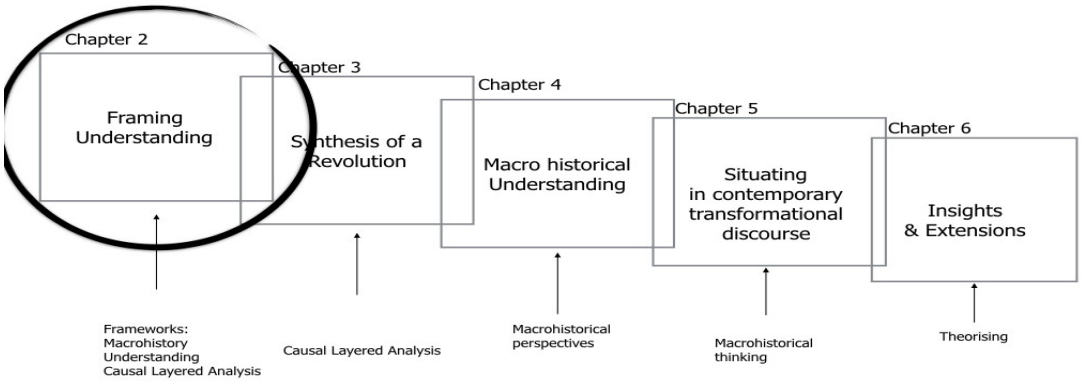


Figure 2.1 Showing Chapter 2 within the overall thesis architecture

Without losing the focus of this thesis, what should emerge is a range of understandings that might be characterised as *rhizomic* (that is, connected in multiple decentralised relationships, in the same way rhizomic plants are) rather than aborescent, (tree like with an organised root and branch hierarchy)[84]. As Bussey suggests, understandings should constitute a conceptual map from which "new stories and connections emerge and then destabilize [as] a map of potentiality"[85]. The only caveat to this mapping process, in the context of this thesis, is that it must include features and characteristics that play a central and constitutive part in understanding the Third Industrial Revolutionary forces at play, as Rifkin defines them and how their embodiment will effect both societal and individual constructions of identity in a post revolutionary Collaborative Age. This conceptualisation of understanding has important interpretation implicative for how this word is used in the principal research question of this thesis.

However, this chapter will firstly canvas why there appears to be no substantive academic study of Rifkin's theorising to date. It will suggest that Rifkin's notions of revolution are

[84] G. Deleuze & F. Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia,* Minneapolis, University of Minnesota Press, 1987.
[85] M. Bussey, 'CLA as Process: Mapping the Theoretical Practice of the Multiple', *Journal of Future Studies*, vol. 18, 2014, p. 53.

different from those that dominate the event-based precepts of the conventional historical discourse, and it will argue that this disciplinary lens is insufficient as the lens through which to theorise Rifkin. It will then contend that Rifkin's style of narrative and his explicit presence as a narrator exhibits many of the characteristics that Tilly describes as present in what he terms 'superior stories'[86]. In contrast, most contemporary academic writing with is preference for 'objectivity' might be characterised by this definition as either 'standard' or 'contextualised' narratives; a distinction that has, at least until recently, served as a means of self selecting or defining what constitutes an academic field of study. It therefore follows that this different framework needs to be articulated in a manner that will assist with both interrogation and understanding of Rifkins considerations, which have characteristics that traverse multiple fields of study and are thus multidisciplinary or perhaps even transdisciplinary in nature.

Secondly it will propose that the synthesis and exploration of Rifkin's contentions of revolution and civilisation transformation through a macrohistorical lens provides a means to frame these multiple understandings via access to a significant body of macrohistorical work that has also considered issues similar to those Rifkin has confronted. Having defined macrohistory, it will then suggest how it can be used to frame, synthesise and explore Rifkin's work, before outlining why the works of a particular but diverse group of macrohistorians will be used as reference points in understanding the Third Industrial Revolution.

Thirdly, the chapter will seek to demonstrate the significant and perhaps deeper insights that emerge when viewed through multiple ways of understanding; ways, that extend our sense of the Deluzian rhizomic map[87], beyond the conventional privileging of empirical or applied approaches. It will look to provide taxonomy for these multiple ways of understanding and what the benefits and challenges are of each approach.

Finally, it will argue that the concept of Causal layered Analysis (CLA) and the use of the postmodernist tools of CLA help situate Rifkin's work, within a broader discourse on contemporary transformational change.

---

[86] Tilly, *Stories, Identities, and Political Change*, loc. 1001.

[87] "The rhizome pertains to a map that must be produced, constructed, a map that is always detachable, connected, reversible, modifiable and has multiple entry ways and exits and its own lines of flight." From Deleuze & Guattari (*A Thousand Plateaus* 1987) as quoted in M. Bussey, 'Six Shamanic Concepts: Charting the between in Futures Work', *Foresight,* vol. 11, no. 2, 2009, p. 33.

A Question of Style?

As has already been asserted there appears to be no substantive academic critique of Rifkin's fundamental contentions. This is surprising given that he explicitly challenges economic theory, business management and the contextualisation of environmentalism. For example in *The Third Industrial Revolution* he states

> In the last several years as more and more business scholls around the world have rushed to introduce ecological considerations into the curriculum and have started to pay greater attention to the centrality of energy-related concerns and climate change, they have attempted to do so under the auspices of classical and neo-classical economic theory, whose operating assumptions are at odds with the laws of thermodynamics[88].

An examination of why this might be so helps in determining the hermeneutical approaches that might be preferred in framing an exploration of a Third Industrial Revolution and the Collaborative Age.

This examination centers around three premises:

- Rifkin's theorising of revolution is distinctly different from the 'event based' constructs that engage most conventional historians and social science theorists, and therefore, is not history as it is conventionally understood, nor is it within the accepted definition of macro sociology.
- Rifkin's published works have a nature and a style that is not in the academic 'voice.'
- Rifkin's notions of Revolution and a new Collaborative Age are transdisciplinary, or even uni-disciplinary[89] in nature, and consequently sit outside the accepted boundaries of (other than history) traditional disciplines, thus making his views difficult to critique.

Prior to examining each of these propositions, it is useful to note that Jeremy Rifkin holds a degree in Economics from the Wharton School at the University of Pennsylvania and a degree in International Affairs from the Fletcher School of Law at Tufts University. From 1995 - 2010 he was a (non-tenured) Senior Lecturer in the Wharton School Advanced Management program and is also a (non-tenured) Senior Lecturer in its Executive Education Program. He has spoken at over 300 Universities over four continents and has

[88] Rifkin, *The Third Industrial Revolution*, p. 198
[89] The term uni-disciplinary is used to convey the sense of a seamless fusion of knowledge and thinking whereas in some readings 'transdisciplinary' privileges 'the discipline' as the basis of framing.

been an adviser to a number of European Union Presidents and Asian Heads of State[90]. As a result it is difficult to assert that the academic community has been 'unaware' of his assertions.

Can Rifkin be theorised through a conventional history lens?

An initial ambition of this thesis is to define the lens, or lenses, through which Rifkin's work might be understood and interrogated. Given its focus on revolution and civilisational shift, the first inclination is that it might be theorised through history. However, what this thesis posits is that history as it is currently articulated is not sufficient, and that a more transdisciplinary approach is required.

It is important to note that it is only in modern times that 'discipline based' approaches to intellectual debate have been privileged. Some of this is a reaction; a way of coping with the sheer volume of information and knowledge both created and available[91]. But this coping mechanism of 'disciplines' is also a reflection of the mechanistic ethos that has dominated 20th century Western thought. Immanuel Wallenstein, in *the Introduction to World Systems Analysis*, notes that until the 18th century only two schools of study existed inside the faculties of philosophy: science and arts. Further he contends the cultures that emerged from these schools "were at war with each other, each insisting that it was the only or at least the best way to obtain knowledge"[92]. Following this bifurcation, he then details how the arts divided again into specialities. This included the social sciences, the oldest of which is history. As it evolved, its desire to adopt the mantle of the detached observer saw it distinguish subject and object. This more scientific history, as Ranke suggests, should be written *wie es eigentlich gewesen* (as it really did happen)[93]. Thus history, at least in the Western, even Euro-centric, episteme aligned itself with the dominant 20th century meme.

Three important issues emerge from what Toynbee called this "academic dismemberment of the vast subject (the study of human affairs) into 'disciplines,' a convenient and perhaps

[90] Office of Jeremy Rifkin, *About Jeremy Rifkin,* [online], 2005, http://foet.org/JeremyRifkin.htm , (accessed Sept. 2, 2014).
[91] While the dynamics of acceleration (a doubling every few weeks) and their impact on scholarship and other forms of knowledge creation are well known. R. Kurzweil, *The Law of Accelerating Returns*, KurzweilAI, [online], 2001. Wajcman reminds us that such claims are "situated and contingent and that there is a need to be aware of the 'god trick' in such claims". J. Wajcman, *Pressed for Time: the Acceleration of Life in Digital Capitalism,* Chicago, The University of Chicago Press, 2015, loc. 453, Amazon (accessed 24 October 2015).
[92] Wallerstein, *World-Systems Analysis,* p. 2.
[93] ibid., p. 5.

unavoidable educational device, but it is an arbitrary and surgical operation"[94]. The first is that the value of more holistic thinking, often common in other epistemes and in pre-Enlightenment scholarship, was lost sight of. The second is that that the scientific ethos that underpins the mechanistic worldview privileges study that is ostensibly objective. Third, this assumption of objectivity obscures the interpretive role that the subject in question, the writer and the reader have in the hermeneutic circle[95]. This notion of the interpretive circle suggests that understanding and meaning are part of the lived experience; everything is filtered or conditioned by our sense of being; what Heidegger terms *dasein*[96], and Runia defines as *presence*[97].

The privileging of styles that discount the nature of the hermeneutic circle and espouse 'academic objectivity' has underpinned much of what is defined as modern history. In the process, as Runia suggests, the discipline of history has shunned big narratives and speculation in favour of what it believes is little, if any, interaction between historians and their objects. If there is interaction, then it is surely Kantian in its construction[98]. In this reading Rifkin's work can only be assessed through a 'history' lens if that lens is hermeneutically objective—which it is not—and if it eschews meaning—which it doesn't.

Further, this interest in creating a 'scientific reality,' based on interpretations of proof, and mostly anchored in, and organised around, key events, characterises what is generally considered in history as 'revolutionary theory.' The American historian Goldstone, in canvassing the field, argued that the simple state and class based conception of revolutions no longer seems adequate and that a broader definition was required, as "the study of revolutions has blossomed into a multifaceted exploration of a panoply of diverse events"[99]. However, the new definition offered (re)describes revolution as "an effort to transform political institutions and justification for authority accompanied by mobilizations and actions that undermine existing authority"[100]. Thus the event is still privileged, and these events-based epistemological roots are evident, not just in historical enquiry, but also in contemporary macro-sociological explorations, including Wallenstein's *World Systems Theory* and Sanderson's *Evolutionary Materialism*. In *World Systems Theory* there are

[94] Toynbee, 'Reconsiderations', p. 8.
[95] M. Tappan, 'Interpretive Psychology: Stories, Circles and Understanding Lived Experiences', *Journal of Social Sciences*, vol. 53, 1997, pp. 645-56.
[96] Heidegger's conceptualisation of dasein—our sense of existence—is explored extensively in Paul Ricoeur, *Time and Narrative*, vol. 1, Chicago, University of Chicago Press, 1984.
[97] Runia, *Moved by the Past,* loc. 1148.
[98] ibid., loc. 1092.
[99] J. Goldstone , 'Towards a Fourth Generation of Revolutionary Theory', p. 139.
[100] ibid., p. 142.

explicit links in the evolution of capitalism to the French Revolution, the European revolutions of 1848 and the mostly student uprisings of 1968[101]. Therefore as Tilly also concludes 'the event' with its connotations of place, time and subject is the basic unit of analysis for historians (and revolution) [102].

If this definition is to hold then revolution occurs as a consequence of specific agents acting in particular ways to control and transform political institutions. Further, other kinds of change that are not event specific (cultural, technological, environmental and scientific) fall outside of this definition. But that is not to suggest these recordings of events lack narrative. In most cases they do and therefore as narratives they have within them both interpretation and meaning, be that implicit or explicit. The philosopher Ricoeur would suggest that often 'events' are privileged because they link us to a world of action, thus providing "stories that come from the language of doing something and the cultural typology from which proceeds the typology of plots"[103]. In other words, what Ricouer is arguing is that every description of an event is in itself an emplotment or story; something that is an interpretation, a search for meaning through the nature of particular events themselves (e.g. the role of the French Guillotine in the Reign of Terror 1793-94); the selection of events presented and the way that the reader herself interprets them. Revolutionary history under this definition is the narrative of a set of selected events defined in a way, as Goldstone might argue, to have particular and somewhat complementary characteristics.

If this definition is accepted as a defining characteristic of modern revolutionary theory then Rifkin's work cannot be accepted as revolutionary as it is not anchored in specific events. Nor does it appear to sit comfortably within the modern re-conception of macro sociology, as in general these reconceptualisations situate the individual at the core of the process. For example, Wallenstein argues: "the actor is the individual, *homo rationalis"* or for the Marxist, "the industrial proletariat"[104]. Sanderson and Alderson posit: "only individuals can be the units of adaptation as societies do not have consciousness"[105]. Einstadt suggests Weberian-influenced modernity entails "a very strong emphasis on the autonomous participation of members of society in the constitution of the social and

[101] Wallerstein, *World-Systems Analysis,* p. 17.
[102] Tilly, 'As Sociology Meets History', p. 31.
[103] Ricoeur, *Time and Narrative*, vol. 1, p. 37.
[104] Wallerstein, *World-Systems Analysis,* p. 21.
[105] S. Sanderson & A. Alderson., *World Societies: The Evolution of Human Social Life*, Boston, Pearson, 2005, p. 29.

political order"[106]. Thus, not only is the event privileged, so too is agency. More importantly, as narratives they can only make sense through the logic of continuity. This difference is a clear distinction in the way Rifkin problematises revolutionary shift, where the focus is on discontinuity rather than continuity.

Two things emerge from this difference. The first is that potentially the disciplinary constraints of history—or for that matter any of the other social sciences—are in themselves insufficient to consider the breadth of Rifkin's contentions. The second is that the way Rifkin uses the term 'revolution' must be theorised in a manner that lies outside of conventional characterisations; ways that permit speculation and look to find meaning in the exploration of discontinuity, rather than continuity. Such theorising restores what Runia terms 'speculative history,' or what others have defined as macrohistory, to a legitimate role. Arnasson describes this restoration as follows:

> If a new global civilization has emerged or is in the making, comparison with the diverse civilizations of the recent as well as the more remote past would be essential to proper understanding of this unprecedented phenomenon. The same applies to visions of a more radical discontinuity and a post-civilizational condition[107].

This search for meaning through macrohistory suggests an alternative to the subject/object preference that is core to the Western academic model. It posits that there are considerations of agency in every part of the hermeneutic circle. Accordingly, understanding emerges, in part from the interaction of the actors and the stories they create rather than from any one actor themselves, and in part from an over-interest in discontinuity, albeit only insofar as it legitimates the assumption of a continuity of history[108].

Is Rifkin's narrative appropriately academic?

All of Rifkin's writings position him as an explicit advocate narrator in whatever is being postulated. While his work is always impeccably referenced, this strong presence, and the privileging by some of an academic convention of critical objectivity, might be argued as a lack of intellectual rigour. This perception may be reinforced through his considerable use of metonymy in his work[109] (again explicitly inserting meaning into the process) and, as

[106] S. Eisenstadt, 'Multiple Modernities', *Daedalus,* vol. 129, 2000, pp.1-28.
[107] J. Árnason, 'Civilizations in Dispute : Historical Questions and Theoretical Traditions', *International comparative social studies,* Leiden, Boston, Brill, 2003, p. xi.
[108] P. Ricoeur, *Time and Narrative*, vol. 3, [online text] Chicago, London, University of Chicago Press, 1988, loc. 4929, Amazon, (accessed 7 September 2014).
[109] For example in *The Zero Marginal Cost Society* he describes the emerging Collaborative Age as "a sustainable cornucopia." Rifkin, *The Zero Marginal Cost Society,* p. 273.

has been already stated, to his obvious role in the hermeneutic circle. However the contention is that Rifkin's style is closer to what Tilly describes as 'superior stories', while most comparable academic work, until recently, is closer to what he terms 'standard stories'[110]. It is further being argued that theorising through one approach in no way obviates the acceptability of theorising through the other.

Even so, Ricoeur argues in *Time and Narrative* that all literary work is essentially narrative and that ultimately all history has a narrative character. "Moreover that were this not so it would lose its place in the chorus of social sciences. It would cease to be historical"[111]. I would argue that his logic for a narrative of history could equally be applied to the social sciences. If this is the case then all literary work, be it defined as academic or otherwise, is a story: a narrative of some kind. All that is at stake is what kind of narrative it is.

As has been asserted, Tilly suggests that these narratives are overwhelmingly what he terms 'standard stories', and that the majority of historians and social scientists are of the view "that nothing accessible to analysis exists beyond the limits of the standard stories that participants in social processes tell"[112]. He defines a standard story as:

> ...the process by which people recount, analyse, judge, remember and reorganise experiences (ideas, documented facts) in which a small number of self motivated entities interact within a constricted, contiguous time and space. [113]

Within this definition Tilly raises two concerns. The first is that those who are on the path to seeking more (enlightenment) initially substitute one standard story for another. In other words standard stories compete with each other and are either accepted or discarded on the basis of intelligibility. Secondly "the actual causal structure of social processes usually contradicts the logical and causal structure of standard stories"[114]. To obviate this what is required are superior stories. Such stories include a valid causal account; they accurately represent the cause and effect; they provide an effective means of connecting the narrative with times, places, actors and actions outside its purview and above all they offer means of relating such causes that are indirect, incremental, interactive, unintended collective and/or mediated by the nonhuman environment[115].

[110] Tilly, *Stories, Identities, and Political Change* loc. 344.
[111] Ricoeur, *Time and Narrative,* vol. 1, p. 94.
[112] Tilly, *Stories, Identities, and Political Change,* loc. 1711.
[113] ibid., loc. 335.
[114] ibid., loc. 378.
[115] ibid., loc. 1016.

In most conventional academic discourse the focus to date has been on the study of artefacts, documents and theory which (in the case of history) describes the past and (in the case of social sciences) explores the near term past or the present. However, a number of recent works have exhibited considerable disquiet about what Wallenstein terms the empiricism of historians who were, by and large, suspicious of large-scale generalisations, and the scientific basis of the 'confusion of disciplines' we now call the social sciences[116]. Thus, the emphasis has been on 'disciplined' approaches that as far as possible are free from bias, with the exception of the bias of the theories that are central to their thesis.

The disquiet of the empiricists about speculative forms of 'historical story telling' is perhaps most evident in the long and sustained attacks on Arnold Toynbee. While acknowledging his classical scholarship, one of his most trenchant critics Pieter Geyl, in *Toynbee the Prophet,* argues that his thinking is "revolutionary, 'metaphysical' in the sense in which Burke used the word, 'abstract.' To my view this is as much as to say unhistorical" and "what I criticise and oppose is, first of all the pretence of an empirical investigation"[117]. More recent reviews are more sympathetic, noting that, as the interest in civilisations as a form of identity and cohesion has increased and the power of the nation state has waned, "the wheel has turned and Toynbee's categories and the defining characteristics may well prove instructive"[118].

However, a few historians including Hobsbawn and Braudel have long supported Toynbee's view that history can be seen and analysed as a whole and that it has characteristics beyond agency. Hobsbawm posits "it has a structure and a pattern which are human society's story of evolution over a long period of time[119]. Braudel supports this view. He argued that it is necessary to go beyond chronological narratives that are too busy to see the wood for the trees. Rather, and perhaps echoing Toynbee, he suggests the need is to understand the movements below the surface; the foundations or underlying structures of civilisations[120].

What both Hobsbawm and Braudel are asserting is that civilisational history, as distinct from event based civilisational history, conforms to certain patterns. In this view the study

[116] This line of logic is developed throughout *Chapter 1* of Wallerstein, *World-Systems Analysis : An Introduction*.with an explicit reference to 'confusion' on p. 11.
[117] P. Geyl, 'Toynbee the Prophet', *Journal of the History of Ideas,* vol. 16, no. 2, 1955, p. 260.
[118] Navari, 'Arnold Toynbee (1889-1975)' on p. 289.
[119] E. Hobsbawm & A. Polito, *On the Edge of the New Century*, New York, New Press, 2000, p. 5.
[120] F. Braudel, *A History of Civilizations*, New York, N.Y., A. Lane, 1994, p. 381.

of civilisations and revolutions is in part nomothetic in nature, that is, it conforms to certain generalised patterns or laws. In contrast, most conventional history and related social sciences is idiographic. It focuses primarily on autobiographical narratives or in-depth studies which favour agency as the dominant actor. Therefore, what is suggested here is that there is an alternative framework for considering revolutionary and civilisational shift; one that goes beyond the narrative of events. Further, although this approach has until recently been 'out of fashion', it is supported by a body of theory that starts with a different premise; one that is more appropriate for the non event based Third Industrial Revolution central to Rifkin's thesis.

Others at first glance are seemingly able to bridge the apparent divide between chronological narrative of events and facts and the holistic imperatives advocated by Toynbee and others. For example, the influence of the scientific approach is clearly evident in the work of Pitirim Sorokin[121]. Critics maintain:

> [H]is formulation of a frame of reference of sociology and its application in various special sociologies provides a foundation for professional sociology that is broad in its scope and powerful in its analytic potential, for it encompasses a trinity of personality, society and culture[122].

Yet for Sorokin himself this was not sufficient. In his *Review of his Critics,* he argues that other systems of truth and knowledge exist, and that more integral systems, beyond simply the empirical, are required. These would include "not only rational, sensory and intuitive knowledge of rational-sensory realities but also the cognition of 'suprasensory and supranational' forms of reality – the knowledge called 'no-knowledge' by the Taoist sages"[123]. Thus what Sorokin alerts us to is the 'beyond' space of realities that are other than scientific.

The issue, therefore, is epistemic. It is about understanding the context in which 'knowledge' is situated; what Foucault described as the total set of realities, in any given period, that frame discourse practices, epistemological figures, sciences and possibly formalised systems[124]. Consideration of the nature of any given civilisation (and its

[121] Sorokin's works typically have extensive tables that demonstrate spatial or mechanical adjacency, indirect associations through common external factors, or causal functional integration. The logic for this categorisation is defined in Sorokin, *Social and Cultural Dynamics* at pp. 4-5.The tables on Determinism and Indeterminism at pp. 362-364 are illustrative of his scientific analytical style.
[122] V. Jefferies, 'Pitirim A Sorokin's Integralism and Public Sociology', *The American Sociologist,* vol. 36, no. 3/4 2005, pp. 66-87 p. 68.
[123] Jefferies, 'Pitirim A Sorokin's Integralism and Public Sociology', p. 70.
[124] Extract of Foucault's Archeology of Knowledge from A. Gill & S. Foss, 'Michel Foucault's Theory of Rhetoric or Epsiteme', *The Western Journal of Speech Communication,* vol. 51, Fall 1987, p. 386.

continuation or demise) will neccessarily be 'interpreted' through the sense of reality (mentality) that surrounds the narrator. For example, the father of the 'paradigm shift' Thomas Kuhn, a mathematician and physicist, contextualised his theory of scientific revolution within a mid 20th century reality that believed its scientific achievements (including atomic science) were the basis of a modern economy; a superior way of living to all that had come before it. In Kuhn's view this occurred because the "the community rejected one time honoured scientific theory in favour of another incompatible with it"[125]. In this episteme not only is Kuhn privileging the industrial worldview within a historical narrative of science, he is also expressly repudiating knowledge from any other culture or tradition at the same time, thus expressly advocating a divide between modernism and the Other.

Rifkin, in his theorising, whilst sympathetic to the scientific evolutionary narrative, seems closely aligned with those who reach beyond the constraints of the empirical that lie at the center of Kuhn's view. He also clearly inserts himself, particularly through his use of metonymy and metaphor, as a dramatic narrator, one that, as Ricoeur observes:

> ...whether reliable or unreliable, permits variation in the distance between the implied author and his characters… a complexity that is the source of the readers freedom in the face of authority that the fiction receives from its author[126].

However, as a narrator and within his narrative, Rifkin—arguably because of the sheer breadth of the ideas under consideration—has a locus that is, at the very least, multidisciplinary, possibly transdisciplinary and potentially unidisciplinary.

This unidisciplinary approach together with the extensive use of metonymy and metaphor sits in tension with the preference for the apparent objectiveness that characterises much academic writing. In contrast Rifkin's work is rich in metaphor. Two examples (and there are many) illustrate this well. The first is the title of Chapter 9 of *The Third Industrial Revolution* "Morphing from the Industrial to the Collaborative Era"[127]. Here the language of ecology—'morphing'—is preferred over the potentially still mechanistic word 'changing', and later the use of 'collaborative' as a counterpoint to 'industrial' carries with it the implication that collaboration is not naturally part of a society, which he argues is characterised by industrious behaviour[128]. The second, Chapter 5 of *The Zero Cost*

[125] T. Kuhn, *The Structure of Scientifc Revolutions* (Inernational Encyclopaedia of Unified Science 2), Chicago, University of Chicago Press, 1970, p. 6.
[126] Ricoeur, *Time and Narrative*, vol. 3, loc. 3808.
[127] Rifkin, *The Third Industrial Revolution,* p. 259.
[128] ibid., p. 69.

Marginal Society, itself an interesting metanomical phrase, is titled "Extreme Productivity, the Internet of Things and Free Energy"[129]. Again, the language, whilst justified and explained in some detail, not just in this work, but also in others, clearly privileges what is being prosecuted over the continuation of the Second Industrial Age.

One might argue that the sheer number of metaphors and a stylistic bias towards narrative makes Rifkin's assertions less 'academically rigorous.' On the other hand, if one accepts Tilly's view that:

> [S]tories may closely correspond to the way that human brains, store, retrieve and manipulate information about social processes," and therefore "teaching superior stories and having the capacity to detect and criticize inferior stories, amply serves enlightenment[130], [then]

Rifkin's narrative therefore exists in a 'tension of *time.'* Consequently while he is suggesting an explicit rejection of the present, he must also make himself intelligible to those in that present in order that they may see what is required. In that sense, if he succeeds, he is the "contemporary who perceiving the darkness of the present, grasp a light that can never reach its destiny. He is also capable of dividing and interpolating time, is capable of transforming it and putting it in relation with other times"[131].

Conceptualising the unidisciplinary lens

Thus far the intent has been to establish that whatever lens is used to understand Rifkin it must, at a very minimum, be sympathetic to the (multiple) senses of time he considers in framing his 'non event' revoutionary and civilisational argument, and it must allow hermeneutical approaches consistent with modern textual interpretation of this nature. Further, it must be consistent with the objects of his work, and those central to this thesis; namely the notions of revolution and civilisational shift. Finally it is through an exploration of this latter consideration that an appropriate methodological scope can be defined and understandings explored.

The process of trying to establish an intellectual framework and methodology and then applying the same suggests that the nature of the research problem of this thesis and methodology are inextricably intertwined. As Toynbee opines[132], and this thesis will argue,

[129] Rifkin, *The Zero Marginal Cost Society,* loc. 785.
[130] Tilly, *Stories, Identities, and Political Change*, loc. 1049
[131] 'What is the Contemporary?' in G. Agamben, *"What Is an Apparatus?" And Other Essays*, Stanford, California Stanford University Press, 2009, p. 53.
[132] Toynbee, 'Reconsiderations', p. 9.

the lack of a widely understood and appropriate methodology, through which to interrogate Rifkin and other transformational theorists, is a fundamental barrier not just to the acceptance of their published work but to the articulation of narrative, concepts and the potential changes to the societal form and shape they espouse. This barrier makes even defining appropriate methodological questions problematic.

Therefore the critical intention of this thesis is the development of an alternative framework that is capable of accommodating many disciplines without compromising explorations of the united whole. This 'transdisciplinary' and unidisciplinary endeavour, is necessary to understand and explore Rifkin's theory of revolution, the emergence of a Collaborative Age, or for that matter any other theory of civilisation shift.

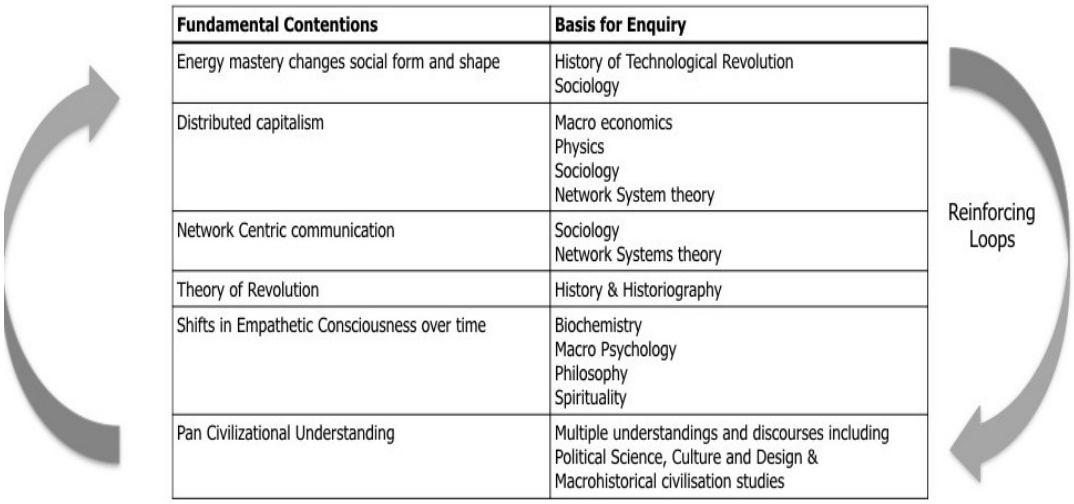
Consequently this framework must be inclusive of the many 'disciplines' that Rifkin's work considers and draws upon and thus must include the following:

- Given Rifkin's insistence that 'energy mastery' is the elemental force and the medium upon which all human culture is built, the history of physics, sociology and perhaps anthropology are fundamental. Any critique must also be able to provide a perspective on his energy based technological determinism[133];
- As an economist, notions of distributed capitalism are important in Rifkin's earlier works. His more recent works suggest the end of capitalism as we understand it, and an evolution toward collaborative commons[134]. Thus both macroeconomic and economic history is necessary for, and contributes to, enquiry;
- Unwanted and unanticipated entropic effects underpin much of Rifkin's case for change. Rifkin describes the result of these effects as "that critical point where the matter-energy of the planet will be so depleted that there will be little time left to restore a measure of ecological balance for the continuation of life"[135]. In this regard both physics and sustainability science assist with consideration;
- In like manner, analysis of Rifkin suggests reference to network systems

[133] "To fully contemplate why civilizations built on different energy regimes rise and fall, we need to understand the rules that govern energy." J. Rifkin, *The Hydrogen Economy: The Creation of the Worldwide Energy Web and the Redistribution of Power on Earth*, New York, J.P. Tarcher/Putnam, 2002, p. 42.
[134] Rifkin, *The Third Industrial Revolution.*
[135] Rifkin, *The Zero Marginal Cost Society, p.* 83.

theory is required, as he argues that the very nature of communications is reframing the dynamics of social space in a profound way[136];

- Finally, he asserts that the required transformative shift is not possible unless there is an 'empathic' shift, or a new global consciousness. His concern is to resolve the tension between our rush to universal empathic connectivity on the one hand, and "a rapidly accelerating entropic juggernaut in the form of climate change and the proliferation of weapons of mass destruction"[137] on the other. This argument for a consciousness shift suggests that psychological, philosophical, neurological[138], and perhaps spiritual, issues must also be taken into consideration. In essence, the knowledge base required to explore the Rifkin thesis needs to move across the boundaries of many disciplines, and given its pan civilisational scope, multiple ways of understanding, that include both Western and non-Western worldviews.



Fundamental Contentions	Basis for Enquiry
Energy mastery changes social form and shape	History of Technological Revolution Sociology
Distributed capitalism	Macro economics Physics Sociology Network System theory
Network Centric communication	Sociology Network Systems theory
Theory of Revolution	History & Historiography
Shifts in Empathetic Consciousness over time	Biochemistry Macro Psychology Philosophy Spirituality
Pan Civilizational Understanding	Multiple understandings and discourses including Political Science, Culture and Design & Macrohistorical civilisation studies

Figure 2.2 . Rifkin's fundamental contentions and traditional (disciple) fields of enquiry

At first glance this analysis suggests the approach to Rifkin's work should be multi-disciplinary. While this will be the case and, as will be shown later in this thesis, his major premises are entirely consistent with the disciplines on which any particular assertion might rest, this is not sufficient. Many interesting questions arise in the intersections between knowledge systems and therefore the lens, in order for it to be holistic, must go beyond the multidisciplinary to the transdisciplinary.

[136] J. Rifkin & T. Howard, *Entropy : Into the Greenhouse World* (Rev. edn.), New York, Bantam Books, 1989. p. 537
[137] Rifkin, *The Empathic Civilization,* p. 616.
[138] The Italian neuroscientist, Rizzolatti is one of a number who explores the close link between empathy (or lack thereof) and mirror neurons. Available at http://www.robotcub.org/misc/papers/06_Rizzolatti_Craighero.pdf (accessed September 3, 2015).

As the psychologist Stokols posits transdisciplinary approaches extend beyond notions of multidisciplinarity Stokol describes multidisciplinarity as where researchers work either independently or sequentially from their own perspective. Whereas in transdiciplinary enquiry research works to a model where intellectual integrations across multiple fields yield shared conceptual formations that move beyond disciplinary perspectives. This transdisciplinarity imperative, it has been argued, stems from the knowledge demands of the knowledge society where a better understanding of, and solutions to, concrete real life issues functions as an external driver for transgressing disciplinary boundaries[139]. Unidisciplinary activity though requires frameworks with the facility to link knowledge systems at a meso level, thus allowing an exploration of ways of knowing that privilege more than the applied, empirical and comparative methodologies that dominate the scientific mindset. These include the study of shifting patterns, civilisational evolution, changes in form and space over time and system shift. It is this last difficult activity that is central to macrohistory and macrohistorians.

Macrohistory and transdisciplinary thinking

The quest to appreciate Rifkin's contentions in an intellectually rigorous way provided the starting point for this thesis proposal. Initially it was problematic to define what might be appropriate units of analysis, because as Galtung and Inayatullah remind us as "there is only one world, we have no comparative, not to mention interactive world histories"[140]. Therefore we cannot, at a macro level, examine it through the lens of another world for better understanding. Hence we are faced with the challenge of testing a hypothesis that cannot be 'proven' within the conventions that dominate accepted scientific enquiry.

However, finding meaning in the foundations can still be problematic. As the contemporary philosopher Hilary Putnam points out:

> [T]he extension of our terms depends upon the actual nature of the particular things that serve as paradigms, and this actual nature is not, in general, fully known to the speaker. Traditional semantic theory leaves out two contributions to the determination of reference - the contribution of society and the contribution of the real world; a better semantic theory must encompass both.[141]

To counter this Putnam showed that one could mentally create a 'twin earth' in order to

[139] D. Stokols, 'Towards a Science of Transdiscipliary Action Research', *Am. J. Community Psychology,* vol. 38, 2006, p. 28.
[140] Galtung and Inayatullah, *'Macrohistory and Macrohistorians'*.
[141] Putnam, 'Meaning and Reference', p. 711.

explore the nature of meaning and reference[142]. Buckminster Fuller used a similar device in *An Operating Manual for Spaceship Earth*[143]. What Putnam suggests is that it is possible to hold open the mental space, to consider multiple (perhaps paradoxical) realities in order to make visible patterns and different senses of meaning that are not readily available if the space is conventionally defined.

To engage with Putnam's comparative mental space and as was suggested in the introduction, this thesis argues that the collective body of knowledge known as 'macrohistory' provides an intellectual architecture that considers (multiple) system conditions through which Rifkin's revolution can be referenced. . In other words it is argues that in its compass, it is beyond 'events based history, it is unitary in its approach to knowledge and finally it is focused on civilisational or macro-cultural shift depending on the units of analysis being used.

Inayatullah defines macrohistory as: 'the study of the histories of social systems, along separate trajectories (Galtung's term) through (long) space and time, in search of patterns, even laws of social change. Macrohistory is thus nomothetic and diachronic"[144]. As has already been established, it is not ideographic and therefore has the potential to frame conversations that escape the tyranny and myopia of the here and now, a particularly potent form of 'waking consciousness' in the Western tradition[145]. In this regard macrohistory can be distinguished from the work of Wallenstein, Sanderson and Perez in that it takes into its purview considerations where the fundamental unit of analysis is the individual. Thus the attention of macrohistory is on what the Russian-American macrohistorian Pitirim Sorokin described as socio-cultural systems as going concerns; systems that by their nature cannot help but change[146]. Galtung goes further. He suggests the macrohistorical approach explores patterns of change, even laws (hence nomotheticism), at a level "...where the singularity of nations and our conventional definition of leadership is rendered invisible, as they are washed out by the tide of forces and mechanisms"[147]. In sum, while the macrohistorians are concerned with the rise and fall of civilisations, and the patterns that may or may not cause this, each has their own theory of how this might occur. What is therefore considered is a range of possibilities, not a

[142] ibid.
[143] R. Fuller, *Operating Manual for Spaceship Earth*, Carbondale, Southern Illinois University Press, 1969, p. 5.
[144] Inayatullah, 'Macrohistory and Futures Studies', p. 381.
[145] Galtung and Inayatullah, *Macrohistory and Macrohistorians*, p. 13.
[146] Sorokin, *Social & Cultural Dynamics,* p. 635.
[147] Galtung & Inayatullah*, 'Macrohistory and Macrohistorians : Perspectives on Individual, Social, and Civilizational Change'.*

'right answer.' That is, it is not empirical truth at issue, but insight.

What emerges from these explorations of how great transformations have occurred across civilisations is their contemplation of what occurs next. As suggested earlier this 'next' almost always is in tension with the interests of the dominant hegemony. In Gramscian terms this hegemony is not just ethno-political it is "...also economic. [It] must necessarily be based on the decisive function (benefits in the here and now) exercised by the leading group in the decisive nucleus of economic activity"[148]. Given that Rifkin's notions of a Third Industrial Revolution explicitly explore this confrontation with the dominant Western-centric eco-political model and what a 'next normal' might look like, macrohistory with its whole of system focus provides a useful framing for exploring how such tensions are confronted and resolved.

Some macrohistorians including Ibn Khaldun, P.B Sarkar, Pitirim Sorokin, Oswald Spengler and Arnold Toynbee have explored this 'beyond' space where multiple major confrontations have resulted in what is often termed civilisation shift. It is this group that will be used as the primary source for exploring Rifkin's contentions about the nature of revolution and the societal construct that emerges from such revolution. Indeed for Spengler and Sorokin in particular, confrontation with existing but unacceptable conditions, and advocacy of both why it must decay and what might replace those conditions, is a prime motivation for their work. Spengler suggests that in current conditions, when money is celebrating its last victories, we will need to do "...what is necessary [to change into a new culture] or to do nothing. A task that historic necessity has set will be accomplished with the individual or against him"[149]. Sorokin described this 'next normal' as a time where humankind not only needs to control itself and its lusts [sic], but as a time where it must replace them with eternal values of culture and society [sic], with a deep feeling for our unique responsibility in this universe [sic][150].

Hence an interesting paradox emerges. On the one hand the transformations the macrohistorians describe and Rifkin contemplates are nomothetic, the subject of forces almost beyond conscious agency. The change in societal form and shape as a result of energy transitions is a prime example. On the other hand, as Spengler and Sorokin contend,

[148] A. Gramsci. & D. Forgacs, *The Gramsci Reader: Selected Writings, 1916-1935*, New York, New York University Press, 2000, p. 212.
[149] Spengler, *The Decline of the West,* p. 415.
[150] Sorokin, *Social & Cultural Dynamics,* p. 628.

human action or inaction defines future evolution if the transition does not occur quickly enough. It is this concern about the rate of change and the ability of agents to effect the pace, that Rifkin reflects in his works, and is certainly suggested by others[151]. As a consequence, agency (ideography) in both its sociological and philosophical senses is also central to the idea of contemporary civilisational shift.

In sum, it is posited that macrohistory provides both a framework for synthesis and interrogation. It provides a useful conceptual framework and theoretical construct for the consideration of transformational change and revolution and has an intellectually rich literary tradition across epistemes. In accommodating the notion of transdisciplinary approaches without negating the value of the disciplines themselves, it also provides a mechanism for the situating of Rifkin's work within contemporary transformational discourse. I also note that in more recent times writers, like Diamond[152], Eisler[153] and Polak[154] have drawn on this body of work, to contemplate possibilities or new narratives 'beyond the limits' of contemporary normative structures.

The Macrohistorical Framework

The focus of this thesis is to explore multiple perspectives of Jeremy Rifkin's Third Industrial Revolution and the shift to a Collaborative Age. It is suggested that the process of interacting with the sheer volume and complexity of the ideas of Rifkin, macrohistorians and others who consider transformational ideas, can be greatly aided through the adoption of a framework that assists, firstly to synthesise, and then categorise these same ideas, without compromising the way they act upon each other.

Inayatullah proposed a useful construct when synthesising the work of twenty significant macrohistorians[155]. He identified, as Figure 2.3 illustrates, ten factors for such synthesis. These factors enable a focus on a range of perspectives to be considered independently of the others, or alternatively, through their connectedness considered by how they relate to each other. While it is not being argued that Rifkin is a macrohistorian per se, and that is

[151] Both Spengler, *The Decline of the West,* and Rifkin, *The Zero Marginal Cost Society,* elaborate on this in some detail.
[152] E.R. Ehrlich. and A.H. Ehrlich, 'Can a Collapse of Global Civilization Be Avoided?', *Proc Biol Sci*, no. 280, 2013.
[153] J. Martin, *The Meaning of the 21st Century: A Vital Blueprint for Ensuring Our Future*, New York, Riverhead Books, 2006.
[154] J.M. Diamond, *Collapse: How Societies Choose to Fail or Succeed*, New York, Penguin Books, 2011.
[155] Inayatullah in Galtung & Inayatullah*, Macrohistory and Macrohistorians,* p. 161.

not his focus, it is proposed that having defined these factors, they be used to synthesise and explore Rifkin's work and accesses the perspectives of other macrohistorians. In defining the key elements of the framework and for the sake of clarity, single rather than multiple references have been used to substantiate key claims. Further where appropriate, examples have been drawn from Rifkin's work to demonstrate the logic of the framework and the epistemological challenges that its use raises for this thesis.

1	Episteme and context of macrohistory and macrohistorians
2	Causes and mechanisms of change
3	Stages of history and patterns of change
4	Metaphysical choices and the role of the transcendental
5	Units of analysis and their weights or role in creating change
6	Metaphors used to illustrate theory
7	Role of Vanguard of Change (Who will create the new order?)
8	Exists and escapes from theoretical constructs
9	Perspectives on the future
10	Perspectives on historiography

Figure 2.3 Inayatullah's factors for understanding Macrohistories and Macrohistorians

Episteme and Context

The *what*, the *where* and the *when* influence all who write or advocate either existing or new ideas. This is in part contingent on the experiences that frame the writer's view of the world and the way they organise knowledge. As a long time "activist weaned on the anti-Vietnam war and civil rights movement of the 1960's"[156] and as a Professor in Economics at the Wharton Business School, Rifkin is no exception.

Rifkin understands the role of epistemic bias. He is conscious that he writes, not only within the Western episteme, but also within a US-centric view of that episteme[157]. In surfacing that bias[158], he asserts that modern human society, mostly dominated by Western values, and defined by its use of technology and the way that it accesses resources, is finding itself caught between ways of perceiving reality[159]. For Rifkin, one of those

[156] Rifkin, *The Third Industrial Revolution,* p. 11.
[157] *The European Dream* focuses on the very different worldviews of the Europeans and the US and his view of the consequences for both. J. Rifkin, *The European Dream: How Europe's Vision of the Future Is Quietly Eclipsing the American Dream*, New York, Jeremy P. Tarcher/Penguin, 2004.
[158] Rifkin, *The Hydrogen Economy, p.* 7.
[159] Rifkin, *The European Dream*, p. 3.

realities reveals that contemporary global societies are confronting a set of environmental and energy limits which make 'business as usual' unacceptable[160]. Thus for Rifkin, the notion of unacceptable limits and consequences in the current reality together with the need to provide an alternative narrative, as an escape from those limits, frames what is privileged. One of the most important explorations in this thesis is about the tension between the episteme and context of the Mechanistic Age and the emergent episteme of the Distributed or Collaborative Age.

Causes and mechanisms of change

All macrohistorians have a theory of what causes change and how that change manifests itself in the systems it effects. Further, whether that change has a linear, a cyclical or a spiral orientation has important relational implications (and tensions) between the existing system and the one seeking to replace it. For example, for Karl Marx the causes of change are both linear and structural. They revolve around conflict and control over the material forces of production[161]. For others who privilege more cyclical theories, change is 'immanent' to the cycle in which they occur. The Chinese chronicler Ssu-Ma Ch'ien (145-90 BCE for example, under the influence of Confucianism *yin* and *yang* suggested "the underlying order of change (was) a cyclical succession of eras proceeding in an order of growth and decay, rise and fall"[162]. Sarkar, on the other hand, sees the broad pattern of historical evolution as a spiral, where the laws of growth and decay cannot be explained in terms of a single cause[163]. Rather, it is how evolution emerges from the interplay of choices and consciousness; from between the spiritual and the philosophical. Hence "we should not forget even for a single moment that this whole inanimate world is a large joint family in which nature has not assigned any property to any particular individual"[164].

These orientation differentiations are important when considering the transformation that the Third Industrial Revolution proposes. If a linear view is accepted then the revolution will retain many facets of the current construct, while reinventing those elements that are not sustainable. Such a view sits well with contemporary notions of progress. On the other hand, if a cyclical view is privileged then a much more fundamental, far-reaching and

[160] ibid., p. 83.
[161] It should be noted that this particular interpretation of Marx is one privileged by the 20th century. The Latin theorist Dussel argues that this is a misreading of Marx, one prosecuted by Engels after Marx's death. E. Dussel, 'The Four Drafts of Capital: Toward a New Interpretation of the Dialectical Thought of Marx', *Rethinking Marxism*, vol. 13, no. 1, 2001, pp. 10-26.
[162] Inayatullah in Galtung and Inayatullah, *Macrohistory and Macrohistorians,* p. 15.
[163] R. Batra in Fitzgerald & Inayatullah, *Transcending Boundaries, p. 45*
[164] Inayatullah in *Situating Sarkar,* p.51

disruptive transformation needs to occur as the current system and its rules for success decay. However, if the premise of a spiral is accepted then the entire way reality is considered is reframed, and the centricity of agency is diminished. Both the cycle and the spiral advance the suggestion that there are others ways of seeing and knowing beyond those privileged in the Western episteme.

The cyclical–linear distinction has important implications for the narrative of the Third Industrial Revolution and the nature of the 'creative minority' it attracts. As has already been outlined, the fundamental contention of the Third Industrial Revolution is that transformational societal change occurs when there is a significant and discontinuous shift in the form and distribution of energy, together with advances in (technology enabled) communications. These 'advances' radically reframe the form and shape of all social, economic and political activity and the institutions and behaviours that characterise them[165]. If these are nomothetic then the envisaged rapid shift (revolution) occurs, despite the opposition of those with vested interests. Hence suggested explicit linkage exists between certain kinds of changes (e.g. the introduction of a new energy system) and dramatic shifts in any given society's sense of itself (time arrangement and space).

If the change is linear—and one might argue that it is, given that the tipping point of entropic effects represents an historical inflexion point that has never before confronted humanity—then what we can learn from the patterns of the past, which might constitute that future, remains uncertain. The concern lies in embedding into future systems the same immanent conditions that have problematised the current system. If, on the other hand, the change is cyclical (or a spiral, or a pendulum), then it is possible to develop mitigation strategies for undesirable elements inherent in such systems before they occur, thus ensuring a more harmonious transition.

Finally, in exploring causes of change this thesis will look to establish three things. Firstly, are these 'causes', considered by either macrohistorians or other contemporary theorists, prime mechanisms of change (inflexion points)? Secondly, how might such inflexion points be understood through both linear and cyclical perspectives? Thirdly, what understandings might be gained from contextualising Rifkin within this 'causes of change' thought?

[165] Rifkin, *The Empathic Civilization,* p. 181.

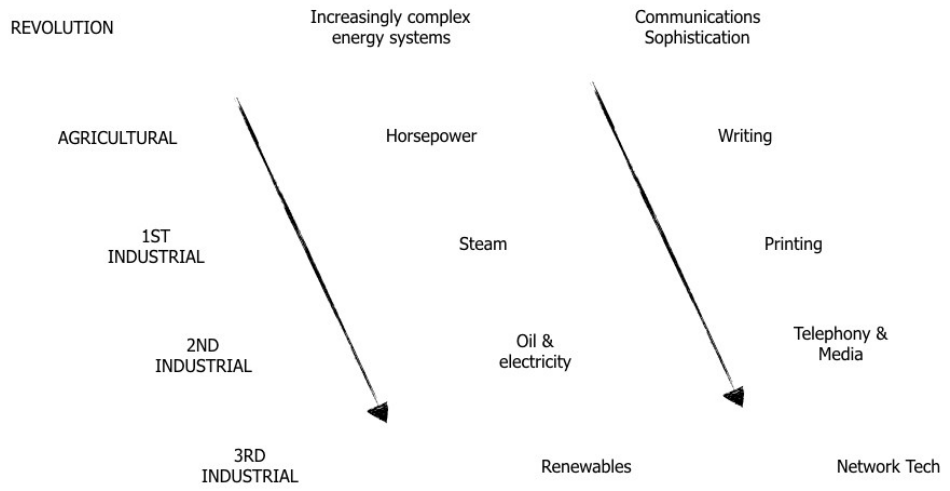


Figure 2.4 Showing Rifkin's Stages of History as a linear evolution

Stages of History

If these causes are discontinuous with the direction of a particular society (Kuhn's paradigm shift) then a rupture in accepted social and economic patterns might be both expected and evident. Depending on its nature and scale, this rupture might be described as either 'event' or 'non-event' based revolution. What emerges as the form and shape of political, social and economic arrangements from such revolutionary transitions can be defined as stages of history. Characterising stages is important in terms of thinking about the past, present and the future, for as Inayatullah suggests, "...without stages and patterns, time becomes muted and change invisible"[166].

In Rifkin's view, and consistent with 'the mechanisms (causes) of change,' human history can be broadly divided into four linear revolutions. These are: the Agro or Hydraulic revolution (horsepower, water and writing); the First Industrial Revolution (steam and printing); the Second Industrial Revolution (oil, electricity and telephony); and an emergent Third Industrial Revolution (renewables and networking technologies)[167]. While in Rifkin's terms the concept of non-event based revolution and the idea of civilisational shift constitute the same thing, this thesis will examine how selected macrohistorians treat both ideas, and how this transition is considered within the contemporary transformational discourse.

[166] Galtung and Inayatullah*, Macrohistory and Macrohistorians,* p. 160.
[167] Rifkin details each of these stages in Rifkin, *The Empathic Civilization,* Ch. 6-10

Metaphysical Choices and the Role of the Transcendent

Consideration of the metaphysical and the role of the transcendent introduces the argument that non-event based revolution has inner as well as outer dimensions. It suggests that metaphysical choice – what is immutable and what is not, is vital in understanding both macrohistorical thinking and the notion of civilisational shift. Indeed for some, like Khaldun the corrupting influence of what he terms sedentary living: "...where being accustomed to luxury and success in worldly occupations and to indulgence in worldly desires...makes remote the ways and means of goodness"[168] erodes the vital and necessary shared spiritual belief and philosophy. This erosion lies at the heart of a loss of social resilience or *asabiya*. Seen through this lens, the consigning of the metaphysical, and for that matter the philosophical, to the sidelines of optional personal belief has been a defining characteristic of late stage Western society. The question that needs to be asked is: does it matter to the Third Industrial Revolution? Khaldun would suggest the answer is potentially 'yes', as the originators of the Third Industrial Revolution become the vested interests of tomorrow and the resistors of revolutions to come at some more distant future time.

While Rifkin writes sympathetically about the role of the spiritual and its influence on issues such as oil[169], and in US notions of individualism[170], his primary advocacy is philosophical rather than spiritual. He argues that humanity needs to 'transcend' or go beyond its current or historical knowledge and its 'experienced' consciousness. This, he suggests, is a necessary condition for 'revolutionary shift.' Further, such a shift will require a shift of emphasis from "...the quantity and worth of one's possessions to the quality and meaning of one's relationships—or quality of life—and this requires a change in both spatial and temporal orientation..." and the failure to re-orient will trap humanity into the ultimate failure of agency; a world of incoherent and disconnected relationships, pulling us in a myriad of directions so that the "...authentic self with knowable characteristics recedes from view"[171].

For Rifkin, consideration of the metaphysical is therefore intertwined with the notion of limits and our knowledge of thermodynamics. These considerations demand that we reframe our notions of self (or empathic consciousness) and our relationship with the

[168] Ibn Khaldun, *The Muqaddimah,* vol 2. p. 297.
[169] Rifkin, *The Hydrogen Economy,* pp. 91-116.
[170] Rifkin, *The European Dream,* pp. 109-17.
[171] Rifkin, *The Empathic Civilization,* p. 591.

planet. For Rifkin, the failure to factor increasingly evident and unwanted entropic effects (the second law of thermodynamics) into our mechanistic social and economic construct underpins his theory of limits. He posits:

> [I]f we borrow against nature's reserves at a rate that is faster than the biosphere can recycle the waste and replenish the stock, the accumulated entropic debt will eventually collapse whatever economic regime is harnessing its resources[172].

He suggests that contemporary society needs to go further. "If a quality of life society were to become the norm, we might finally be able to break out of the dialectic of history, by which increasing empathy inevitably leads to increasing entropy"[173]. It should be noted that Rifkin's concerns about limits is reflected in the work of many outside the sustainability movement. The peer-to-peer theorists Kostakis and Bauwens, for instance, argue that "[I]ndustrial capitalism considers nature to be a perpetually abundant source; that is, it is based on the false notion of material abundance in a finite world"[174].

This escape from the 'planetary entropic abyss' Rifkin contends will not occur unless global society reframes or goes beyond its current, individual-centric (psychological), empathic consciousness. Instead, a new biosphere consciousness is required, "which may be the only context encompassing enough to unite the human race"[175]. Rifkin argues that this is possible through a natural evolution of how consciousness is framed by our sense of time, knowledge and space, enabled by forms of communication. However, he warns that global communications without any real transcendent purpose risk a "narrowing, rather than an expanding, of human consciousness"[176].

For Rifkin, concerns about entropy and his advocacy of a biosphere consciousness determine metaphysical choices. For some, including, he argues, his fellow Americans, this will require a rethinking of some of the conventional social wisdoms, particularly the unfettered right to individual freedom; what he describes as a 'death culture' at odds with coexistence inside planetary limits[177]. This 'death culture' theory reflects the 'Gaia Hypothesis' of the British scientist James Lovelock. Lovelock postulates that organisms of all kinds interact with their inorganic surroundings to create a self-sustaining complex

[172] Rifkin, *The Third Industrial Revolution,* p. 199.
[173] Rifkin, *The Empathic Civilization,* p. 591.
[174] V. Kostakis & M. Bauwens, *Network Society and Future Scenarios for a Collaborative Economy*, Palgrave Pivot, Basingstoke, Palgrave Macmillan, 2014, loc. 226, Amazon (accessed 7 December 2014).
[175] Rifkin, *The Empathic Civilization,* p. 594.
[176] ibid.
[177] ibid., p. 379.

system that provides the narrow set of conditions for human beings to thrive[178]. Consequently as Rifkin perceives it, what is required is a 'transcension' of a philosophical consciousness that supports the unacceptable intertwining of unsustainable economics and geopolitical institutional arrangements. This transcendence, though, should be distinguished from that of 'beyond discourse' theorists who argue "for a spiritual knowledge interest, one that de-legitimizes rationalistic qua modernity modes of knowledge as well as intellectual qua mind ways of knowing"[179].

Units of Analysis and their role in change

It is difficult, perhaps almost impossible, to make sense of 'stages of history' and 'causes of change' unless they are anchored in space and time. This process of anchoring requires attention, as metonymical senses of time have been captured within the 'disciplinary techniques' that underpin the industrial model or Age of Progress paradigm[180]. They privilege certain units of analysis and ways of change, including the idea that everything has a linear causal link. In the Western discourse time been reduced to "a resource with both a use and an exchange value"[181]. However, an understanding of how a society defines, and on occasion co-opts, senses of time and space for its own use underpins, and indeed is central to, any units of analysis that may be employed. These in turn define the conceptual nature of the change in question (circular v linear for instance). What this means is that "time –space distanciation as a measure of a society's 'stretching over time' entails a prior understanding of time as a quantitative measure and as a boundary within which life is enacted"[182]. How time and space are considered therefore frames, even defines, the design and configuration of dominant social, economic and institutional forms of either existing or historical societies. Hence these interpretations of time and space, as implicit and 'agreed' anchor points, determine both the units of analysis that might be used and the way that change is considered.

In Rifkin's analysis, the development of increasingly complex energy systems and communication technologies, by definition, redefine our sense of space and time and stimulate the revolutionary process that is triggered by their adoption and use[183]. Therefore for Rifkin, the units of analysis are in the first instance technological, linear and

[178] Rifkin, *The Empathic Civilization,* p. 379.
[179] Rifkin, *The European Dream*.
[180] M. Foucault., *Concerning 'Discipline and Punish; the Birth of the Prison System',* Part 1 [online audio file], 1983, available at https://www.youtube.com/watch?v=Xk9ulS76PW8 (accessed 14 June, 2014).
[181] B. Adam, *Time and Social Theory*, Oxford, Polity, 1990, p.117.
[182] ibid., p. 119.
[183] Rifkin, *The Empathic Civilization,* p. 613.

discontinuous. It should also be noted they don't extend, in a futures sense, beyond a discussion of the medium term effects of the Third Industrial Revolution.

However as has already been stated, this technology-centric approach is linked to changes (again linear) in our sense of consciousness, and the economic and cultural activities that derive from the exercise of that consciousness. Because this is driven by our empathic 'sense of space,' Rifkin's units of analysis go beyond mere technological change to economic and cultural change as well.

What emerges from this integration of anchor points is a narrative that reframes economic and social activity across space and time. Thus hunter-gatherers defined their world through a mythological consciousness and the Agricultural or Agro-Hydraulic Revolution was framed by a theological consciousness. The First Industrial Revolution ushered in an Age of Progress and its emphasis on the primacy of the individual drove an ideological consciousness. The Second Industrial Revolution, with its consumerism orientation, fed a psychological (sense of self) consciousness. Finally the Third Industrial Revolution requires a dramaturgical (relationship/connected orientation) biosphere consciousness to step beyond the entropic effects and limits of the Second Industrial Revolution[184].

AGE	CONSCIOUSNESS
Hunter/Gatherer	Mythological
Hydrological Age	Theological
1st Industrial Age	Ideological
2nd Industrial Age	Psychological
3rd Industrial (Collaborative) Age	Dramaturgical (Biosphere)

Figure 2.5 J. Rifkin's evolution of Empathic Consciousness

Vanguards and Leadership

The issue of leadership and the actuality of practical change is a major focus in contemporary society. It is also important in most revolutionary theory. The role of the working class in the works of Marx or Mao, or the collective advantage that group spirit

[184] ibid., p. 554.

(*asabiya*) provides desert-based Bedouin Kings in the work of Ibn Khaldun[185], illustrate the interest in the who, how and why of vanguards and leadership.

Rifkin postulates that there are different kinds of foresightful leaders widely dispersed within the established public and private order, all of who have critical change roles. For him, this group comprises not only politicians who are prepared to see the big picture, but scientists and social entrepreneurs whose technologies align with the story he is trying to weave[186]. However, a third group also feature strongly in his vanguard. This group comprises 'prosumers' and investor capitalists, who understand the 'distributed' economy and are able to take advantage of the opportunity it provides. In the process they are creating "an emerging cultural narrative that will democratise everything" and as a consequence they will manifest the unfolding economic clash with conventional capital[187].

Rifkin's leaders therefore are activists and opportunists; classless in Marxist terms. If they can be characterised at all they would be described as technocrats. Toynbee argues that these leaders are a 'creative minority' that moves from trying to solve the problems in the current civilisation to working, often in isolation, on the problems of the future[188]. In Rifkin's Collaborative Age, this Toynbee definition describes a shift from focusing on 'what works' and positional power to one of 'what will work' or network-based power. However if one accepts the views of the digital culture theorist Andrew Keen, this to network power doesn't necessarily equate to a democratic power. Keen argues the dominance of social media companies, participating in the largest legal wealth creation engine on the planet, "represent an aggressive expansion of capitalism into our personal relationships"[189]. Moreover this expansion reflects a winner-take-all approach to monopolistic behaviour, led by a small group of multi-billionaire plutocrats who have designed and own the middleware at the core of many Web 2.0 offerings. In the process there has been "a change in the form of power, from a top-down to a recursive, circular structure," where the power of the middleware providers as a symbiosis of human and computer intelligence increases every time we use it[190]. In Keen's view the concentration of power and leadership remains as it was. It has only changed in form, not substance.

---

[185] Ibn Khaldun, *The Muqaddimah,* pp. 261-63.
[186] Rifkin, *The Third Industrial Revolution,* p. 188.
[187] Rifkin, *The Zero Marginal Cost Society,* p. 173.
[188] Toynbee, *A Study of History,* vol. 1, p. 515.
[189] A. Keen, *The Internet Is Not the Answer : Why the Internet Has Been an Economic, Political and Cultural Disaster - and How It Can Be Transformed,* London, Atlantic Books, 2015, loc. 1142.
[190] A. Keen, *The Internet Is Not the Answer,* loc. 955.

What Keen presents is an alternative narrative to that articulated by Rifkin and digital technology theorists Kevin Kelly[191] and Don Tapscott[192]. They argue that the nature of the internet, its decentralised architecture and low barriers to entry represent a fundamental break from the mechanistic economic order of the 20th century. Four interesting leadership questions emerge from this apparent dichotomy. Firstly, does the presence of these middleware monopolists negate—or even usurp—the democratised design of the new network platforms? Secondly, can their power and the use of that power, outweigh the influence of the change leaders that Rifkin posits are widely distributed throughout the social order? Thirdly, does this new form of power mean that Rifkin's Third Industrial Revolution is simply an illusion, or to put it into Google-speak, an 'unrevolution'? In other words is the exercise and control of power the determinant of revolution? Finally, is the notion of the network revolution simply a sum of the technologies that underpin it and the actors that control those technologies, or is it a construct that goes beyond the artefacts through which we normally define our understanding of the network?

Futures, Exits and Escapes

Considerations about how the future is constructed—be it predictive, empirical or critical—raises interesting questions for the Rifkin thesis. Are we trapped, as Nandy suggests, within a utopian vision without an escape clause, where having once entered the utopia (of the Third Industrial Revolution) there is no escape from it[193]? Or alternatively, are there conditions under which that might occur? Sarkar, for example, suggests that Sadvipra (spiritual intellectuals) can transform the world by leading paths not confined to the cycle[194]. Is his contention, almost by definition, that Sadvipra are able to exist, within a plurality of truths? What, if any, are the consequences of not accepting such plurality? Is there any place for interpretation, dialogue and dissent? Finally, can our thinking about Rifkin's considerations of exits and escapes be informed by how macrohistorians have treated the same subject?

It is clear in all Rifkin's writings that there is a predictive but dystopic exit from the Third Industrial Revolution. This option (if it can be described in those terms) emerges from his Theory of Limits and can only unfold in one of two ways. Rifkin argues that the 'entropic

[191] K. Kelly & G. Hayes, *Leading in Turbulent Times*, (1st edn)., Harlow, England, New York, Pearson Financial Times/Prentice Hall, 2010.
[192] D. Tapscott & A. Williams, *Macrowikinomics: Rebooting Business and the World*, New York, Portfolio/Penguin, 2010.
[193] A. Nandi, *Traditions, Tyranny and Utopias*, New Delhi, Oxford University Press, 1987, p. 2.
[194] Inayatullah, *Understanding Sarkar,* p. 51.

bill' from ever-increasing complexity in our global scaffolding threatens our extinction. Humanity therefore needs to sculpt or design a new approach to globalisation through the use of 'evenly distributed' renewable energies[195]. However, given that energy transitions can often take up to 40 years—that which has been defined as the Kondratiev wave[196]—the global community must begin the transition now or otherwise the entropic effects of a system that tests planetary limits will, in all likelihood, lead to unconscionable 'planetary collapse.' Essentially only two plausible scenarios emerge from this dystopia: *Transform* or *Collapse*, on the proviso that the former occurs in a timely manner. While he is not precise on the exact timing, by inference he, like Dator[197], argues that the process must start now and be largely in place by mid century. If the dystopian option is set aside, the future that Rifkin articulates is a complex mix of the predictive, the interpretative and the critical; a mix that has preoccupied macrohistorians as they have developed their theories of change.

The near term future, as Rifkin articulates it, will be fundamentally determined by humanity's response to *Transform or Collapse*. In that sense the future is known, rather than unknown, and as such might be described as predictive. The question, though, arises: is this predictive future exclusive or is it merely a scaffold for something else? If it is the former then Rifkin would have in Gramscian terms "succeeded in introducing a new morality in conformity with a new conception of the world, one finished by introducing the conception as well; in other words one (has) determined a reform of the whole of philosophy"[198]. As the synthesis of Rifkin's work shows in *Chapter 3* he falls well short of articulating a complete alternative philosophical position (I believe), although he does argue some elements of it in relation to his views of an expanded consciousness . If that is the case then Rifkin's normative future is simply a scaffold: an architecture that encourages plurality of design and interpretation.

Rifkin's later works, including *The Empathic Civilization*, might also be read as a search for meaning. Rifkin constantly worries about who might gain and who might lose. He worries that as hundreds of millions have become "part of a global floating diaspora and the world itself is being transformed into a universal public square",[199] the cosmopolitan

[195] Rifkin, *The Empathic Civilization,* p. 614.
[196] Y. V. Yakovets, *The Kondratieff's Waves and Cyclic. Dynamics of the Economy and Wars: Theory and Prospects*, IOS Press, 2006.
[197] Dator, 'The Unholy Trinity Plus One', *Journal of Future Studies,* vol. 13, no. 3, pp. 33-48.
[198] Gramsci & Forgacs, *The Gramsci Reader*, p. 192.
[199] Rifkin, *The Empathic Civilization,* p. 425.

effects it engenders: "make individuals more rather than less likely to be the beneficiary of a disproportionate amount of the earth's energy and resources"[200]. Thus what is meant by gain and loss remains unresolved in some of Rifkin's thinking, as does the proposition that any successful migration to a future, beyond entropic limits will require an architecture that is less complex in its 'resource' demands than what currently exists.

Historiography

Finally, those that consider the sweep of history always have a method of thinking about history. This sense of inner meaning is known as historiography. It explores what is implicit as well as what is explicit. Ibn Khaldun, for instance, defined historiography "as an attempt to get at the truth, subtle explanation of the causes and origins of existing things, and deep knowledge of the how and why of events. History is therefore firmly rooted in philosophy"[201].

Four ideas dominate Rifkin's historiography: challenge and response; economism; technological determinism; and the power of discontinuity. Challenge and response, in the way Toynbee characterises it, is at the heart of all Rifkin's work. Indeed, one might argue, he elevates challenge and response to a level where it is not just a moral question for humanity; it is necessary for continued human existence. The challenge is for humans not just to constrain their over-consumption of the earth's ecological capital but to use of renewable ecological resources in such a way that the other species on which the entire renewable system depends (to function) can continue to flourish. Secondly, Rifkin assumes that as the revolution takes effect, the benefits that have been derived from the current economic order can be carried through this next revolution by shifting from an economy of scarcity to an economy of sustainable abundance[202]. This can be achieved through the wise deployment of new technologies. Consequently there is a strong technology-centric determinism that runs throughout his work. Finally, his works have a strong current of optimistic advocacy that springs from the advantages of discontinuity. All of this combines into a metanarrative for a revolution that delays the entropic consequences of industrial economism: one that is accelerated by a new biosphere consciousness.

[200] ibid., p. 432.
[201] Ibn Khaldun, *The Muqaddimah,* vol. 2, p. 297.
[202] Rifkin, *The Zero Marginal Cost Society,* p. 275.

However from a historiographical perspective, Rifkin's interpretation of revolution, as has already been articulated, places his work outside of contemporary historical discourse. It renders invisible, even irrelevant, the concerns and activities of various actors so central to historical revolutionary theory. Accordingly, it demands a different framing as the basis for understanding, and as this thesis contends, it suggests macrohistory as the basis of that framing. Thus an initial interrogation of Rifkin's Third Industrial Revolution, from a historiographical perspective, highlights the need to explore deeper discourses that are at odds with the views that:

> …have all but been made trivial by new technologies and techniques, creating a postmodern world where the future has arrived, making history and the idea of the future as the space of another possibility, another culture, all but obsolete[203].

Understanding 'Understanding'

The principles of macrohistory and the perspectives of those who write it provide the basis for a rich alternative discourse; one not bound by the conventions of the dominant analytical and discipline focused, worldview. If, as Inayatullah suggests, "in applying a theory of history to history itself, one inevitably selects those events and trends, those patterns that fit into one's pre-understanding"[204], some kind of mechanism is required to escape the conventions those patterns impose and to explore considerations outside both explicit and tacit mentalities. Indeed one might argue that the development of new narratives and understandings, freed from the constraints of mechanistic, reductionist and siloed thinking, are integral to the notion of a Collaborative Age construct. Inayatullah proposes understanding should allow possibility that "disturbs power relations by making problematic our categories and evoking other phases or scenarios of the future"[205]. Consistent with these views, Inayatullah in his essay *'Understanding understandings*,' proposes at least eight lenses through which understanding may occur (see Figure 2.6, overleaf). Each of these is briefly described with an explicit link to Rifkin's theorisation.

Accepting that applied and empirical approaches are those most often privileged in the Western discourse, one might expect these to be the lenses through which Rifkin's work is interrogated. As it is not logically possible to prove notions of revolution or civilisation shift, this thesis will contend that comparative, translational, framing (systemic),

[203] Inayatullah, *Situating Sarkar,* p. 101.
[204] ibid., p. 137.
[205] Inayatullah, *Causal Layered Analysis,* p. 3.

phenomenological, transmodern/structuralist and 'beyond discourse' approaches should be preferred.

APPROACH	METHOD	BENEFIT	CHALLENGES
Applied	Apply theory to reality	Brings new readings	Intrinsically selects patterns that fit pre-understandings
Empirical	Determination of operational definitions	Finding reliable data & disproving alternate theories	Assumes an extra- linguistic reality that can be talked about
Comparative	Structured comparison across categories	Useful if taxonomy is developed which helps frame context	Ahistorical – does not reveal units of analysis, structure of categories chosen
Translational	Translate into alternative traditions.	Makes information available to other linguistic communities, through hermeneutics might discover various meaning	Problems with discursive practices. Nature of values and structures may obscure structure of perspectives and categories
Framing	Frame through systems theory – see through the eyes of various disciplines	Powerful for complexity and inter-relatedness Highlights flows in sub systems	Each discipline privileges a certain discourse Assumes what is considered to be the natural state
Phenomenological	How the writer and the ideas constitute their world	Move from interpretation to immersion in the construct (inside out) thus revealing meaning through that lens	Does not problematise the construct itself – does not allow for comparison.
Postmodern/ Structuralist	What world views are privileged, how are ideas and real constructed	Epistemologically rich Helps define what is being strived for Larger structure for critical enquiry	Inarticulate in terms of language concerning power structures Highly complex in language
Beyond Discourse	Ensures spiritual not reduced to relative	Focuses on other ways of knowing Subject/Object duality no longer exists	Goes beyond privileging the intellect

Figure 2.6 Eight lens for understanding Understanding as proposed by Inayatullah[206]

Initially *comparative* approaches will be utilised to synthesise Rifkin's work and explore the same from the perspectives of selected macrohistorians. They will also be used to

[206] Synthesised from 'Understanding understandings: Epistemological Approaches to Social Analysis' in Inayatullah, *Situating Sarkar* (1999), p. 136.

situate Rifkin inside transformational discourse and to explore differences and similarities between Western modernism and the concept of the Collaborative Age.

Given that they come from a range of traditions (Hindu, Islam, Eastern Orthodox and Western) alternative macrohistorical and philosophical voices help in understanding how Rifkin's ideas translate across various communities. This translation, he asserts, is necessary as the transformation, although requiring global application, can be customised through appropriate 'continentalisation'[207]. Indeed it is notable that his thinking already has strong followings in China, Southern and Northern Europe and the USA[208].

Exploring Rifkin through a *framing* perspective makes visible the nature of systemic shifts that underpin Rifkin's thesis. Three contentions in particular emerge. Firstly, as contemporary theorists Tainter[209] and Dator[210] suggest, energy complexity and societal complexity are intimately related ideas. Thus, if revolution is to occur, then it is axiomatic—at least in Rifkin's thesis—that our energy systems must change as well. Secondly, the enabling effects of network communications redefine how society interacts, and in particular, what Coase[211] describes as the nature of organisations. Organisations are a foundation stone of modern economic and social interaction. In Coase's view, they are the size they are because that arrangement provides optimal maximisation of the advantages of a particular set of transactions. In this larger economic specialisation each plays the part of a single organism, mainly unconscious of the wider role that they fill. The contention is that the new network technologies disrupt accepted organisational paradigms because these technologies change the fundamentals of how transactions can be arranged and bundled. As network theorists Wheatley[212] and Castells[213] argue, the form, shape and dynamics of organisations and societal institutions will, as a consequence, be reframed. Thirdly, as Rifkin asserts, these two systemic shifts (energy and networked communications) begin to act on and influence the other, thus creating either positive or negative self-reinforcing loops. They will combine to create an 'internet of things,' a

[207] Rifkin, *The Third Industrial Revolution,* p. 161.
[208] In addition to the recently announced program in China (op cit), there are master plans developed for the City of Rome, (http://www.scribd.com/doc/48949114/32783228-Final-Rome-Master-Plandefinitivo), the Province of Utrecht (http://www.slideshare.net/HansMertens/100913-ne-utrecht-master-plan-and-recommendations) and San Antonio in Texas (http://www.cpsenergy.com/files/A_Vision_for_Sustainability.pdf).
[209] J. Tainter, 'Energy, Complexity and Sustainability: A Historical Perspective', *Energy Innovation and Societal Transitions*, 2011, pp. 89-95.
[210] J. Dator, 'Alternative Futures for K Waves', *NATO Security through Science Series,* vol. 5, p. 390.
[211] R. Coase, 'The Nature of the Firm', *Economica,* vol. 4, 1937.
[212] M. Wheatley, *Leadership and the New Science : Discovering Order in a Chaotic World* (3rd edn.), San Francisco, CA, Berrett-Koehler, 2006, p. 38.
[213] M. Castells, *The Rise of the Network Society* (2nd edn.), (The Information Age: Economy, Society, and Culture), Chichester, West Sussex, Malden, MA, Wiley-Blackwell, 2010, p. 17.

"technological soul mate of an emerging collaborative commons"[214]. This collaborative commons will empower the possibility of new distributed arrangements that, by their very nature, undermine or disintermediate the viability of the existing mechanistic models.

The construction of a Collaborative Age is central to Rifkin's *phenomenology.* At the core of the experiences he describes are notions of access rather than ownership; of goods and services that are nearly free; of lateral, rather than vertical, markets; and of open source knowledge creation[215]. Underpinning these experiences are internet technologies that drive very different forms of socio-economic interaction and consciousness. What matters is not just the nature of the nodes of the networks, but the composition and behavioural characteristics of the connections themselves. Using Sorokin's approach, they might be described as a new set of modern world phenomena to be gathered together and integrated into comprehensive systems (mentalities) that enable their relationship with other systems to be studied[216].

In the network and distributed mentality, the focus shifts from a mechanistic worldview that concentrates on the nodes or parts, to an understanding of the distributed whole. What is privileged changes. Instead of beginning with the elements (reductionism), what matters in networks are holistic narratives, 'between-ness,' 'relationship' and 'integration.' As Inayatullah points out, this enables

> ...voices heard that previously could not speak, to remove the future from the confines of history, the cycle and to create the possibility for the spiral – an acceptance of structure, but a willingness to transform the suffering associated with the downswing of the cycle and to find previous pockets of darkness and illuminate them, to pierce through the silences[217].

Clearly the systemic change that Rifkin envisages can only occur if world views that continue to suppress, ignore or overwhelm other traditions are not able to dominate. If contemporary modernist worldviews maintain their hegemony then agency would certainly slow—if not stop completely—the transformation. This would leave in its place structurally flawed adaptations of current models: either what Spengler described as a Faustian pact; or what Sorokin called, a global "culture committing suicide, as it can hardly recover from the wounds of its own self destruction"[218]. Consequently, change that is

[214] Rifkin, *The Zero Marginal Cost Society,* p. 88.
[215] Rifkin, *The Third Industrial Revolution,* Ch. 1.
[216] Rifkin, *The Zero Marginal Cost Society,* pp. 9-10.
[217] Inayatullah, *Understanding Sarkar,* p. 321.
[218] Sorokin, *Social & Cultural,* p. 625.

civilisational in scale requires considerations that go beyond systems, and technological fixes. It demands a rethinking of worldviews and a sense of shared philosophy.

Some consideration of this emerging philosophical position is described by Rifkin as a shift towards a wider empathic engagement. It links the concept of a biosphere consciousness, with global connectedness to create a 'transcendent purpose' that expands human consciousness[219]. This transcendent 'philosophical foundation' is required so humanity can make the necessary synergistic decisions to maximise its own survival. Croatian Futurist Ateljevic recently characterised this transcendent purpose as 'transmodernism': a way that allows an escape from the nihilism of post-structuralism[220]. It suggests that planetary sustainability; pan national decision making processes that are synergistic in design and execution; and the collaborative society construct are interlinked ideas. More importantly, the integration of these three ideas might be a necessary precondition for the success of Rifkin's Third industrial Revolution.

However, it is argued that this philosophical foundation requires development beyond these three ideas, as many parts of the world privilege ways of knowing not determined by Western scientific rationalism. Arnold Toynbee elaborates on his concern about the limitations of this normative view when he argued that so powerful have been the forces of science, that they have not only blown away the chaff of religion, they have in the process " blown away the grain with the husk; and this has been a disservice since neither science nor the ideologies have grain of their own to offer a substitute"[221]. Within this consideration, it is useful to establish if Rifkin's advocacy of a new global empathic consciousness can go beyond always privileging the intellect, where the spiritual is not reduced to the relative.

What this brief overview of ways of understanding, beyond the applied and the empirical, has sought to demonstrate is that not only do useful insights emerge from such exploration, but that different conversations are both possible and necessary. It suggests that identifying and understanding systemic shift; defining how (networked) experiences change our thinking; developing a new philosophy for different times; and deepening our sense of who we really are, are all part of the shift from a mechanistic to a distributed society. As such, they need to be understood and accepted if we are to embrace the possibilities this

[219] Rifkin, *The Empathic Civilization,* p. 594.
[220] I. Ateljevic, 'Transmodernity: Integrating Perspectives on Societal Evolution', *Futures,* vol. 47, 2013, p. 39.
[221] Toynbee, 'Reconsiderations', p. 533.

transition offers. They perhaps also offer a view about why so many conversations in the conventional discourse fail to offer a convincing way forward.

Macrohistorical Wisdom

If Galtung and Inayatullah provide a panoptical framework that assists in the synthesising and interrogation of Rifkin's work, then the writings and commentary of macrohistorians offer numerous perspectives through which to compare, translate, frame and systematise an understanding about the Third Industrial Revolution. In particular, their diverse views on the laws of civilisational change (the nomothetic future); their discourses on the patterns of change that drive transformation; and their views on the role of agency in the course of the revolutionary process, assist in the sense making of Rifkin's core ideas.

This section briefly canvasses how selected views of the nominated group of macrohistorians can be used to assist in better understanding and reflecting on Rifkin's most important ideas. Three questions are central. The first asks: is the idea of a Third Industrial Revolution nomothetic? The second questions if Rifkin's 'patterns of change' have been observed by other macrohistorians. The third deliberates on the agency (ideography) and nomothetic (structural) tension and it explores the likelihood of the revolution actually occurring if those with investments in the current hegemony deem this transition a bridge too far.

The Nomothetic Future?

A distinguishing feature of macrohistorians is that each has a nomothetic explanation for the rise and fall of significant, historical, complex societies. Three explanations have been used to illustrate why these provide insight into the central thesis. They are: Sarkar's cyclical theory (as opposed to Rifkin's linearity); Sorokin's notion of immanent change and pendulum theory; and Spengler's concern about the ability of Western culture to break free from 'money thought' and genuinely create a new organic culture.

Sarkar contends that societies evolve through a cyclical change in power: from Shudra (worker) to Ksattriya (Warrior) to Vipra (Intellectual) and then Vaeshya (Capitalist). By this measure, we are in the end phase of a Vaeshya era[222]. If Rifkin's notions of distributed capitalism and a global empathic consciousness were consistent with Sarkar's thesis, then

[222] Inayatullah, *Understanding Sarkar,* pp. 250-51.

perhaps what is being described is how the next Shudra era might emerge. If this is sustained then scenarios of what the next warrior cycle might look like might provide new insights into the current military-industrial complex.

Sorokin, on the other hand, offers a different narrative. He argues each complex society and social arrangement has within it the seeds of its own destruction. This he calls the principle of immanent change[223]. Sorokin asserts that change cannot continue forever in the same direction because of the limits in their causal-functional relationships[224]. Therefore, as these causal–functional forces play out, the balance swings, like a pendulum, from sensate to idealistic to ideational (philosophically inspired) and back again. Seen through this lens, global society is in the late stages of a sensate culture in denial that it cannot continue forever. What Rifkin, like Sorokin is contending, is that now the pendulum will swing towards the evolution and domination of a new post-capitalist ideational construct.

One might challenge Rifkin's thesis by asserting that its conception of a distributed and collaborative society is simply the reorganisation of the current value sets, within a networked construct. If that were true, according to Oswald Spengler, it is merely the latest expression of a waning organic culture. In that context, its technological causes of change will fail to make a break, from what he terms "the despairing struggle of technical thought to maintain its liberty against money-thought"[225]. What Spengler asserts is that culture is determinant of fundamental shift, and therefore, unless there is a change in culture nothing happens. Through this lens, Rifkin's advocacy of a widespread biosphere consciousness and a dramatalurgical lifestyle where we are all actors on the stage describes this culture change. His is a play of life where quality overcomes quantity and meaning is to be found first in relationships. It is a change in spatial and temporal orientation which will be accompanied by a shift in the economic culture as well, for:

> …the capitalist system as the overarching framework for the (mechanistic) society has peaked and begun a slow decline. In its place a Collaborative Commons is in the ascendant and by 2050 it will likely settle in as the primary arbiter of economic life in most of the world[226].

[223] Sorokin, *Social & Cultural Dynamics,* p. 630.
[224] ibid., p. 647.
[225] Spengler, *The Decline of the West*, p. 413.
[226] Rifkin, *The Zero Marginal Cost Society,* p. 2.

If the idea of the Third Industrial Revolution is consistent with this nomothetic determinism, then the process of societal transformation, that the Third Industrial Revolution posits, will occur despite any obstruction or denial. However there can be no certainty about any particular nomothetic proscription, as there are significant differences in how some of the macrohistorians define even this fundamental unit of analysis.

Understandings of how macrohistorians define 'society' are illustrative of this difference at a structural level. Toynbee, for example, argues that the most important complex societies can be defined as civilisations, whilst Khaldun's preferred units are dynastic. Spengler and Sorokin on the other hand focus on culture as a basis for assessing the significance of a society, yet Sarkar uses the idea of epochal *varnas* for framing[227].

The lack of common agreement about this most fundamental idea underpins the contention that any exploration of civilisational shift is more insightful if multiple understandings and perspectives are involved. It suggests that such a richness of perspective enables the dialogue to move away from situations where one episteme is privileged. Hence, while a significant proportion of modern discourse is often framed with economy as the priority, potential structural adaptation will be lost if the Third Industrial Revolution is only analysed within a narrow, exclusive, economic neoliberal, or even Marxist, lens. Toynbee once described this econo-ccentrism as a world where politics, whose role is master-activity, is deposed from its traditional place in history by economics[228]. Such a potential narrowing obscures the richness of possibility that the patterns inside the change make available, and therefore limit the options that might be considered.

Patterns in the Causes of Change

While the notion of nomotheticism is a defining characteristic of all major macrohistorical thinking, so too is the idea that patterns or causes of civilisational evolution have broadly systemic effects across time. As has been asserted, Rifkin argues, in some detail, for two primary causes: namely that all the great 'industrial' revolutions have been driven by changes in the mastery and availability of energy, and through discontinuities in the form of deployed communications. However, some macrohistorians argue other (alternative) patterns of change are equally important. These include the sense of *asabiya* or spirit that

[227] Inayatullah, *Understanding Sarkar,* p. 127.
[228] Toynbee, 'Reconsiderations', p. 661.

bind societies together; the corruption of social cohesion when economics dominate; and a lack of balance between the material, the cultural and the spiritual.

For Khaldun and Toynbee, the dominant cause of change is the corruption of the spirit or social consciousness—what Khaldun terms *asabiya*—that created dynastic power and loyalty at its inception. Toynbee suggests that *asabiya* is the capacity to creatively respond (or not) to civilisational challenges, and that it is this that changes the balance between growth and breakdown. In current terms, the philosophy that binds us might be described as either liberalism or socialism. However, as the Harvard economist Sandel would suggest, liberalism has been corrupted, since the mid 1980's, into a sole fixation on the right to make money[229]. This loss of a liberal *asabiya* was described by Toynbee in his *Reflections* as the descent "into a cosmopolitan culture of the Modern World (which) is like a body without a soul"[230]. For those of a socialist persuasion a similar erosion has occurred. Hobsbawm opines this has occurred because of "the inability of the Left to come to terms with the incompatibility of freedoms of the consumer society with the need for collective emancipation"[231]. Thus the contention is that a revolution, a new Age, requires a new *asabiya*. The question that might therefore be asked of Rifkin is: is a biosphere consciousness sufficient? If not, then what?

The obsession with cosmopolitan consumption and a fixation on economic growth, or what is sometimes termed the cult of 'economic man', is also seen by macrohistorians as part of the patterns of change. They argue that cosmopolitanism drives a decline in the quality of a culture. This is at a time when functionality triumphs over form and spirit, where *pleasure seeking corrupts asabiya*. In its terminal stages, Spengler posits, culture is replaced by civilisation. Economics is elevated from its role as a foundation to a way of being. Spengler argues it is not that a person is well nourished and fruitful but *"for what is he, or it, so?"*[232]. This situation sees the emergence of a large group within humanity who are both dispirited and disempowered, while a small elite obsesses only with 'the money spirit.' To change this condition will require the emergence of a new 'great soul,' with a new philosophy and culture[233].

[229] M. Sandel, 'What Money Can't Buy: The Moral Limits of Markets', *The Tanner Lecture on Human Values,* Oxford, Brasenose College, 1998.
[230] Toynbee, 'Reconsiderations', p. 532.
[231] Hobsbawm and Polito, *On the Edge of the New Century*, p. 104.
[232] Spengler, *The Decline of the West,* p. 400.
[233] ibid., p. 414.

Sorokin describes the process of change (patterns) in a similar way. He contends there will need to be a necessary shift, from a sensate mentality, driven by contractual arrangements, perhaps through a period of chaos, to an ideational mentality, more likely driven by familial or relationship-based arrangements. He argues that if mankind can avoid an apocalyptic catastrophe (e.g. nuclear war) then the emerging creative forces will usher humanity into a new, magnificent era of its history[234]. The question that Sorokin's work raises for Rifkin's thesis is: is the Collaborative Age construct that Rifkin describes a shift to a new ideational model, or is it merely halfway to an idealistic model?

For Sarkar, the patterns are more complex and nuanced. He suggests that civilisations require nine factors to sustain themselves. These factors in some ways echo, but go beyond, Marx, who had no acknowledged sense of the spiritual. Sarkar's factors require that a civilisation provides what is required for material existence (asti), is capable of equitable social development (bhati) and has a strong sense of the spiritual and happiness (ananda). Without these elements in balance then civilisations lose vibrancy and become controlled by a dominant group[235]. For Sarkar, as with Khaldun, the cult of materialism is a sign of late stage decline; a time when no philosophy or mentality that is widely understood and subscribed to can maintain coherence in the current social arrangements. A number of important questions emerge from the Sarkar thesis. Firstly, how does Rifkin consider Sarkar's factors in his design of a collaborative society? Secondly, does the notion of a distributed capitalism constitute an alternative socio-economic theory; one that will ensure a more equitable distribution of resources and goods, and also come to terms with the notion of a future 'no resource-based growth' construct? Finally, is Rifkin's empathic consciousness sufficiently accommodating of the recognition of the spiritual that is central to Sarkar, in particular, and Hindu and Islamic worldviews in general?

What emerges from this brief overview of sense making and patterns of change, through a macrohistorical discourse, is recognition that confronting cultural and philosophical limits in any system is the prime cause of change, if and only if a credible alternative pathway can be articulated. If no pathway is developed then the entropic effects of the limits of existent systems take over. Seen in this light, Rifkin's energy and communications imperatives are of a second order. What this re-ordering suggests is that the narrative needs to focus on the philosophical and cultural shift from a mechanistic to a distributed

[234] Sorokin, *Social & Cultural Dynamics,* p. 704.
[235] Inayatullah, *Understanding Sarkar,* p. 212.

society as a first order argument, with consideration of *how* energy and communications might enable this shift as a second order idea.

Idiography and agency

Counterpoised against these nomothetic waves of history and their causes is a global, nation-centric, 20th century, postmodernist, construct. This counterpoint suggests humanity has evolved to such a point, politically and technologically, that the actions of its institutions and leadership, in their current format—or minor evolutions thereof—are sufficient to address the challenges facing humanity. In other words, no fundamental socio-economic, philosophical and cultural transformation is required. Therefore, agency will suffice and for some, technology advances will always provide a timely solution. If this argument is preferred, then Rifkin's notions of revolution cannot be sustained.

Some contemporary theorists explicitly support the contention that behaviour change (agency) is sufficient. These include Holmgren (Permaculture)[236], Porritt (Adaptive Capitalism)[237] and Slaughter (Descent)[238]. They advocate that merely stepping back from the peril of James Martin's 'canyon'[239] is adequate. As the global debate on climate change reduction and adaptation illustrates, including the recent *5th Intergovernmental Panel on Climate Change Report*[240], this argument holds that there is a capacity within the current hegemony to stop, or at least delay, revolutionary shift. In this reading any dialogue about a substantive philosophical shift, or a fundamental cultural reorientation, in their minds, is firmly at the margins. But it ignores the structural impacts of limits in current energy, food and environmental systems[241],which it must sooner or later confront.

At first reading, the view that agency will suffice is supported by both Khaldun and Toynbee. They argue that, as long as there is a sense of social consciousness, a response is generated through the creative minority under the influence of aligned leadership or societal impetus[242]. Both, though, posit that if those two characteristics (social consciousness and leadership) are not present, then the laws that drive cycles of change

[236] D. Holmgren, *Permaculture*: *Principles & Pathways Beyond Sustainability* (1st UK edn.; East Meon: Permanent Publications). 2010
[237] J. Porritt, *Capitalism as If the World Matters*, (rev. pbk edn.), London, Sterling, VA:Earthscan, 2007.
[238] R. Slaughter, *The Biggest Wake up Call in History*. Foresight International., 2010
[239] Martin, *The Meaning of the 21st Century,* p. 5.
[240] IPCC, *5th Intergovernmental Panel on Climate Change; Summary for Policy makers*, [online] http://www.climatechange2013.org/images/report/WG1AR5_SPM_FINAL.pdf, (accessed 5 Febraury 2014).
[241] J. Lovelock, *The Revenge of Gaia : Earth's Climate in Crisis and the Fate of Humanity*, New York, Basic Books, 2006.
[242] Toynbee, 'Reconsiderations', p. 534.

play out. Sarkar adds extra weight to the structural argument and suggest that agency has only a partial role[243]. Both Spengler[244] and Sorokin[245] support Sakar's position. Other macrohistorians, including Marx, privilege structure over agency, while still others including Adam Smith do the reverse (the rise of individualism). Most argue for balance. There is therefore a tension, between the view that agency suffices, and the apparent nomothetic structuralism of many macrohistorians. Seen through this lens, one might argue that Rifkin's assertions concerning entropic effects, and the destruction of capitalism through zero cost marginalisation, are primarily structural. It should be noted though, that his arguments for escape clearly require agency.

For some, privileging agency over structure suggests the absence of philosophy. Spengler posits macrohistorians and philosophers focus on comprehensions that explore deeper realities[246]. They see past the confusion of philosophy that arises from preaching, agitation, novel writing and lecture room jargon, and are concerned that "there is the very possibility that a real philosophy of today and tomorrow is in question"[247]. He suggests they go beyond being clever architects of systems and principles, through using the great facts of their time to understand the soul of a particular position. As Rifkin identifies, because of this 'gaze' macrohistorians are very different from the postmodernists who "having razed the ideological walls of modernity and freed the prisoners they (the postmodernists) have left them with no particular place to go"[248]. In this world of intellectual rubble, where everyone's story is equal and worthy of recognition, postmodern society has become simply a passing parade of existential nomads, who live out their 'real' lives in a world where not only is philosophy rarely considered, or occasionally deconstructed into meaninglessness, it is often openly derided.

The question is, though, does this matter? Can we either sustain an agency-dominated social construct, or can a distributed society emerge without a philosophical construct? Inayatullah suggests not. He argues that:

> [P]art of the human condition is that people do start movements, new ideologies are born and we must examine them, discern their contribution and determine if they will join the dustbin of ideas, or actually create new languages, structures and visions[249].

[243] Inayatullah, *Understanding Sarkar,* pp. 91-93.
[244] Spengler, *The Decline of the West,* p. 3.
[245] Sorokin, *Social & Cultural Dynamics,* p. 604.
[246] Spengler, *The Decline of the West,* p. 31.
[247] ibid., p. 33.
[248] Rifkin, *The European Dream,* p. 5.
[249] Inayatullah, *Understanding Sarkar,* p. 31.

However consideration of the role of agency assists in defining two clusters of transformative and futures thought. Each privileges a particular way of understanding. In the first cluster agency dominates. Its proponents argue for a stepping back from the brink, within the current societal construct. The second posits that the only option is structural transformation: a stepping forward or perhaps a stepping beyond. If this option is to be pursued then the question of balance between agency and structural change becomes important, and it is argued that the latter will be greatly assisted if there is an appropriate philosophical construct through which one can make sense of both the new construct and the transitions required. For this to occur, a different consciousness, one that goes beyond postmodernism is required. As will be explored in Chapter 5, it is suggested that the concept of *postnormal* (that is, outside of modernism) philosophy, as articulated by philosophers including Sarkar and Dussel, and some futurists (Luyckx[250] and Ataljevic[251]), has the capacity to provide a philosophical platform to transcend both modernity and postmodernity.

Extending the Consideration of Reality and Causal Layered Analysis

Thus far it has been asserted that macrohistorical framing provides a means for synthesis and interrogation with others (macrohistorical wisdom) who have considered civilisational paradigmatic shift, and that there are multiple ways of understanding such assertions. Conceptually, multiple ways of understanding suggest that reality is not a single thing. Further, rather than just being the agreed so-called 'superficial objective obvious' (my reality is not necessarily yours) it has layers, mediated by cultural and intersubjective factors, which upon inspection, reveal the durability of the view of reality being espoused[252]. The analysis of this layering of 'what causes what'—Causal Layered Analysis (CLA)—provides a theoretical, knowledgeable and methodological process that permits exploration of expressed and alternative realities at a variety of levels. As was indicated in the Introduction, it is used throughout this thesis to deconstruct and critique that which is expressed, without losing intelligibility, in order to understand both the dynamics of revolution, on which Rifkin's thesis rests, and the time, form and morphology (shape) of a presumptive, emergent Collaborative Age.

[250] M. Luyckx, 'The Transmodern Hypothesis: Towards a Dialogue of Cultures', *Futures,* vol. 31, no. 9-10, 1999.
[251] Ateljevic, 'Transmodernity', pp. 38-48.
[252] J. Ramos in Inayatullah & Milojevic (ed.), *C.L.A., 2.0. Transformations in Theory and Practice*.

At a philosophical level the notion of reality is a subject of much debate, and some postmodernists would argue it is entirely subjective[253]. The definition used here suggests that while at a horizontal (agency) level 'reality' can be entirely subjective, there are structural (vertical) bands or layers in which those horizontal views can be situated[254]. It is these structural layers, providing a '*coherence of realities'*, which can be conceptualised and compared. If that were not so, then it would not be possible to prosecute a case about anything for anyone, and the intelligibility on which our species relies to act in societies would simply be unable to function. On the other hand, this is not to assert that 'reality' is always objective in the way that Kant described it—that is, it is something that is outside of us—rather, that it is a combination of both the physical and the perceived. In the Western episteme "realism is in a sense weird. It is about the strangeness in reality that is not projected onto reality by us"[255]. In the Indian episteme, ways of knowing and views of reality collide in entirely different ways. In every statement there are at least seven truth possibilities which suggest that "reality is multifarious and its nature (can) be expressed in many ways. Reality then can only be partially known"[256]. What CLA provides is a way to interrogate articulations of realities and construct alternatives for those prepared to engage in discourse related to those particular realties.

The CLA approach, as Figure 2.7 suggests, posits that the 'evident' level of reality is that of litany. This is the conception and expression of 'context' constructed from the received 'wisdom' of sound bites, opinions and statements and other immediate assertions about how the world it constituted. This is the reified view of the world that implies humanity is capable of forgetting his own authorship of the world in which he exists[257]. In terms of narrative, Tilly would describe this as the level of standard stories, where data is provided with a unified logic. The second level is that of the structures and systems upon which the litany is based, and is consistent with it. This is the layer of cause or (in the narrative) context. However "while the data (of the litany) is often questioned, the language of questioning does not contest the paradigm in which the issue is framed. It remains obedient to it"[258]. The third layer is that of the worldview (mentality) or episteme upon which the structures and systems are predicated, and are in turn informed by them. This level

[253] "Reality construction is a process and although some constructs may be tenacious, they are still only temporary manifestations of a dynamic flow of thought, that no philosophy or science has yet been able to map or describe in its entirety." W.T. Anderson, *Reality Isn't What It Use To Be,* Harper, 1990, as cited in Sardar, *Postmodernism and the Other,* p. 23.
[254] Conceptions of the nature are explored in some detail in Inayatullah & Milojević (ed.), *C.L.A., 2.0,* p. 28.
[255] G. Harman, in R. Mckay, (ed), 'Speculative Realism', *Collapse III*, Falmouth, Urbanomic, 2007, p. 367.
[256] Inayatullah, *Understanding Sarkar,* p. 91.
[257] F. Fisher (1987), as quoted by Ramos, in Inayatullah & Milojević (ed.), *C.L.A., 2.0,* p. 32.
[258] Inayatullah , *Causal Layered Analysis,* p. 7.

represents the deeper social, linguistic and cultural structures that are not dependent on who the actors are, yet reflect the perspectives about the world that particular actors may express. This exploration of worldviews makes visible the cosmologies (or totalising understandings of the universe from particular positions in space and time) expressed through that culture's relationship with its life-world [259]. Within the narrative, the articulation of superior stories is an attempt to either affirm or reframe the rationale on which a particular culture constitutes its relationship with its lifeworld. 'Nature's master' or 'Gaia's partner'[260] are perhaps examples of alternative worldview narratives. Finally, the deepest layer of reality is that of myth and metaphor. This is the domain of embodied visual images, deep stories and collective archetypes that are often emotive, implicit and/or unconscious, and which are actualised through expressed worldviews. While these lie at the heart of both questioning and belief, in many cases the myths and metaphors concerned can only be made visible through using frameworks of understanding that are rarely privileged in the layers of reality that reflect their constitution[261].

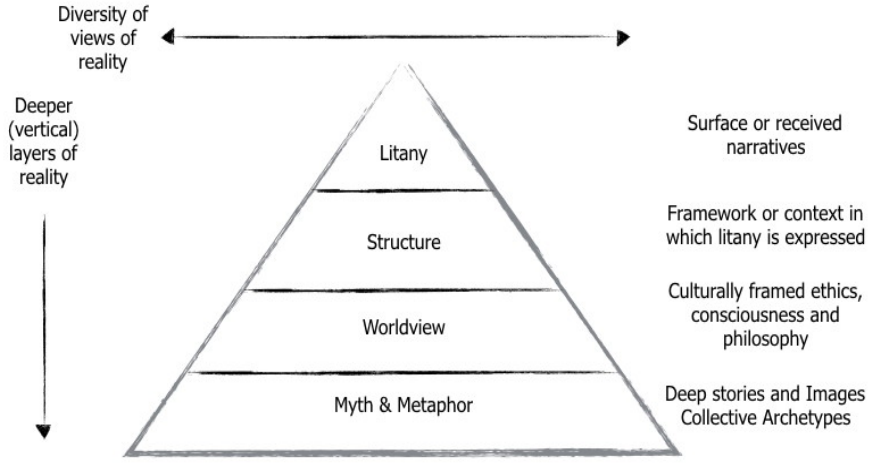


Figure 2.7 Elements of conceptual model of Casual Layered Analysis as developed by Inayatullah

Applying CLA as a scaffold of enquiry, it is suggested that at the core of Rifkin's contentions are a set of alternative expressions of reality that are different to those that constitute late stage modernity. The capacity to interrogate those alternatives (some of which are macrohistorical) to surface the sense of reality they privilege is enhanced if post-structural tools such as deconstruction (who or what is preferred), genealogy (what

[259] Ramos in Inayatullah & Milojevic (ed.), *C.L.A., 2.0.,* p. 34.
[260] The term Gaia is used to conceptualise the Earth as a living entity in its own right and is foundational to the work of James Lovelock. See J. Lovelock, *The Ages of Gaia : A Biography of Our Living Earth*,1st edn., The Commonwealth Fund Book Program, New York, Norton, 1988.
[261] Inayatullah, *Causal Layered Analysis*, p. 7.

discourses have succeeded), distance (what is remarkable or unfamiliar in time-space), alternatives (what has been given validity) and reordering of knowledge (how is it ordered across cultures, gender and episteme) are used[262]. CLA used in this way provides a means to 'see patterns' in the diverse (horizontal) advocacies of Rifkin, selected macrohistorians and contemporary transformational theorists at different (vertical) layers of reality. The ability to make visible these patterns allows consideration of questions such as: can a future civilisation be constituted inside the one that it replaces? It is posited that this question and others like it are not just matters of interesting speculation; rather they are existential for late stage modernity and the civilisation it embraces.

Summary

At the outset of this chapter, it was argued that there were a number of hermeneutical and epistemological challenges when contemplating Rifkin's work and the central questions of this thesis. Further it has been asserted that the failure to contemplate let alone resolve these challenges has lead to a surprising lack of critical commentary of Rifkin's work, given its scope, influence and implications. What this chapter has sought to demonstrate is that this has been due in part to a narrative style that places it outside of accepted disciplinary boundaries, in part because of a lack of understanding and acceptance of frameworks through which to explore multidisciplinary and pan civilisational contentions, and in part because of an approach to scholarship that normally privileges 'applied and empirical' discourse over other ways of understanding.

It has been posited in this chapter that the academic convenience of discipline-based approaches is rarely contested in the modern discourse, yet this approach has been central to, and largely unquestioned, in both contemporary historical writing and macro-sociological theory. Moreover at a systemic level, this disciplinary influence has created at least the illusion of a hermeneutic objectivity, a scientific reality that simply cannot be sustained under close examination. The realisation that interpretation is a consequence of what Dilthey describes as a hermeneutic circle[263] has seen, as Arnasson suggests:

> [T]he disappearance of plausible models for radical and programmed social change (variously diagnosed as the end of socialism, the demise of secular religions or the

[262] ibid., pp. 4-5.
[263] Tappan, 'Interpretive Psychology'.

> exhaustion of the idea of progress) and left a void which the positivist movements, among others, attempted to fill or to conjure away[264].

Nowhere is this more so than in most contemporary Western historical scholarship; study that privileges events and critical agency as central to revolutionary theory. Rifkin's notions of revolution sit outside of, or at least uncomfortably with, such definitions. Further, his ideas are presented through a content and stylistic approach that Tilly describes as a superior narrative; a way of writing that provides contextualisation and enlightenment, which in turn creates the capacity to see beyond the litany and the system conditions that a discipline bias often takes for granted. Given this difference in starting points, what this chapter has argued is that a different typology or framework is needed. One that is capable of stretching beyond the confines of disciplinary thinking and accepting of alternative narratives and praxis without compromising, in any way, the quest for intellectual rigor required for the examination and acceptance of any particular set of ideas.

This chapter then argued that the frameworks used to explore a body of work known as macrohistory—or, for those with a discipline bias, 'speculative history'—provides a way of framing, synthesising and thus understanding Rifkin's work. It introduces key elements of this framework and points to a number of critical questions that the use of such a framework provides. These will be explored and deconstructed in some detail in Chapter 4 where the work of a select group of marohistorians will be used as reference and counterpoints.

Finally the chapter posited that Rifkin's Theory of Revolution cannot be proven in any applied or empirical sense, and indeed that the quest for proof, by definition, requires use of the a logic model that privileges those forms of understanding Instead it proposes that the range of insights that emerge from comparative thinking; translations into alternative traditions; multidisciplinary framings; explorations of different phenomenologies; how reality (worldviews) are constructed; and what can be learnt from 'beyond discourse' insights help in understanding the inherent discontinuities in the current societal construct, and the kinds of questions and conversations that societal transitions (revolution) and potential transformations (the Collaborative Age) require. These understandings are explored in both *Chapter 4* within the macrohistorical framework and *Chapter 5* where Rifkin's work is 'situated within the contemporary transformational discourse.

[264] Árnason, 'Civilizations in Dispute', p. 340.

CHAPTER 3

SYNTHESISING RIFKIN

A synthesis of the central contentions of Rifkin's evolving narrative is predicated on the idea that a sense of coherence, with respect to his assertions of Industrial Revolution and the Distributed Society emerges as a consequence. It is a necessary precondition to any exploration of notions of continuity and discontinuity through multiple ways of understanding. It assumes that coherence and sense making are both conscious and unconscious acts that any reader must undertake as part of the hermeneutic circle. As this thesis has constantly asserted with respect to Rifkin's theorising, the need to explore his narrative and the systemic changes it argues for so we can work around them (Berlant's supervalence) is important, as he cannot in this instance, given the lack of critical review, act in more than one role in the hermeneutic circle. Therefore any synthesis, while it must begin with Rifkin, might also be better understood through the views of others who might either agree or disagree with him.

Consequently, using five of his later works as the foundation for interpretation, Rifkin argues humanity is required to begin:

> ...a whole new journey, one that goes beyond the dialectic of history that has characterized the human saga, since the first hydraulic civilizations of thousands of years ago (and which) may now have played itself out[265].

In the course of this journey, "the Third Industrial Revolution, as the last of the great industrial revolutions, will lay the foundation infrastructure for an emerging Collaborative Age"[266]. The explanations about why this journey must occur are explicitly argued in *The Third Industrial Revolution* and its earlier companion and philosophical, tract *The Empathic Civilization*. Supporting both this contention and what might emerge from the journey are: *The Hydrogen Economy*, which explores in some detail Rifkin's earlier energy

[265] Rifkin, *The Empathic Civilization,* p. 494.
[266] Rifkin, *The Third Industrial Revolution,* p. 5.

theories, the reliance on oil and its geopolitical relationship with Western and Islamic societies; *The Zero Marginal Cost Society* which has a future-of-capitalism and economics focus; and *The European Dream* which has a pan-continental, social form and social settlement theme.

Consistent with the evolving nature of Rifkin's prose and the 'layer upon layer' approach that is integral to his style, this exploration will seek to fuse ideas and narratives from each of these major works into an integrated whole, while drawing on earlier works, if and as required. As each idea or theory is elaborated, the questions concerning Rifkin's work that were identified in *Chapter 2* will be interrogated and refined. It is intended that what will emerge are a set of questions that can then be explored through multiple perspectives and a macrohistorical lens in *Chapter 4*, and in *Chapter 5*, through situating Rifkin's thesis within contemporary transformational theorising.

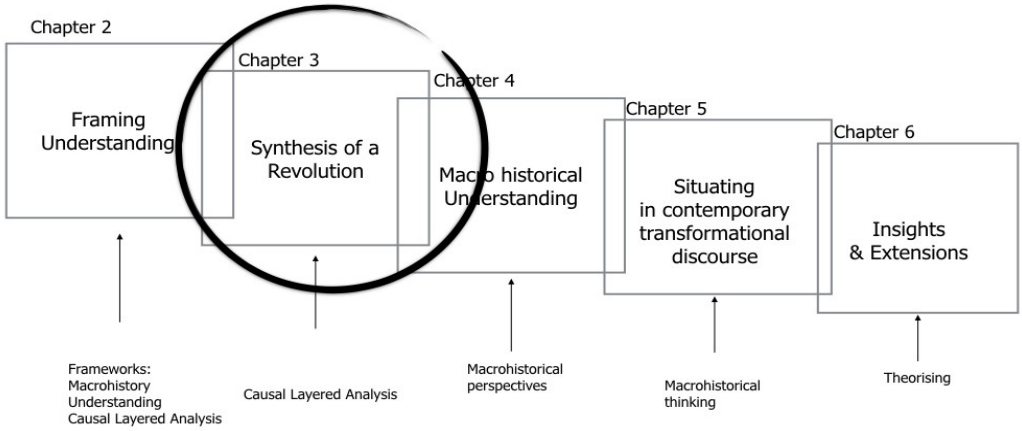


Figure 3.1 Showing the focus of Chapter 3

Towards a Taxonomy of Third Industrial Revolution Theory

Rifkin's advocacy of revolution and the socio-economic arrangements that follow from it centers around seven postulations. These have been developed by first using Inayatullah's framework for comparing macrohistorians (see Figure 1.11) as a platform for synthesis. Secondly they reflect critical ideas, prosecuted and developed by Rifkin, across his collected works that explore 'beyond litany' realities. However while it is necessary to understand the nature of each of these theories in their own right it is also important to

recognise that each influences and reinforces the others, and thus there is a unity that is sometimes disguised or overlooked in the process of deconstruction. In summary these theories are:

1. *A Theory of Limits.* An argument about the entropic effects of current socio-economic arrangements.
2. *A Theory of Discontinuous Change.* Causes of change based on the proposition that significant changes in energy form and use, together with different communication technologies, have disruptive and radical effects on the societies where such changes are realised and expressed.
3. *A Theory of History.* The framing of the history of these discontinuities as a series of identifiable and sequential revolutions have culminated in the Third Industrial Revolution and thus might be described as 'Stages of History'.
4. *A Theory of Empathic Consciousness.* Advocacy of the view that humanity's biophysically determined sense of empathic consciousness frames as our collective sense of time and space and is reframed by our individual metaphysical choices.
5. *A Theory of Leadership.* The development of a number of concepts that interwoven create a 'sinew of leadership'; a social code that enables networks to act appropriately and synergistically in ways that can be widely shared and accessed by many actors in multiple locations. These actors through choice, not positional power, embed this social code through agency in their activities, products and services across the civil and private spectrum. Over time those who understand the need for transformation become widely distributed within and beyond the established order. They include key policy makers required to create the frameworks for future infrastructure, scientists and technologists who are providing the enabling mechanisms, and finally, 'prosumers' who are taking advantage of emergent transformational effects.
6. *A Theory of Post Capitalism.* This argues that the current system is at its limits. Further that discourses which privilege the Khunian view of mechanistic organisation and the US senses of individualism[267] as the basic unit of society are both incompatible with, and insufficient for, the emerging collaborative society, as well as the perpetuation of the capitalist model, upon which the

[267] In *The European Dream,* Rifkin analyses the differences between US and European senses of individualism. He concludes that the US sense with its desire for autonomy has created overconsumption, overindulgence and waste. Rifkin, *The European Dream,* p. 379.

current system rests. If these discourses and the hegemony they have created (mythology) are prolonged, there is no exit from cumulative entropic effects. On the other hand the development of a new kind of infrastructure (the Internet of Things) together with a post capitalist collaborative economy provides the basis for escape.

7. *A Theory of Transformation.* Only two possible future scenarios are available as future options. These are either *Transform* or *Collapse*, on the proviso that the former occurs in a timely manner.

   However, a sense of coherence needs to go beyond a litany of applied or empirical explanations. It requires an understanding of the systemic changes that are either explicit or implicit in these theories; the worldviews that are privileged in those systems; and identification of the mythologies, metonymies and metaphors that underpin those worldviews. For instance, the central role of mythology and the use of the metonymic 'hydraulic civilisation' allusion is better understood if one accepts, as Rifkin believes, significant shifts in the mastery of energy and communication technology reframe our sense of space and time, and that they have been and are, as a consequence, transformative in nature.

It is therefore proposed to first amplify and then deconstruct each of these seven theories using a Casual Layered Approach as an organising methodology. As the Table (Figure 3.2) describes, this process will assist in identifying which parts of this synthesis are usefully explored, through firstly, a macrohistorical perspective, secondly, what might be absent, and thirdly, how Rifkin's theorising is positioned within the contemporary transformation discourse.

Theory of Limits

The adverse impacts of climate change have concerned Jeremy Rifkin since the 1980's. In *Entropy*, first published in 1980, he writes:

> If the scientific projections (for warming of between five or six degrees) are correct the human species will experience the unfolding of an entire geological epoch in less than a lifetime[268].

[268] Rifkin & Howard, *Entropy,* p.9.

Entropic effects are, for Rifkin, visible, identifiable, measurable, and ultimately, environmentally unsustainable, consequences of Industrial Age activity. These (entropic) effects create a litany of limits around which Rifkin wishes to engage. However, unlike other climate-focused writers of his time (these include Carson and Meadows[269]), Rifkin chooses to anchor his litany, not in climate science per se, but in physics. He asserts that while the *First Law of Thermodynamics* states that energy can neither be created nor destroyed, the Second Law points to Entropy, informing us "that energy always flows from hot to cold, concentrated to dispersed, ordered to disordered"[270].

Rifkin therefore grounds his litany in the nomothetic laws of physics. He goes on to argue that as humans have developed exosomatic instruments to extract energy from the environment we have developed a set of complex activities that: "as cultures, serve as an instrument for the withdrawal of energy from the larger environment, power in every society ultimately belongs to whoever controls the exosomatic instruments that are used to transform, exchange and discard energy"[271]. Therefore, the sustainability of the current human experiment is inextricably linked to, and dependent on, the manifestations and level of entropic effects society will accept and its willingness to sustain the governance and economic arrangements that determine its energy relationships.

Rifkin is not alone in making the link between environmental sustainability and thermodynamics. The 'big history' academic David Christian suggests that, while in cosmic terms humans are a small and very recent part of the universe, they have learned to tap larger energy flows (measured as amounts of energy or ergs for any given mass per 0.1 grams) than any other organism on earth, and by some estimates, more than all other parts of the cosmos[272]. He goes on to argue that they have done this through two important non-genetic adaptive mechanisms: the evolution of symbolic language (the capacity to create information); and the social capability for collective learning[273]. The consequence, he suggests, is that:

> [H]umans have acquired over time an astonishing ecological power, based on an accelerating capacity for finding new ways of extracting energy and resources from their

[269] R. Carson, *Silent Spring*, (1st Fawcett Crest edn.), New York, Fawcett Crest, 1964, p.304; D. H. Meadows & Club of Rome, *The Limits to Growth; a Report for the Club of Rome's Project on the Predicament of Mankind,* New York, Universe Books, 1972, p. 205.
[270] Rifkin, *The Third Industrial Revolution,* p. 195.
[271] Rifkin and Howard, *Entropy,* p. 73.
[272] D. Christian, 'World History in Context', *Journal of World History,* vol. 4, 2003, 437-58, p. 446.
[273] ibid., p. 445.

THEORY	LIMITS	DISCONTINUOUS CHANGE	INDUSTRIAL REVOLUTION	EMPATHIC CONSCIOUSNESS	LEADERSHIP	POST CAPITALISM	TRANS-FORMATION
LITANY	Entropic effects of Industrial economy.	Energy and Communication technologies define social & economic form and shape.	Definable periods, based on disruptive energy & communications, acting as infrastructures.	Framing of reality determines scope of empathy.	Leadership is widely dispersed and has many forms.	Current system in decline and not sustainable.	Collapse or Transform before entropic effects overtake humanity.
STRUCTURE / SYSTEM	Systemic behaviours have been developed that reward the externalisation of environmental risks & discount the role of energy conversion efficiency as a driver of growth.	The nature, arrangement and pervasiveness of infrastructures of energy & communication is what matters not that of any particular technology.	Dominant infrastructures frame the sense of reality for those affected by them. The economic model of Adam Smith is flawed and environmentally unsustainable. The economic model of Adam Smith is flawed and environmentally unsustainable.	Change in the nature of empathic connections that frame the nature of relationships through which identity is constituted.	Large structural (nomothetic) shifts enable a shared consciousness social code) among cohorts of actors.	Operating logic is being eroded – disappearing margins in both supply and demand.	Shift away from dominance of Fossil Fuels to IoT infrastructure and the hybrid economy.
WORLD VIEW	The economic model of Adam Smith is flawed and environmentally unsustainable.	Technologically determined economic & social arrangements are the foundation of civilisation.	Our sense of reality – in terms of time & space frames our world view.	Reality needs to be framed through the lens of an extended ecological self.	Shared and Collective (Biosphere) Consciousness creates a new cosmopolitanism.	From ownership of property to access to property.	Shift from an econo-centric societal model to an eco-social-centric societal model
DOMINANT MYTH METAPHOR	Narratives that drive a shift in emphasis from the quantity & worth of ones possessions & the quality and meaning of one's relationships or quality of life.	We define our infrastructures and over time our infrastructures define us.	The struggle for the future is a contest between competing (2nd and 3rd Industrial Revolutions) senses of reality.	We are all actors on the world stage – there is no audience.	An asabiya for the future in a collaborative and networked commons overcomes & resolves tensions with (fading) autonomous self interest.	A collaborative commons based on abundance not scarcity thinking.	Intergenerational success and happiness does not equate with improvements in materialistic growth.

Figure 3.2 Summary of key ideas explored through the lens of CLA

> surroundings. However under the harsh rule of the second law of thermodynamics the energy differentials that support life today will diminish[274].

Christian therefore supports Rifkin's view of entropy as both an unintended consequence of the way humans have evolved their social arrangements, together with the economies that support the architectures and structures that enable those arrangements.

Before considering the challenges that entropy poses for human cultures, it is worth noting that, in the Afterword to the 1989 edition of *Entropy,* there is a detailed and careful argument about the nature of the Second Law of Thermodynamics and its application to living organisms as open systems[275]. This argument is important as many of those confronted by Rifkin's view of the entropic nature, and thus limits of the modern economy, counter that the law can't possibly apply as human beings are 'living open systems' that exchange both matter and energy with the environment. In this discussion, Rifkin points out that there is no contradiction between living systems and the law of entropy, as long as the increase in entropy of the environment more than compensates for the decrease in the entropy of the organism; that the law in itself does not determine the speed of the degradation; that unavailable matter cannot be recycled; and finally, that a closed system cannot perform work indefinitely at a constant rate[276].

Having established that socio-economic arrangements have significant entropic effects, Rifkin also proposes that these (systemic) models reward behaviour that externalise entropic effects, whilst at the same time emphasising financial models as drivers of growth, and marginalising the dominant role that energy efficiency has always had in the same process. In his view these system effects, which underpin his litany, have brought contemporary humanity to a watershed. Further, this has in part been caused by a fault line; one that runs through classical economic theory (a worldview) "where nature in itself is seen as useless and only becomes of value when human beings apply their labor to it".[277] As a consequence, "despite the incontrovertible fact that economic activity creates only temporary value, most economists don't look at the process from a thermodynamic perspective"[278]. If they did, he surmises, they would realise that climate change represents

[274] Christian, 'World History in Context', p. 457.
[275] Rifkin & Howard, *Entropy,* pp. 299-307.
[276] ibid., pp 303-04.
[277] Rifkin, *The Third Industrial Revolution,* p. 199.
[278] ibid.

"the dark side of the commercial ledger of the Industrial Age"[279], and that the litany of scientifically established entropic effects is of such import that "the dialectic of history that has characterised the human saga since the first hydraulic civilisations thousands of years ago may have played itself out[280]. The only escape, in his view, is to develop an alternative world view; one that is capable of "imagining an energy regime and economic revolution, where a quality of life could be achieved without undermining the health of the biosphere, so that life on Earth can continue to flourish"[281]. The consequence of this re-imagination requires a rethinking of social concepts of space and time, in order that the geochemical makeup of the earth is not viewed as a resource or property. Rather, it is seen as an intricate part of the interactive relationships that sustain the life of the planet[282]. What is being suggested here is that these redefined relationships are predicated on a shift in economic priorities from productivity to generativity on the one hand, and to stewarding relationships on the other.

Throughout Rifkin's work a consideration of entropy and its effects provides a fundamental and consistent alternative narrative to the dominant global, industrial, economic and policy discourse. This narrative suggests that there is a fundamental misunderstanding about the forces that have created the system. Citing Ayres and Warr[283], Rifkin contends the economic principles that underpin the Second Industrial Age are inconsistent, not just with the *Second Law of Thermodynamics,* but also with the reality that it is the phenomena of energy conversion, with increasing levels of efficiency, that provides the basis for some 86% of economic growth. Instead, the Age of Progress discourse has focused on machine capital and labor performance; factors that only account for the remaining 14% of growth[284].

The future in this contention is dependent on accepting that the fossil fuel model has matured and will become increasingly expensive to bring to market. It also requires an understanding that aggregating increased energy efficiency with fewer entropic effects is the only acceptable way forward. It is on this basis that one might conclude that the Theory of Limits, at both a litany and a systemic level, is anchored in a scientific worldview,

[279] Rifkin, *The Third Industrial Revolution,* p. 203.
[280] Rifkin, *The Empathic Civilization,* p. 494.
[281] ibid., p. 511.
[282] ibid., pp. 510-11.
[283] Rifkin, *The Third Industrial Revolution,* p. 196.
[284] R. Ayres, *The Economic Growth Engine: How Energy and Work Drive Material Prosperity*, Northampton, MA, Edward Elgar, 2009.

where particular technology choices provide either an unsustainable ecosystem or a shift to a non-fossil fuel system. However, unlike other technological optimistic positions, the alternative option will require acceptance of a new narrative, where a near-zero marginal cost communication/energy relationship[285] is designed for life, within the constraints of the planet. Further, it will necessitate a transition from the capitalist market ideology of the Second Industrial Revolution to a new set of social and economic relationships built around a Collaborative Commons[286].

Therefore, at multiple levels, Rifkin explicitly challenges the conventional view of economics[287]. He suggests that Smith and others wrongly grounded their theories in Newtonian views that were not only mechanistic and utilitarian but defined 'space as a container—a storehouse—full of useful resources ready to be appropriated for economic ends"[288]. The appropriation of these resources as property to be exchanged, drove a binary concept of social reality and notions of self interest, that not only promote entropic effects, but the belief that such concepts are innate to the human condition. Escape, therefore, will require a rethinking of not just the 'market' and 'property' but "a far different set of biological drives—the need for sociability and the quest for community"[289]. This view poses a significant challenge to an ethos that accepts that humans should consider environmental goods and services as a 'right' to be exploited. It also makes visible the ongoing sustainability of numerous deeply-patterned mythologies that have materialistic growth and environmental dominance at their core, and it offers the suggestion that the future must be premised on lifestyles where the emphasis is on quality and meaning**.**

Macrohistorical commentary on Rifkin's Theory of Limits

While there are echoes of Rifkin's concerns about the limits of the mechanistic age in Toynbee: "is the productivity of the cornucopia really as inexhaustible as it was assumed to be?"[290]; Spengler: "the unwearying care for the world as it is, is the very opposite of the interestedness of the money-power age"[291]; and Sorokin: "this sensate culture is committing suicide"[292]; some macrohistorians[293] have framed the system challenges quite

[285] Rifkin, *The Zero Marginal Cost Society,* p. 71.
[286] ibid., p. 72.
[287] In *The Third Industrial Revolution* (Rifkin, 2011) there is a whole chapter entitled 'Retiring Adam Smith'.
[288] Rifkin, *The Zero Marginal Cost Society,* p. 88.
[289] Rifkin, *The Third Industrial Revolution,* p. 223.
[290] Toynbee, *A Study of History*, vol. 2, p. 332.
[291] Spengler, *The Decline of the West*, p. 397.
[292] Sorokin, *Social & Cultural Dynamics,* p. 625.

differently. Ibn Khaldun would postulate that it is the loss of *asabiya* or 'group spirit,' the social corruption of the city, that lies at the heart of civilisational destruction. It is this *asabiya* that keeps people "from splitting up and abandoning each other. It is the source of unity and agreement"[294]. In modern parlance it suggests the need for, and undoubted absence of, a shared global vision. Sarkar would go further and advance the view that it is more of an issue of imbalance in the temporal domain where economics and growth are privileged at the expense of both the environment and social democracy[295], where a belief that 'technology will solve everything' overshadows consideration of not just the ethical but the ability to consider the liberation of transcendence to the 'other,' "wherein all property is owned by the supreme consciousness"[296]. Spengler asserts it is both a problem of culture and "the despairing struggle of technical thought to maintain its liberty against money thought"[297] in a social context when we have the freedom to do the necessary or nothing, within the narrow limits that will make life worth living[298]. Sorokin also takes a different view. He asserts that any system during the cause of its existence is dynamic rather than static in state, and therefore by its very nature is always changing. The reality of this process of never-ending or 'immanent change' means that over time the possibilities of system form become exhausted, and as a consequence the system loses all its essential characteristics and becomes unidentifiable[299]. Under this scenario, ongoing linear extension of any system is not possible. From this exhaustion of possibilities newly born systems emerge that, while they have significant variation, also have rhythm and recurrence. It is the nature of these systems that Rifkin contemplates in his *Theories of History, Leadership and Post Capitalism.*

From these different postulations, a number of questions about Rifkin's Theory of Limits can be usefully explored. Perhaps the most obvious asks: is humanity at the twilight of a sensate culture[300], where almost all the possibilities for change within the system have been exhausted? If so then what kinds of considerations might facilitate the required change? Might this be just simply a shift in the causal-functional relationship between philosophy/culture and technology? Perhaps it requires some consideration of the role of

---

[293] Rifkin's concerns about the environment are supported by many contemporary writers, including the macrohistorian James Lovelock; hence the word 'some'. Lovelock, *The Revenge of Gaia*.
[294] Ibn Khaldun, *The Muqaddimah,* vol. 1, p. 438.
[295] Inayatullah, *Understanding Sarkar,* p. 73.
[296] ibid., p. 77.
[297] Spengler, *The Decline of the West,* p. 412.
[298] ibid., p. 415.
[299] Sorokin, *Social & Cultural Dynamics,* p. 654.
[300] ibid., p. 672.

the transcendent. Certainly in both Sorokin and Sarkar's views that might be the case. If the latter view were to hold true, then Rifkin's Third Industrial Revolution might emerge then fail to thrive, and as such, the question merits further exploration in order to deepen understanding.

Theory of Discontinuous Change

It has just been established that in Rifkin's theorising, the entropic debt from the Second Industrial Revolution requires a necessary shift in the way energy is created, distributed and used. Furthermore, this litany of discontinuous change is occurring at a time when there is also a steep change in the nature of communication technologies, both available and deployed. So significant are these energy and communications shifts, he postulates, that when taken together they will constitute a paradigm shift: "an all encompassing description of reality, (that) once accepted becomes difficult if not impossible to question with regard to its central assumptions"[301]. It is this convergence of new energy forms and communications that will subsume traditional, hierarchical organisations of economic and political power and in their place create:

> ...a new era marked by collaborative behavior, social networks and boutique professional and technical workforces, the hope that we can arrive at a sustainable post-carbon era by mid century and avert catastrophic climate change[302].

On the basis of this theoretical construct, the only escape from the adverse effects of the Second Industrial Revolution is (at a litany level) dramatic transformational change This is enabled through potential reconceptualisations of time and space that become available with the widespread adoption of new energy forms and communications technologies as 'infrastructures' and around which everything else is organised. In the way that Rifkin has defined 'infrastructure' these are not a static set of building blocks. Rather, they create "an organic relationship between communication technologies and energy sources that together create a living economy"[303]. As such, these technological infrastructures or physiologies (biological infrastructures):

[301] Kuhn as quoted in Rifkin, *The Zero Marginal Cost Society,* p. 9.
[302] Rifkin, *The Third Industrial Revolution,* p. 5.
[303] Rifkin, *The Third Industrial Revolution,* p. 35.

> ...act like laws (systems). They create both opportunities and limits; they promote some interests at the expense of others. To live within the multiple infrastructures of modern societies and to know one's place in gigantic systems both enables and constrains us[304].

While they differ from the Marxist–Gramscian structures and superstructures, which refer to the organisation of social relationships, infrastructures defined in this way are axiomatic to both Rifkin's (worldview) Theory of Industrial Revolution and the nature of the society (the Collaborative Age) that emerges from it. He offers no other possibility, and his reading of civilisational development is predicated upon both what has been, and what could emerge. Thus, one might conclude that this argument for these particular causes of change is the foundation on which all else rests.

While the fundamentals of Rifkin's infrastructure proposition are quite clear, the technologies that are central to this contention have undergone a rapid evolution. This has had two effects. The first has been to strengthen his advocacy as both the disruptive effects and competitive possibilities become more obvious. The second has required alterations to his narrative. Perhaps the most significant shift in form has occurred with respect to energy. In 2002 Rifkin wrote about the discontinuous effects of a worldwide hydrogen energy web[305], for at that time hydrogen was seen as the next big step in the energy story. However he qualified its centrality and the shift from the laboratory to society at large by opining,

> [T]he real question is whether it is possible to use renewable forms of energy that are carbon-free, like photovoltaic, wind, hydro and geothermal to generate the electricity that is used in the electrolysis process to split water into hydrogen and oxygen...with the qualification that it is made process competitive with the natural-gas steam reforming process"[306].

This emphasis on a systemic shift to carbon free, while initially hydrogen-centric, allowed him, in later works, to develop a more agnostic energy argument, he defined as *the Five Pillars of the Third Industrial Revolution.* These pillars were: a shift to renewable energies; the transformation of building stock into micro-power plants; the deployment of energy storage technology; the use of the internet to manage energy sharing intergrids; and a shift from fossil fuels to electricity for mobility[307]. However, he also pointed out that each can only function in relation to the others, thus suggesting that the use of the word 'pillars',

[304] P. Edwards, 'Infrastructure and Modernity: Force, Time and Social Organization in the History of Socio-Technical Sysytems', *Technology and Modernity: the Empirical Turn,* 2002, p. 6.
[305] Rifkin, *The Hydrogen Economy,* p. 9.
[306] Rifkin, *The Hydrogen Economy,* p. 186.
[307] Rifkin, *The Third Industrial Revolution,* pp. 36-38.

with its allusion to columns or silos, is perhaps an inappropriate metaphor for a concept based on interconnected and interdependent feedback loops. What emerges, therefore, is an emphasis in the energy argument on the nature of an alternative and disruptive infrastructure, rather than any particular carbon-free technology.

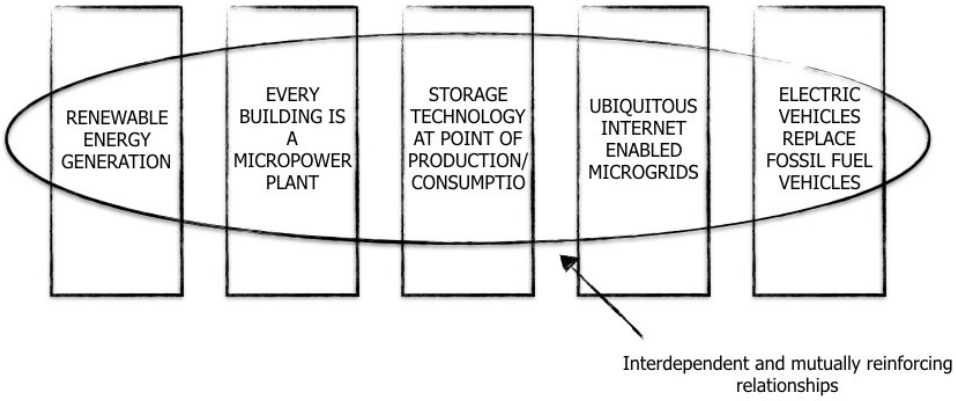


Figure 3.3 Rifkin's Five Pillars of the Third Industrial Revolution

While it is this conceptualisation of future energy infrastructure that has attracted significant interest by the EU, China and a number of cities, perhaps with less regard to consideration of other aspects of the Third Industrial Revolution postulation, it too has been subsumed, in Rifkin's view, into what is now being called the Internet of Things (IoT). This he characterises as:

> [T]he physiology of the new economic organism...a communications internet, an energy internet (the five pillars) and a logistics internet that work together as a single operating system continuously finding ways to increase thermodynamic efficiencies and productivity[308].

With this new architecture, he argues, the logic that has driven the capitalist model is disappearing, because the IoT is "already boosting productivity to the point where the marginal cost of making many goods and services is nearly zero, making them practically free"[309].

[308] Rifkin, *The Zero Marginal Cost Society* p. 9.
[309] ibid., p. 10.

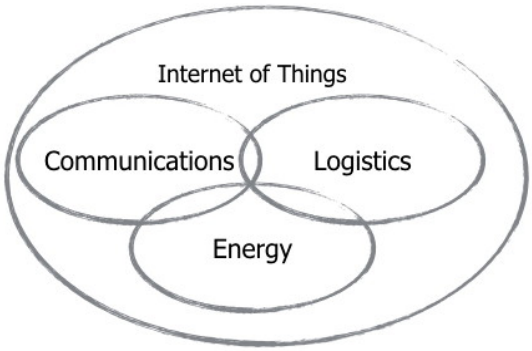


Figure 3.4 The physiology of the Internet of Things

Unlike the energy argument that has been at the forefront of Rifkin's work until *The Zero Marginal Cost Society*, less emphasis has been placed on the role of communications in the revolution, although one might argue that as an infrastructure it is already present—"suddenly everyone has access to everyone else, in a kind of instant democratization of communication"[310]—and its ubiquity and evolution therefore requires little advocacy. If this is the case, then Rifkin's focus on the emergent effects of the communications infrastructure, and his concentration on the possibilities it enables (design commons, global empathic consciousness and the rethinking of work) might explain the difference in emphasis.

Hence, while the argument or litany for revolutionary effects of a communications revolution are constantly asserted, its architecture is less finely drawn than those for energy. "The IT sector and the internet did not in and of themselves constitute a new industrial revolution"[311]. In *the Empathic Civilization* this communications revolution is described as an electronic revolution[312], in *the Third Industrial Revolution* as distributed communication technologies,[313] and in *the Zero Marginal Cost Society* as "a globally connected world where every moment of our lives is eagerly posted...in laterally scaled networks"[314]. This concentration on emergent characteristics, such as peer-to-peer networks, a shift to access rather than ownership of property, and the development of a design commons, make it hard to pinpoint just exactly what the discontinuous technological communications shift is, at a systemic level. Is it the 1990's shift to digital, and arguably its subsequent evolution? Or is it the more recent discontinuities of network

[310] Rifkin, *The Hydrogen Economy,* p. 219.
[311] Rifkin, *The Third Industrial Revolution,* p. 12.
[312] Rifkin, *The Empathic Civilization,* p. 187.
[313] Rifkin, *The Third Industrial Revolution,* p. 21.
[314] Rifkin, *The Zero Marginal Cost Society,* p. 75.

technologies per se? Furthermore does the distinction between the two, if there is one, matter?

Whatever the answers to these questions, Rifkin's contentions of cause and effect seek to demonstrate the crucial role these technologies have in the transformation of society to a connected, global, neural network. This scenario he suggests is both "a bit scary but liberating at the same time"[315]. This is because the process of transformation will deconstruct what we understand by economy, how we value and categorise the notion of property, and how we define what we think of as work. In short it will render almost redundant much of our collective learning. At the same time, it provides a pathway from unthinkable and unwanted entropic effects.

As was asserted earlier, the discontinuous effects of particular energy and communications infrastructures are critical to Rifkin's theorising. However as the quote below suggests, it is an argument for, and engagement with, deep patterns, perhaps even laws of change, over long periods of time.

> The forty-year build out of the TIR infrastructure will create hundreds of thousands of new businesses and hundreds of millions of new jobs. Its completion will signal the end of a two hundred year commercial saga, characterized by industrious thinking, entrepreneurial behavior and mass labour workforces and mark the beginning of a new era marked by collaborative behaviour, social networks and boutique professional and technical workforces.[316]

Macrohistorical Commentary

From a macrohistorical perspective, on balance, it privileges technologically inspired economism and materialism over philosophy, structure over agency and civilisation over culture as the driving force. It is not that Rifkin ignores issues of philosophy, agency and culture, indeed to the contrary. However there are not the transformational, causal-functional linkages in these considerations of the nature ascribed to the energy-communications infrastructure nexus. In other words, he suggests that these forces of infrastructure create the space and the opportunity for a shift in human consciousness and social arrangements, not the other way around.

[315] Rifkin, *The Zero Marginal Cost Society,* p. 77.
[316] Rifkin, *The Third Industrial Revolution,* p. 5.

Does this kind of privileging act against the transformation Rifkin is arguing for? While Rifkin's work is more qualified than Marx's intense materialism, in its emphasis it has Gramscian structure/superstructure and hegemonic overtones as a relationship model. It could align with Toynbee's notions of challenge and response and it sits comfortably, with the narratives, at least in a causal sense, of contemporary world system theorists like Tainter and Dator. On the other hand some macohistorians, including Sorokin, Sarkar and Spengler would argue that change in philosophy, mentality or spiritual awareness is a necessary precondition for the kind of transformational shift Rifkin espouses. In this episteme, without such a change, humanity cannot move to the next phase in the cycle. The next phase Sorokin would describe as a shift, from the sensate to the ideational, but first it must be conceptualised. Sarkar in particular would argue:

> [S]ocial destiny is shaped through the medium of the acquisitive human intellect, [one that is developed] through proper practices such as meditation [so] the deeper layers of the mind are attained and [thus] the science of the world is easily perceived and the glaring inequality of history laid bare[317].

Thus for Sakar, the shift is from an era of economism (Vaeshya) to either an era of decentralisation (Shudra), or to a new era, beyond the cycle completely, with the aid of spiritual intellects or Sadvipras.

An exploration of tensions of this nature (a change in mentality versus just a materialistic transition) is not just a theoretical exercise in helping us understand Rifkin. It is also important in framing how society determines and shapes the nature of the social license in which these infrastructures of the future could and should operate. The network theorist Castells is insistent that attention should be given to this matter. "The shaping and guiding of this society is, as has always been the case in other societies, in the hands of the public sector, regardless of ideological discourses hiding this reality"[318]. If there is a failure to do this and the communication infrastructure of the Collaborative Age is allowed to evolve in a way that is contrary to what is known as 'net neutrality,' or the possibility that "the technologies make it feasible for a large portion of humanity to gain immediate access to a massive amount of information and disseminate it widely"[319], then it opens up an alternative market, rather than a philosophical position where "network [communications]

[317] R. Batra in Fitzgerald & Inayatullah, *Transcending Boundaries,* p. 40.
[318] M. Castells & G. Cardoso (ed.), *The Network Society: From Knowledge to Policy*, Centre for Transatlantic Relations., 2005, p. 17.
[319] D. Tapscott & A. Williams, *Radical Openess: Four Unexpected Principles for Success*, [online], New York, TED Conferences LLC, 2015, loc. 701, TED Books, (accessed 18 September, 2013).

users are victims rather than beneficiaries"[320]. In this scenario cognitive capitalists[321], acting in the guise of Collaborative Age champions, simply replace mechanistic capitalists. If this occurs then progress towards the creation of a Collaborative Society is subverted and transformation to an emergent planetary system is stalled.

There are therefore a series of dependencies if this theory is to be sustained. The most important is the assertion of an energy-communications determinism, almost nomothetic in nature. Its expression as infrastructure that by its very nature changes how people experience normative concepts of time, form and space, suggests that infrastructure over time changes mentality. For a world that is now mostly urban, acceptance of this premise has important implications, and it will be explored in some detail with particular reference to its treatment, both by macrohistorians and contemporary theorists, later in this thesis.

Theory of Industrial Revolution

Rifkin's definitions of the stages of history provide an overarching narrative. This conceptualises large-scale patterns in human social arrangements and purposeful activity, and points to significant disruption or revolution to those patterns. Rifkin asserts these arise from significant and discontinuous energy and communications developments; "qualitative changes...that reshape the way the human brain understands reality"[322]. It is this argument about the reshaping of reality, or conceptions of time, form and space, that allows Rifkin to do two things: firstly, to create distinctions about the industrial era that are more finely granulated than preindustrial/industrial definitions that are manifold in contemporary analysis, and secondly, to define the concept of revolution in a nomothetic, rather than an ideographic, way. What emerges, therefore, are stages of history, based on shifts in senses of reality, shaped by new infrastructures, not a set of stages based on either civilisation or culture per se. Although one might argue that part of the notion of culture and a sense of reality are one and the same thing.

[320] Keen, *The Internet Is Not the Answer,* loc. 50, Amazon, (accesed 23 January 2015).
[321] Kostakis & Bauwens, *Network Society and Future Scenarios for a Collaborative Economy*, loc. 233.
[322] Rifkin, *The Empathic Civilization,* p. 182.

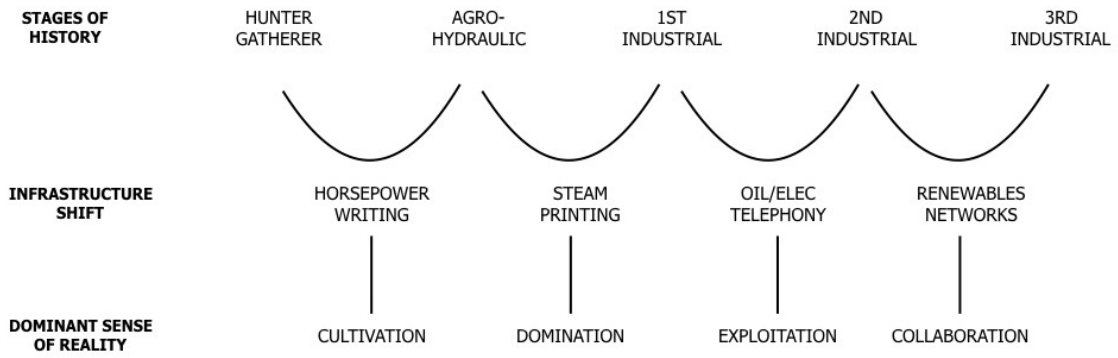


Figure 3.5 Relationship model between Stages of History and Technological Infrastructure

In Rifkin's litany, each of these changes is, in 'reality', a trigger for a revolution. Curiously, while the first two stages are literally described, with the revolution and the patterns or reality that emerge being conflated—from hunter-gatherer to agricultural (or sometimes agro-hydraulic)—the later three industrial revolutions are simply numbered. In Rifkin's narrative style these infrastructure changes, the sense of reality they create, and the nomenclature of stages, are used interchangeably, throughout his works and within works themselves. Whatever alignment emerges is simply consistent with the point that he is making at the time. For example in *The Empathic Civilization* he argues: "the nineteenth century might just as well have been called the *acceleration revolution* rather than the industrial revolution"[323]. When exploring the effects of steam on mobility, in *The Third Industrial Revolution,* he describes both the First and Second Revolutions as "conventional top-down organization of society...in fossil fuel based revolutions"[324]. Again, in talking about the transition from oil in *the Zero Marginal Cost Society*: "deep play in the Collaborative Commons becomes as important as hard work"[325], when describing the impact of robotics and automation. It might be postulated that this shift in accepted senses of reality constitutes a nomotheticism that could not and would not be contemplated within an episteme that privileges event-based revolution.

Because of this infrastructure/reality relationship, Rifkin's Theory of Industrial Revolution rises above a simple chronicle of world events, although the word 'industrial' has particular metonymic characteristics that privilege the reality of modernity. These revolutions (whatever we might call them) are not relational and ideographic in nature, in

[323] Rifkin, *The Empathic Civilization,* p. 333.
[324] Rifkin, *The Third Industrial Revolution,* p. 28.
[325] Rifkin, *The Zero Marginal Cost Society,* p. 132.

the same way that units of analysis used by other writers (e.g. Wallerstein) seem to be. In contrast, these stages are defined, at a systemic level, where Galtung's tides of forces and mechanisms"[326] take precedence. While the voice of Rifkin-the-advocate is clearly evident, as is the extensive use of metonymy and metaphor to prosecute his cause, his principal objective is to emphasise the change in power dynamics that necessarily accompany the revolutionary shift from one stage of history to the next.

These metaphorical struggles manifest themselves in almost cosmic terms. In many ways the following passage typifies the approach.

> [T]he shift in the way the world does business has triggered a struggle of epic proportions between the old guard of the Second Industrial Revolution, who are determined to hold on to their shrinking vestiges of power and the young entrepreneurs of the Third Industrial Revolution who are equally committed to advancing a lateral, sustainable economic end game…[and later] [w]here does industry and government want to be in twenty years from now: locked into the sunset energies, technologies and infrastructures of a failing Second Industrial Revolution, or moving toward the *sunrise* (his emphasis) energies, technologies and infrastructures of an emerging Third Industrial Revolution?[327].

Leaving aside the rising concern that many of these so-called young entrepreneurs are acting in monopolistic ways that would seem at least by some to be almost unconscionable[328], the use of ageism, allusions to vestiges—shrinking or otherwise—'sunset' versus sunrise, and the bestowing of what is determined to be 'sustainable' and 'lateral' on the 'emerging' entrepreneurial pretenders, clearly shows what is privileged and what is not.

Macrohistorical commentary

This use of metonymy and metaphor does not negate Rifkin's central thesis in any way. To the contrary, Runia suggests that it is a surprisingly useful tool for coming to grips with 'discontinuity', which he postulates is not just what you have left having deconstructed continuity; rather, it is the ability of humans to 'surprise themselves', either passively by being overwhelmed by what has been written or done before, or by actively overwhelming what has be done before by fresh action[329]. Clearly Rifkin is an advocate for the latter while constantly worrying about the entropic effects of the former. Nor can Rifkin be

[326] Galtung & Inayatullah, *Macrohistory and Macrohistorians*, p. 5.
[327] Rifkin, *The Third Industrial Revolution,* p. 119.
[328] Keen describes these entrepreneurs as having "much in common with the capitalist robber barons of the First Industrial Revolution", in Keen, *The Internet Is Not the Answer*, loc. 3475.
[329] Runia, *Moved by the Past,* loc. 1162-77.

accused of describing these Stages of History in language that is unknown. While many macrohistorians have their own views, Sorokin suggests that the hunter-gatherer-pastoral-agricultural-industrial descriptor is one of the few ways available to define the main types of society and socio-cultural systems[330]. Toynbee also makes the causal link in his reflections on the nature of master activity[331], and as Spengler notes, the discovery of the steam engine upset everything and transformed economic life (a Faustian Pact that has altered the face of the earth!) from the foundations up[332].

Thus, one might conclude that Rifkin's Theory of Industrial Revolution provides 'an" explanation (versus 'the' explanation) for both what has been and what might become. It has meaningful causality with both his Theory of Limits and his Theory of Discontinuity. It also provides a consistent, non-event based narrative, at least in the Western episteme, of '*la longue duree*'[333]. It should be noted, though, that Rifkin's primary objective is to advocate a transition towards a new Collaborative Age and/or to trace the evolution of particular ideas that support his main thesis, as he does with the notion of empathic reach in *The Empathic Civilization*. It is not to write a history of the world per se. That said, it might be useful to ask how other conceptual 'stages of history' frameworks, both cyclical and linear, help us understand Rifkin's theorising. Further, is the process of revolution the same thing as what emerges? What is clear is that Rifkin's Theory of Revolution is defined in a way beyond 'event history.' Hence one might conclude that the macrohistorical frame is an appropriate lens through which to explore understanding.

Theory of Empathic Consciousness

A constant theme in Rifkin's thesis is that the Third Industrial Revolution will change both the actual nature of relationships among human beings, and our sense of that nature, because new spatial and temporal dynamics make such a change possible. In the process, he argues the acceptance of Enlightenment inspired individualism as the de facto way of behaving, but its emphasis on "the pursuit of material self interest, autonomy and independence," as a behaviour can, and must, give way to a set of social relationships,

[330] Sorokin, *Social & Cultural Dynamics,* p. 658.
[331] Toynbee, 'Reconsiderations', p. 661.
[332] Spengler, *The Decline of the West*, p. 411.
[333] F. Braudel, 'Histoire Et Sciences Sociales: La Longue Durée', *Annales. Histoire, Sciences Sociales,* 13e Année, no. 4, 1958, pp. 725-53.

based on "collaborative interest, connectivity and interdependence"[334]. Central to this reframing of relationships is a carefully crafted architecture of the evolution of empathic consciousness among human groups. This architecture exactly parallels Rifkin's Theory of History. Therefore one might conclude that how we express empathy, our sense of consciousness and our framing of reality are intimately interconnected ideas.

Stage of History	**Hunter-Gatherer**	**Agro-Hydraulic**	**1st Industrial**	**2nd Industrial**	**3rd Industrial**
Empathic Focus (Litany)	Blood ties/Tribes	City State Religion	Empire	Nation	Biosphere
Framing of Reality (System)	Cosmic	Patriarchy & Divine determination	Rationalism Modernism	Participatory Individualism	Extended ecological self
Consciousness (World View)	Mythological	Theological	Ideological	Psychological	Dramaturgical
Metaphor & Mythology	Legend	Parable	Heroic	Homo Urbanus Armchair Reality	Homo ecologicus (relational) mankind
		Romantic			

Figure 3.6 Showing the causal connection between the sense of self, historical framing of reality, and consciousness.

Rifkin's Theory of Empathic Consciousness rests on two premises. The first is that humans are biologically wired to be empathic. As the basis of this assertion he cites the 1996 work by the Italian neuro-cognitive scientist, Rizzolatti (and extended by others) in discovering the role of mirror neurons in primates. Rizzolatti argued that "mirror neurons allow us to grasp the minds of others not through conceptual reasoning but through direct stimulation," thus establishing that not only are we social animals but that there are biological, rather

[334] Rifkin, *The Third Industrial Revolution,* p. 221.

than just environmental, mechanisms that make this sociability possible[335]. If motor neurons absorb culture directly, and this absorption is combined with the adaptive capacities of symbolic language and collective learning[336], then the case can be made for the fusing of reason and feeling into 'embodied experience.' In this analysis humans might be defined, first and foremost, as a social species; animals that are both co-operative and competitive, a species who understand that "if our self interest strays too far from our social bond we risk ostracization"[337]. This is a very different litany to those long accepted traditions that hold truth as some kind of external reality (Descartes), and that humans always act first in their own self interest (Hobbes).

Rifkin does not dismiss these earlier narratives entirely as "they have very special qualities of previous world views that continue to make them attractive to millions of human beings"[338]. Rather, he argues that the philosophical constructs they depend on can no longer stand alone as the only way to frame reality, given the role that mirror neurons play. If Rizzolatti's contentions and Rifkin's support of the same are accepted, the evolution of our empathic sensibility and the consciousness it engenders reflects a different interpretation from those earlier philosophical and psychological theories where reason and feelings are divorced and authority is disembodied. Furthermore, it requires new thinking about the pathway that bridges the is/ought gap "between what is and what ought to be in human behavior"[339]. Within this framing, the constraints of hierarchy and boundaries of exclusion that place acquisitiveness and self-interest at the center of the human experience can be challenged[340].

Rifkin's second premise is that changes in empathic scope and consciousness "accompany shifts in the way humans organize their relationships to the natural world and in particular the way people harness the energies of the planet"[341]. This is his global society where there is no audience and each of us has to play a (sometimes leading) role on the same collective stage. Consistent with his premise that infrastructures reframe our sense of spatial and temporal reality, one can therefore discern an evolutionary metaphorical pattern**,** in his view both spotty and nonlinear, that is reflected in our sense of temporality;

[335] Rifkin, *The Empathic Civilization,* p. 83.
[336] D. Christian, 'World History in Context '.
[337] Rifkin, *The Empathic Civilization,* p. 129.
[338] ibid., p. 143.
[339] ibid., pp. 174-78.
[340] ibid., p. 177.
[341] Rifkin, *The Empathic Civilization,* p. 181.

the spatial 'range' of empathic sensibility consistent with the dominant social constructs in people's lives. In the situation they found themselves in, hunter-gatherers had only concern (empathy), in the main, for their immediate family, tribes and bloodlines. Later, those in the Agrarian-Hydraulic Age exhibited a wider (perhaps learned) empathy for their city state/village, while still retaining and combining this with the earlier consciousness as well. For those who had access to the technologies of the First Industrial Revolution, a new geographic vista was more easily comprehended, and empires, rapidly followed by the nation state, as we now define it, became a preferred unit of analysis. In more recent times the sensing and reach that framed the nation state has become global. Rifkin describes this as "the extension of the human empathic drive to larger fictional families, cohering in ever more complex and interdependent communications/energy matrices and economic paradigms"[342]. In the Third Industrial Revolution he contends this 'global sensibility' must change again to a 'biosphere sensibility' that extends our ecological selves in a way that ensures we act to avoid "a rapidly accelerating entropic juggernaut", and engages humanity in "the vast project of life, where the planetary community realizes that everyone's and everything's health and wellbeing determines our own"[343].

With these reframings of empathic sensibility, in part determined by particular infrastructures, new modalities of reality, or dominant worldviews, complete with a metaphorical language, are created. These provide "a vehicle by which two (or more) people can share each other's inner world"[344]. As Figure 3.6 suggests in the Agro-Hydraulic Age, the modality was theological and dominant metaphors were principally those of determination by the divine 'other' or 'others'. However, with the Enlightenment that emerged in parallel with the First Industrial Revolution and particularly in the Western episteme, a new metaphorical frame developed that privileged science, progress and reason. The notion of Enlightenment is an interesting metonymical descriptor in itself, as it completely ignores earlier eras that might have equal, or even better, claim to the title. However it, for the most part, framed an ideological consciousness that, with a preference for mechanism and efficiency, fostered cultures that privileged markets and economics. As a consequence, it confined 'sensibilities' to either the arts or socially prescribed intimate occasions. Still later in the 20th century, this ideological identity was subsumed into a

[342] Again there is considerable use of metonymy and metaphor in this quote and the next. Rifkin, *The Zero Marginal Cost Society,* p. 300.
[343] Rifkin, *The Empathic Civilization,* p. 616.
[344] ibid., p. 152.

psychological consciousness, a more secular postmodernist interpretation of the world that "partially interprets and remakes the older forms of consciousness into its own image"[345]. This extreme emphasis on the 'individual' as a construct coincided with the establishment of a voracious American economic model, which still requires "upwards of a third of the world's energy and vast amounts of the Earth's other resources to support a population of less than 5% of the planet"[346]. Admired and copied elsewhere, the net effect has been the catapulting of humanity into a postmodern, existential wilderness where "religious man born to be saved was transformed into psychological man, born to be pleased"[347]. Systemically, what has emerged from this psychological consciousness is a socio-techno economic construct which, by its design and nature, is at war with the fundamentals of the planetary system and the many forms of life that depend on that system, complete with worldviews and philosophies that are supportive of this particular view of human entitlement.

In these circumstances, a pragmatic shift in empathic focus, consciousness and how reality is framed is fundamental to how both the Third Industrial Revolution and the Collaborative Age are defined and understood. In Rifkin's terms, this necessitates the need to see 'the self'' as part of and integral to a biosphere ecology, where "the planet itself is everyone's backyard"[348]. Leaving aside the Western-centric framing that 'backyards' implies, Rifkin proposes that a new urban-centric, cosmopolitan world, where everybody and everything can be connected, is necessary. It will be enabled by an:

> ...empathic sensitivity that is expanding laterally as quickly as global networks are connecting everyone. In the process the walls that have long divided people by gender, class, race, ethnicity and sexual orientation are being torn down[349].

This technologically influenced capacity to define and create relationships—the networked self—now defines everyone as actors on a stage, where our sense of identity is no longer just our private possession. Rather the self, in an interconnected world, is a "kind of fictional, constructed, consensually validated, quality that results from the interaction and communication between people"[350]. In this reading the Third Industrial Revolution is not just a matter of a changed identity. Rather it is a change in the nature of the connections that frame the relationships through which identities are constituted.

---

[345] Rifkin, *The Empathic Civilization,* p. 414.
[346] Rifkin, *The European Dream,* p. 379.
[347] Rifkin, *The Empathic Civilization,* p. 418.
[348] ibid., p. 426.
[349] Rifkin, *The Zero Marginal Cost Society,* p. 304.
[350] D. Brissett and C. Edgley, in *Life as Theatre,* cited in Rifkin, *The Empathic Civilization* pp. 560-61.

In Rifkin's view, two imperatives emerge from this new kind of relationship creation. The first is that the quality and meaning of one's relationships will become more important than the quantity and worth of one's possessions[351]. In other words, access becomes more important than ownership. The second is that "this new global connectivity, without any transcendent purpose, risks a narrowing rather than an expanding of human consciousness"[352]. This new intentional transcendent purpose, that requires wide acceptance, is contingent on a biosphere consciousness. It demands holistic thinking that in turn underpins a new global ethics which acts to both recognise and harmonise human behaviour in ways that not just constrain excessive use of resources, but sustain and enhance the life sustaining forces of the planet[353]. In the Third Industrial Revolution, the purpose for relationships and the nature of those relationships is a critical component in determining the success or otherwise of both the transformation, and what emerges from it.

Macrohistorical Commentary

Rifkin's Theory of Consciousness would be the subject of much discussion among macrohistorians, had they had the opportunity to contemplate it. Leaving aside the considerable challenge to the Aristotelian sense-reasoning dichotomy posed by the scientific discovery of mirror neurons, and that theories, as devices, are themselves artefacts in the construction of senses of reality,[354] certain aspects would certainly resonate. Ibn Khaldun, for instance, is somewhat prescient in suggesting "that humans have a natural disposition to cooperate"[355]. Likewise, Spengler argued that "if we allow that socialism (in the ethical not the economic sense) is that world-feeling which seeks to carry out its own views on behalf of all, then we are without exception, willingly or no, wittingly or no, all socialists[356].

Others would have had concerns. Sarkar would have gently suggested that there are ways of knowing that have not been considered [357] and that while each 'way' has its price, including in this instance the extended ecological self, it is only with devotion and love that real progress is possible and contradiction free. Within this understanding, he would

[351] Rifkin, *The Empathic Civilization,* p. 591.
[352] ibid., p. 594.
[353] Rifkin, *The Empathic Civilization,* p. 600.
[354] Inayatullah, *Understanding Sarkar,* p. 287.
[355] Ibn Khaldun, *The Muqaddimah,* vol. 1, p. 84.
[356] Reason, sense, inference, intuition, authority and devotion/love, in Spengler, *The Decline of the West,* p. 176.
[357] Inayatullah, *Situating Sarkar,* p. 67.

perhaps have argued that the whole idea of consciousness is more nuanced, and that spirituality cannot be localised and relativised, in the way Rifkin has done. Instead, it must be seen alongside, and integrated with, structure and agency[358]. For Sarkar then, the revolution that Rifkin advocates requires both a new philosophy and a sense of the spiritual to succeed. Toynbee, also, would worry that an over-focus on the intelligible, at the expense of the irregularities of the inexplicable, always results in deference to logic. In the process, he would contend we reduce our mental horizon at the expense of the trans-rational, which is governed by "a belief in a spiritual presence beyond phenomena"[359]. Thus for Toynbee, like Sarkar, a biosphere consciousness requires something more than both empathy and a logical understanding that such a view is necessary for survival.

Still others would suggest there are also major omissions. These include understanding what constitutes transcendent purpose or philosophy; the location of the dialogue in an episteme that has a particular view of the past and future; and a concern that the stages of history and the notions of consciousness are informed (at least in Eisler's view) by deep patterns that privilege a view of the world where the power of "the blade" has been idealised. Sorokin, for example, suggests the acceptance of transcendent purpose is contingent on the way truth is perceived. He contends that cultural systems privilege a particular type of truth (truth being relative), and therefore, if there is to be a transformation, the system of truth most closely aligned to the outcome desired (in this case a biosphere consciousness) must dominate. In Sorokin's world, this entails a shift from a sensate mentality, driven from an agnostic attitude toward the entire world, to either an ideational mentality which focuses on more spiritual needs and the minimisation of physical needs, or an idealistic mentality, where there is a mixture of both the sensate and the ideational, but with the former subordinated to the latter[360].

Spengler alerts us to the notion of the Western propensity to have our eyes on both the past and the future (and Rifkin certainly does this) and thus "live in the consciousness of his becoming,"[361]: the dawning of the 'I'. Other cultures simply live in the now. He also points out that there is no general morale of humanity and that each culture possesses its

[358] Ibn Khaldun describes this as "free from corporality and matter...pure intellect in which the intellect, thinker and the object of thinking are one", Fitzgerald & Inayatullah, *Transcending Boundaries,* p. 63.
[359] Toynbee, 'Reconsiderations', p. 650.
[360] Sorokin, *Social & Cultural Dynamics,* pp. 49-51.
[361] Spengler, *The Decline of the West,* p. 137.

own standards, "the validity of which begin and end with it"[362]. So for Spengler the notion of empathic evolution as developed by Rifkin would be problematic.

Finally, Eisler argues that history often equates with a history of masculinity; of violence and dominance. Further, that such equations ignore the two halves of humanity and the manner in which our institutions and culture evolve to either a peaceful or warlike orientation[363]. Further, while she would agree with his advocacy of a Collaborative Age, her interest would be on (and would perhaps differ from) the system conditions that are necessary to underpin its existence.

Each of these positions suggests that Rifkin's Theory of Consciousness, while logical and persuasive, may not necessarily drive the imperative for the transformation he advocates. In Rifkin's Theory of Consciousnes there is an explicit argument that, first and foremost, the transformational shift—be it civilisational or cultural or both—is a quest for a new sense of identity. Again, the question emerges of an overarching philosophy as a necessary precondition. It assumes our 'pain brain,' which privileges the existent condition, will have sufficient impetus to change, as a result of realisations by the extended ecological self that the status quo is a species ending option, or alternatively, that by some chance humanity has a sudden vertiginous urge to commit history in the way Runia describes it[364].

Theory of Leadership

Of all his theories, Rifkin's Theory of Leadership is perhaps his least explicit. This may be because the relational nature of leadership and governance is, in the Collaborative Age, very different in both its characterisations and its actualisation than how it is constituted in the mechanistic model. However, he does argue that the vertical power relationships privileged in earlier civilisations will give way to the lateral power arrangements of networked (Commons) entities. Further, while he begins to explore the possibility of geographic power shifting away from nation states to continents (especially in *the European Dream*), he is yet to deconstruct nations in the same way that he has done with the capitalist economy. It might be argued that, through his consulting practice and his narrative of Industrial Revolution, Rifkin has been, and is still able to, influence a number

[362] Spengler, *The Decline of the West,* p. 178.
[363] In so doing rapidly evolve, using symbolic language and collective learning, in the way that Christian describes. Eisler, *The Chalice and the Blade,* p. xix.
[364] Runia, *Moved by the Past,* Ch. 6.

of powerful and recognised leaders within the current model. As a result, some may make the case that there is no requirement for alternative leadership models within the Third Industrial Revolution contention. However, it might be that the current and future models do not need framing within the competitive model that the present system favours and therefore this is not a choice that needs to be made.

There is, however, one other explanation: the Third Industrial Revolution is essentially structural—or nomothetic—in its architecture and effects, in that the senses of time, integral to its conceptualisation, create directional relationship effects at a scale where the actions of individual agents are both at a litany and systems level, different from the way they are currently construed. If this is accepted, the case might be made that various agents are simply responding in a timely fashion to perceived opportunities or risks that these system effects create. Thus, leadership, in this interpretation, is about cohorts of people, classless in Marxist terms, which are either exemplars or hegemonic challengers, and subscribe to a similar worldview (in this case a biosphere consciousness). Further, their learning can be rapidly transmitted to the collective. Defined in this way, leadership becomes a shared and agreed relationship 'network intelligence'; a social code that enables synchronistic action, rather than the recognition of its embodiment in a person of power and status.

To date, Rifkin's writings do not resolve this structure/agency ambivalence and it is possible he doesn't see any need to do so. In the Afterword to *The Zero Marginal Cost Society* he writes that those that benefit from the current economic order (one definition of leadership) are unlikely to wake up one day to see their regime routed and a new one in its place. Rather, there will be a transition, perhaps considerably shorter than that between the First and Second Revolutions, where the two run in parallel, until the old order withers and dies. In the process there is an opportunity and choice for reinvention. For those choosing to take the leap there is a "shift into a hybrid economy made up of both the collaborative commons and the conventional capitalist market place"[365]. In sum: there is time for transition and for both senses of leadership to coexist, at the same time, at least in the short term.

[365] Rifkin, *The Zero Marginal Cost Society,* p. 310.

Consistent with his view that identity is relational and only exists to the extent it is embedded into a plethora of relationships, Third Industrial Revolution leadership shifts from simply a personal attribute, exhibited by some, to a shared consciousness, or even philosophy. This allows multiple actors (for there is no audience), without losing their uniqueness, to act in synergistic ways in fashioning a new Collaborative Age that protects the biosphere. This consciousness becomes an inbuilt social code where leadership is an effect of collective action, easily enabled in a highly relational and networked world. In this it differs from the sense of leadership in a world that privileges agency, where a solitary stimulus is offered up in the hope that others might respond. Without this consciousness in a highly networked world, Rifkin opines, the 'we' becomes "lost in an undifferentiated mythological fog with little sense of the self and only a rudimentary sense of empathic distress built into our biology"[366]. Throughout his writings, Rifkin describes the nature of the social code required for particular types of synergistic leadership action. These include a repositioned civil society, a rethought public sector and Commons markets of prosumer collaboratists (the new economists). In every case this social code will exhibit multiplicities and layers that function, in a process sense rhizomically; that is, they will be inherently unstable and fluid[367].

In Rifkin's post capitalist future, the repositioning of civil society is critical. He contends that this is where social capital is created and cultures are forged. Cultures, he insists, develop the social narratives (worldviews) that bind us together as a people allowing us to empathise with one another as an extended fictional family. More importantly, markets and governments are an extension of that culture, not the other way around[368]. He goes on to argue that what has become known as 'the Third Sector'—those organisations that deliver a plethora of services—reflect many of the attributes of a distributed and collaborative future in their ethos and purpose. Notably "relationships are an end in themselves and are therefore imbued with intrinsic value rather than mere utility value"[369]. Thus, the importance of this reframed civil society lies in its ability to provide, at a systemic level, an alternative relationship construct to the narrative of 'labor and time as tradable commodities' on which the current economic model relies.

[366] Rifkin, *The Empathic Civilization,* p. 575.
[367] Bussey, 'Six Shamanic Concepts', p. 34.
[368] Rifkin, *The Third Industrial Revolution,* p. 266.
[369] Ibid., p. 268.

For those in the public sector of the future, the primary leadership roles are to orchestrate networks of engagement, facilitate discursive forums, referee relationships and coordinate activity among the range of players[370]. Included in this orchestration are the creation of frameworks that facilitate the construction of the 'Internet of Things' infrastructure, which by design provides a broad set of prescriptions about how society and economic life are to be organised[371]. If, as has previously been asserted, there is an explicit relationship between energy regimes and power/economic arrangements then it is almost certain that contemporary institutional frameworks will change as a consequence. Following this thought process, Rifkin submits current arrangements that are logical for a society whose infrastructure is "scaled vertically and whose organization was hierarchical and central, is bizarrely out of sync in a future where infrastructure is nodal, interdependent and flat"[372]. The expectation therefore is that a radical rethinking and recalibrating is required for a lateralised system where public sector institutions and roles are actualised in a very different manner.

This rethinking of socio-economic arrangements is not confined to the public sector and infrastructure related utilities. It will also give impetus to the reconstitution of other economic arrangements, perhaps long before institutions respond. Hence in the same way that

> …the inventors, entrepreneurs and financiers (the leaders of their time) understood the system they were creating in the Second Industrial Revolution a long time before the intellectual community could describe it and governments regulate it...[373],

so too prosumer collaboratists—who understand that the new model favours lateral ventures, sustainability and mutuality both in the social commons and in the market place—might be characterised as the new leaders. "Prosumers are those that consume what they produce and share what they have on a Collaborative Commons, in short a contemporary expression of Gandhi's 'Swadeshi'"[374]. This group needs to be distinguished from the cognitive capitalists, or those who privatise and commodify information and/or networks for profit and capital accumulation, and the netarchists, who are forced to act within the influence of the cognitive capitalists. Rather they are instead "creators of non capitalist community supportive entities that participate in market

[370] Rifkin, *The European Dream,* p. 215.
[371] Rifkin, *The Zero Marginal Cost Society,* p. 24.
[372] Rifkin, *The Third Industrial Revolution,* p. 165.
[373] ibid., p. 136.
[374] Back cover reflection by Vandana Shiva in Rifkin, *The Zero Marginal Cost Society,* loc. 19.

exchange without participating in the process of capital accumulation"[375]. This reformation of the market as a place of exchange, not capital accumulation—of peer-to-peer production and a shared commons to be protected—is in direct opposition to the sense of globalisation which involves the privatising of human and natural resources in the hands of a few hundred commercial enterprises[376].

This reframing of the nature of the global relationship from globalisation to continentalisation, and more importantly a new cosmopolitanism, defines yet another strand in this emergent leadership social code. In Rifkin's worldview, the new infrastructures are lateral (rather than vertical) in their orientation, nodal in design, flourish in borderless, open, interactive spaces and work best when the players engage in collaborative effort[377]. Over time, he asserts, new continental arrangements and regional political realignments will occur because of cross-border Third Industrial Revolution infrastructure[378]. This continentalisation will engender a new cosmopolitanism, one whose multiple identities and affiliations span the planet[379]. This new world (cosmos) citizenship (polis), however, cannot be based on lifestyles that consume a disproportionate share of the planet's resources. Rather, they will engender a bottom-up fusion and hybridisation, an ecology, where groups can create experiences and share memories, based on solving the practical problems of living within the constraints of the biosphere and transcention of local group identity[380]. Overtime this coheres as a shared consciousness, perhaps even a shared philosophy or spirituality, one that is a necessary precondition for the worldview that such cosmopolitanism implies.

In Rifkin's narrative, this new, social code (metaphor) of a network—how it transmits its intelligence to act collectively—will shape the future civil society, public sector, and prosumer marketplace and commons. It will evolve through a hybrid governance system arrangement, where the corporate dominated private sector that currently exercises power and leadership, in ways that predominantly privilege their own interests first, gives way to a society where there is a preservation and enhancement of common wealth. Further, as a consequence, private profit is managed in a manner that does not compromise this

[375] The definitions of Cognitive Capitalism and Netarchical Capitalism are drawn from Kostakis and Bauwens, *Network Society and Future Scenarios for a Collaborative Economy*.
[376] Rifkin, *The Zero Marginal Cost Society,* p. 187.
[377] Rifkin, *The Third Industrial Revolution,* p. 171.
[378] Rifkin, *The Empathic Civilization,* p. 432.
[379] Rifkin, *The Third Industrial Revolution,* p. 187.
[380] Rifkin, *The Empathic Civilization,* p. 433.

preservation. For Rifkin, the success of this new leadership social code will be widely distributed and accessible in the population; reliant on the nature of the infrastructure that society erects[381]; and accepting of a new cosmopolitanism. In this way, the conceptual framing of leadership and success with Theories of Discontinuous Change, Stages of History and Empathic Consciousness, are explicitly linked. However the ability to influence which infrastructure is preferred is entirely reliant on the, as yet, unresolved contest of which culture—the established mechanistic or emergent collaborative—dominates.

Macrohistorical commentary

Most macrohistorians, whether they use civilisation or culture as their prime units of analysis, have engaged with the concept of leadership, in time frames that remove from view the actions of particular actors. Ibn Khaldun would suggest that the set of arrangements that relate to the commons and peer-to-peer production, define a contemporary *asabiya* around which the new Bedouins—the civics, collaboratists and prosumers—can cohere. He would, though, be concerned that the sedentary cultures that emerge from (now dominant) cosmopolitan lifestyles corrupt character and rob people of the qualities that lie at the heart of *asabiya*[382]. In Ibn Khaldun's worldview, cosmopolitan culture is the cause of the environmental and entropic imbalance contemporary humanity faces, and is a story of a journey of intergenerational corruption. The only escape from this process is for a new *asabiya* to be developed by a new generation of leaders free from the influences that have caused the demise of the current civilisation[383]. For Khaldun, therefore, his interest would be clearly focused on those elements of the Collaborative Age *asabiya* in Rifkin's discourse.

Toynbee has long argued that *asabiya* lies in the hands of a creative minority whose innovation and imitation (mimesis) is fundamental to the growth and maintenance of any civilisation[384]. If that disappears, a dominant minority emerges who seek to perpetuate the status quo through what Toynbee terms as futile 'saviour' pathways. They either reconstruct an imaginary past, exhort leaps into an imaginary future, or pretend to act as the philosopher, while in reality shoring up the conditions of the absolute monarch; a path

[381] Rifkin, *The Zero Marginal Cost Society,* p. 192.
[382] Ibn Khaldun, *The Muqaddimah,* vol. 2, p. 291.
[383] ibid., p. 296.
[384] Toynbee, *A Study of History,* vol. 1, pp. 368-70.

that leads almost inevitably to proclaiming the righteous path by those who present themselves as god-incarnate[385]. From Toynbee's perspective the only way that Rifkin's leaders, the new creative minority, can succeed is if their future leadership social code has a shared "ubiquitous and irresistible law" and an acceptance of "a unique and omnipotent deity", or a sense of spirituality[386]. Otherwise they are condemned to the saviour pathways. Again, one might ask: is Rifkin's biosphere consciousness sufficient as a sense of spirituality, at least enough to bind those who understand the necessity of transition in a new *asabiya*?

This need for a new spirituality—a quest for meaning—is also central to Spengler's notions of culture and leadership. For him, the requirement is to enlist the 'discoverer's soul' that can free itself from the Faustian passions of money thought, and replace that thinking with an inner mythology; a "future culture with other soul and other passions who will hardly be able to resist the conviction that 'in those days' Nature herself was tottering"[387]. Sarkar too is insistent that the only way to break the social cycle is through the emergence of Sadvipra[388]: spiritual intellects whose role as transformers is to liberate other intellects to allow them to move past 'isms'[389] and to help inculcate the cosmology or inner mythology of Neo Humanism, or PROUT[390]. In this framing, the leadership conversation between Sarkar and Rifkin would have been about the alignment of PROUT and Rifkin's social code, the sufficiency or otherwise of biosphere consciousness, and the agency of prosumer collaboratists as the basis for transformation.

What emerges from this contemplation of Rifkin's Theory of Leadership is that, in many ways, it constitutes a contemporary *asabiya*. Through his speeches, books and consulting activities, he advances, among those political leaders and cities who understand the need to move away from the contemporary crossroads, a shared sense of spirit and ethos, where actors have important influencing roles, as they represent the actualising of that *asabiya*. Integral to this 'asabiya' are shared senses of reality that are different from those in the prevailing ethos. This reconceived reality is where notions of leadership intersect and

[385] Toynbee, *A Study of History,* vol. 1,p. 535.
[386] ibid., p. 497.
[387] Spengler, *The Decline of the West* p. 411.
[388] Inayatullah posits that "Sarkar's leadership model takes the enlightened one and makes him or he into an intellectual, then he takes the scientist or inventor and makes him or her into a sage. Finally he adds an activist dimension." Inayatullah, *Understanding Sarkar,* p. 51.
[389] ibid., p. 252.
[390] ibid., pp. 8-10.

intertwine with elements of Rifkin's increasingly diffused praxis[391]. If that is the case, then further exploration should focus on understanding what some of the key components of that *asabiya* are (this is considered in *Chapter 4*), and how that might be communicated and dispersed in a networked world.

Theory of Post Capitalism

Two of Rifkin's most important contentions—the effects of entropy on the global environmental system and the effect of energy efficiencies as drivers of growth—are largely neglected in conventional economic theory. While his early work, for the most part, sets out the logic and evidence for these propositions, his later works articulate potential responses to the challenges these contentions raise. The evolution of this 'challenge and response' process has lead him to a point where he has declared that the essence of the current economic system (capitalism) "is passing, not quickly but inevitably and that in its place a new economic paradigm, the Collaborative Commons is in the ascendant"[392]. Substantiation of this declaration requires Rifkin to: theorise about systemic limits and new options as alternatives to the current model; identify worldviews alternative to those that underpin the capitalist ethic; and at least proffer some possibilities for future metaphors and mythologies.

At the outset it should be noted that, while some would regard Rifkin's views as 'of the left', he is not a Marxist economist, in the accepted sense of that term. For the Marxists, the question is not about whether or not to 'exploit, grown and own,' rather the issue is about who controls or has the right to 'exploit, grow and own.' In contrast, Rifkin questions the concept of production and its entropic effects per se. As such, he might be more accurately characterised as an 'individualist' in the European sensibility, where "the emphasis is on inclusivity, diversity, quality of life, sustainability, deep play, universal human rights and the rights of nature"[393]. It is within this context that, in *the Zero Marginal Cost Economy,* he notes mixed feelings about the passing of the capitalist era[394], and is somewhat surprised that an economic system organised around scarcity and profit could almost counter intuitively spawn a system of nearly free goods, services and

[391] Rifkin, through the development of regional and city master plans and advice on the framing of significant policy both in Europe and China, can claim to blend both theory and practice.
[392] Rifkin, *The Zero Marginal Cost Society,* p. 1.
[393] Rifkin, *The European Dream,* p. 358.
[394] Rifkin, *The Zero Marginal Cost Society,* p. 305.

abundance, that will see its demise[395]. For Rifkin, the emergence of the Collaborative Era that in earlier works he has described as distributed capitalism and lateral power, provides the opportunity to reframe world views that if they were to continue would (and still do) provide the greatest challenge to "the survival of our species in recorded history"[396].

The strands of Rifkin's Theory of Post Capitalism litany are several. Firstly, as was explained in an exploration of his Theory of Limits, he argues that Adam Smith's economic model is flawed in two important ways. These include the Newtonian view on which it is based, and the lack of regard it has for the entropic effects that are consequential to the growth-and-accumulation imperative inherent in the model. Secondly, he argues that this same model has reached the outer limits of how far it can extend growth aspirations, within an economic system deeply dependent on oil and other fossil fuels[397]. He then posits that the emergence of a new energy and communications infrastructure will reinvent the way the world does business. By design, in the manufacturing realm, it will shift the way of life from highly capitalised, giant, centralised factories, equipped with heavy machines, to economic models that are distributed, modular and personalised in their relationships between buyer and seller[398]. Most importantly, through the way it is designed and constructed, this process must occur with fewer entropic effects.

This realignment of how economic activity occurs also alters the dynamics of relationships and the exercise of power. It favours lateral ventures both in the social commons and in the market place on the assumption that mutual interest pursued jointly is the best route to sustainable economic development[399]. This is a different kind of capitalism; one that is distributed in its nature and which fundamentally reconfigures the temporal and spatial orientation of society. It changes the nature and cost of transactions and offers the

[395] Rifkin, *The Zero Marginal Cost Society,* p. 308.
[396] Rifkin & Howard, *Entropy,* p. 293.
[397] At the time of writing, there is considerable contention about the limits of fossil fuels, especially oil. Therefore it might be argued within the prevailing 'normal' that Rifkin's assertions about fossil fuel limits are flawed. Leaving aside the concerns about even more alarming entropic effects from coal seam gas and fracking, most academic analysts in the sector argue that the overall availability of fossil fuels taken in a longer term view is still the same and that Rifkin's positions still hold. "We need new production equal to a new Saudi Arabia every 3 to 4 years to maintain and grow supply...[n]ew discoveries have not matched consumption since 1986. We are drawing down on our reserves, even though reserves are apparently climbing every year. Reserves are growing due to better technology in old fields, raising the amount we can recover – but production is still falling at 4.1% p.a. [per annum]." R. Miller & S. Sorrell, (eds.), 'The future of oil supply', *Philosophical Transactions of the Royal Society,* vol. 372, no. 2006, 2014.
Even more importantly, the International Energy Agency have stated that if the global climate is to stay within 2° (Rifkin's planetary abyss) then 2/3rds of the fossil fuels that have been currently identified will need to stay in the ground at least until 2050. International Energy Agency, 2012*, World Energy Outlook* [Executive Summary], p.3. Either way, the concern of limits on the current system remains relevant.
[398] Rifkin, *The Third Industrial Revolution,* p. 117.
[399] ibid., 126.

possibility of new ways to organise and manage economic activity. As an economic model, it is systemically different in its modality and therefore, it requires a different kind of theorising. Moreover, it must be asked: can an economic system, which is systemically different, be understood through the same lens used to theorise the existing system?

If it is to be considered through the lens of the current system, then it differs in three important ways. The first is that the logic of a system, contingent on substantive margins on both the supply and the demand sides—what we call profits or accumulations—cannot be sustained if those margins are almost zero. The consequence in Rifkin's view will be that:

> ...capitalist markets will continue to shrink into narrow niches where profit-making enterprises survive only at the edges of the economy...relying on very specialized products and services[400].

The second is that the nature of the market function, however that is expressed, changes from an opportunity for accumulation to an opportunity for exchange[401]. In this model, capitalism is 'distributed', premised on the idea that everybody can trade and exchange, without the controls that exist in the current proprietary models. In this reformulated future, and given that markets are, at least in part, an extension of socio-economic identity, we can assume that an understanding of economic identity for both individuals and communities is reframed as well. In a real-time, near-term, future world existing market mechanisms are too slow and "a new economic system will be as different from market capitalism as the latter was from the feudal economy of an earlier era"[402]. Thirdly, with less opportunity for capital accumulation, the ability to 'own' property is less available; 'mine versus thine' becomes harder to sustain and the focus shifts to an interest in access to shareable goods and services.

In Rifkin's later works, the shift from 'property ownership' to 'access' to goods and services is a tangible expression of the challenge the Third Industrial Revolution poses to a highly embedded pattern of economic thought: a worldview integral to the concepts of capitalism. Nothing, he argues, is more sacrosanct to an economist than property relations[403], for these are an explicit representation of a commitment to economic growth. If the possibility is considered that the idea of property accumulation will be gradually set

[400] Rifkin, *The Zero Marginal Cost Society,* p. 5.
[401] Kostakis and Bauwens, *Network Society and Future Scenarios for a Collaborative Economy,* loc. 591.
[402] Rifkin, *The Zero Marginal Cost Society,* p. 270.
[403] Rifkin, *The Third Industrial Revolution,* p. 212.

aside, this new Age will "bring with it very different conceptions of human drives and the assumptions that govern human economic activity"[404]. These contemplations of what will constitute economy are deeply problematic in the current order, yet to limit their characterisation to being simply components of an economic revolution is too narrow a lens through which to understand what is, or what might, occur. This is because their impact is and will be a reflection of different motivations and constitutions of identity.

While having traced the rise and establishment of the private property rights, and the consequences of those rights, in some detail, in all his works since *The European Dream* (for it was not always that way*)*, he contends that, in a collaborative future, social capital plays an increasingly important role. This is because the accumulation of social capital enables increased access, rather than ownership, to networks where the cost of participation is plummeting as communications technologies become cheaper[405]. The consequence of this rebalancing of capital is "a shift in emphasis from the quantity and worth of one's possessions to the quality of one's relationships [and] requires both a change in spatial and temporal orientation"[406]. As such, it is likely to play a far more significant role in economic life that will increasingly take place in a Collaborative Commons.

From the systemic shift, and a worldview that reconstitutes property rights as a process of access not ownership, what emerges is a new series of case studies and metaphors about collaboration and commonality that reflect the swing from a scarcity to an abundance mentality[407]. This new mentality is not the kind of abundance that, as Gandhi observed, provides for every human's [sic] greed, rather it is an abundance that, anchored in our ecological footprint, provides enough to satisfy every human's [sic] need.[408] Therefore, it is a step away from a materialist ethos to one of sustainability and stewardship, where nature becomes a community to preserve, rather than a resource to exploit[409]. Rifkin contends that the absence of the fear of scarcity mitigates against the desire to over consume, hoard and over indulge, and while not quickly removing the dark side of human

[404] Rifkin, *The Third Industrial Revolution,* p. 214.
[405] ibid.*,* p. 210.
[406] Rifkin, *The Empathic Civilization,* p. 591.
[407] These are reflected in observations about 3D printing (production by the masses), MOOCs as zero cost education, crowdfunding, democratising currency and rethinking work through examples like Uber. Rifkin, *The Zero Marginal Cost Society,* p. 21.
[408] Rifkin, *The Zero Marginal Cost Society,* p. 107.
[409] ibid.*,* p. 274.

nature, encourages the development of a new cultural social code. This he sees emerging in at least a portion of younger generations who have "grown up in a new world mediated by distributed, collaborative, peer-to-peer networks"[410].

Rifkin therefore argues his Theory of Post Capitalism from three premises. The first is that the system conditions that already exist in the present growth-focused construct make its continuation impossible. In this sense, these conditions are a reflection of Sorokin's principle of immanent change. He also posits that the attributes and ubiquity of the new infrastructure, known as the Internet of Things (IoT), by design and structure undermines core principles on which the present capitalist model is based. Secondly, he asserts that these networked, lateral and distributed arrangements privilege relationships over ownership, thereby creating conditions for economic activity and social arrangements that are systemically incompatible with the culture and ethos of the contemporary economy. In this way, the forces that have been unleashed are "both disruptive and liberating and are unlikely to be curtailed and reversed"[411]. Thirdly he submits that economic systems are situated within larger human systems and therefore, when an economic system changes, so do philosophies, institutions that exist within those systems, and ultimately social and cultural conventions. In this way Rifkin's Theory of Post Capitalism steps beyond the disciplinary boundaries in which economic theory is normally considered and it links to the other transdiciplinary (and perhaps uni-disciplinary) theorising critical to the Third Industrial Revolution contention.

Macrohistorical Commentary

The unsustainability of economic systems and their role in civilisational change have preoccupied all macrohistorians and many contemporary transformational theorists. Unlike Marx and Gramsci, who theorised over the ownership arrangements of the capitalist system, perhaps only Sarkar, among the macrohistorians, comes closest to offering an alternative economic model that is 'distributed by design'. For Sarkar, like Rifkin, unabated accumulation and misuse of wealth is a central problem. The goal, in his narrative, is for a good society to provide all individuals with the basic requirements of life in the way that Ghandi's 'Swadeshi' defines them, and to ensure that in the process, wealth is used for benefit and not hoarded. However, for Sarkar, economy and economic growth

[410] Rifkin, *The Zero Marginal Cost Society,* p. 304.
[411] ibid., p. 310.

has a subordinated role as it only exists "to provide physical security such that women and men can pursue intellectual and spiritual development"[412]. Spengler also rails against 'money thought': "the grand legacy of the Faustian Soul"[413]. He maintains that little attention has been paid to the presumptions that underpin the thinking of Hume and Adam Smith: that its privileging of materialism ignores the soul that is at the heart of culture[414]. The consequence is that "the heroic and the saintly withdraw into narrower and narrower circles and the cool bourgeois take their place. [Thus] in the frictions of the city, the stream of being loses its rich form"[415] and the culture inevitably declines. The only way out of this crisis is for "power to be overthrown by another power"[416]. The question this assertion poses is: is a change in system conditions, as described by Rifkin, sufficiently powerful to effect the revolution Spengler prescribes, or will some other more explicit agency be required? The linkage or otherwise of economy to 'soul' also preoccupied Toynbee. He argued:

> Western humanity [sic] has bought themselves [sic] into danger of losing their souls through their concentration on a sensationally successful endeavor to increase material well being. If they [sic] were to find salvation they [sic] would only find it only in sharing the results of material achievement with the less materially successful majority of the Human Race[417].

This was not an argument by Toynbee for some kind of socialism; indeed to the contrary[418]. Rather it is questioning 'where to next?' for the 'psychic energy' that has been capitalism's driving force and which fashioned the industrial revolution, for as Schumpeter suggests "stabilized capitalism is a contradiction in terms"[419].

Similar themes to those expressed in Rifkin's Theory of Post Capitalism are emerging among some modern transformational theorists. They have, of course, the advantage of contemplating the contemporary condition in ways that earlier macrohistorians could not. While their views, in relation to understanding Rifkin, will be explored in some detail later in this thesis, a number do contemplate the end of capitalism, the emergence of the

[412] Inayatullah, *Situating Sarkar,* p. 23.
[413] Spengler, *The Decline of the West*, p. 223.
[414] ibid.*,* p. 398.
[415] ibid., p. 403.
[416] ibid., p. 414.
[417] Toynbee, *A Study of History*, vol. 2, p. 345.
[418] Marx and Engels have set out to depose politics from its traditional place of honour in the presentation of history and enthrone economics in its stead. Toynbee, 'Reconsiderations', p. 661.
[419] A. Kaletsky, *Capitalism 4.0: The Birth of a New Economy in the Aftermath of Crisis* (1st edn.), New York, NY, PublicAffairs, 2010, p. 34. It is worth noting the point made earlier: most economic growth (86%) historically has come through energy efficiency, not investment.

distributed or collaborative economy and a future of access, not ownership. This suggests that Rifkin's Theory of Post Capitalism has both intellectual precedent and contemporary support.

	System Issues in Current Economic Model	System Considerations Future Model
Rifkin	Success of current model has destroyed margins on which system relies. Current model exploits environment and creates unsustainable entropic debt. Adam's Smith conception of market flawed.	Future beyond property rights and privileging of access over ownership. Commons markets for exchange not accumulation develop New techs (e.g. 3D printing) change production model
Ibn Khaldun	Immersion in markets and accumulation erodes shared spirit	Reconstitution of 'the sinew that binds' (asabiya) outside of influence of current system required
Gandhi	Scarcity models provide for everyone's greed	Swadeshi – abundance models within ecological footprint provide for everyone's need
Spengler	Obsession with money is a Faustian bargain	Soul is at the heart of culture
Toynbee	Excessive concentration on material well being a Universal Church presaging the end of a civilisation	Creative minority – alienated from contemporary condition use 'psychic energy' to create the new system. (Rifkin's prosumers and Commons creators)
Sarkar	Unabated accumulation and misuse of wealth is the central problem	Future economy needs to be created within a new relationship model (neo-humanism) New system based on PROUT theory – self reliant connected nodes within the context of a larger spiritual humanism

Figure 3.7 Comparison of various macrohistorical approaches to Capitalism with those of Rifkin

There is also considerable contemporary argument that, while the system is challenged, capitalism can adapt. The only question is: to what? The British economist Kaletsky argues that to survive, capitalism must evolve, as its current incarnation (Capitalism 3.0) has produced little genuine wealth and productive capacity[420]. The future will require an adaptive system (Capitalism 4.0), able and willing to change its institutional structure, its regulations and its economic principles in response to changing events[421]. What Kaletsky

[420] A. Kaletsky, *Capitalism 4.0,* p. 12.
[421] ibid., p. 190.

is suggesting is that the not only is the contemporary system failing but that it has a form that is capable of evolution; hence, the argument for Capitalism 4.0.

In this framing, Rifkin postulates that Capitalism 4.0, if it were to occur, only takes capitalism to the edges of what is systemically possible. The question that needs to be posed is: when the adaptive process is close to the edge of a system has it as Sorokin would assert, exhausted all the system possibilities[422], and consequently cannot function as a system for much longer? If this is the case then what comes after Capitalism 4.0, will need to be organised on a very different basis, as it is constituted within a different system. Wallerstein, whose core/periphery state theory has the evolution of capitalism at its core, also suggests the system is near or at its limits. He recently argued: "the rules of capitalism's functioning during 'normal' life and the modality of it's going out of existence, are the central issues before us"[423]. Further, "the system cannot be bought back into equilibrium and the possibilities for producers to achieve an endless accumulation of capital seem to be ending"[424]. Taylor, in *Evolution's Edge*, also advances the idea that it is not about replacing capitalism with socialism. Rather, it is about creating a 'conserver' economy, where people are taxed for the value they subtract (e.g. pollution, speculation, unearned wealth)[425]. Still others, including Bauwens, are modeling possibilities that "transition to a model where the relations of production will not be in contradiction with the evolution of the mode of production and the orientation of the rest of the Commons"[426]. Consequently, it is reasonable to conclude, that among those that consider the system implications of the current system, and/or those that contemplate a transition away from the system, there is substantive theorising about alternative economic models that remove inequity, protect sustainability and create control functions about the nature of wealth accumulation, mostly through the role of governments, not apparent in the current 'unregulated' system. Further these conclusions are broadly consistent with Rifkin's economic theory, at least in its principles, if not in its solutions.

Rifkin's declaration that the capitalist system will not continue is confronting to the culture of self interest at the core of the current system. It is possible that it will be around this contention of capitalism's demise that future attention will be focused, in the mistaken

[422] Sorokin, *Social & Cultural Dynamics,* p. 654.
[423] I. Wallerstein, *Does Capitalism Have a Future?*, New York: Oxford University Press, USA, 2013, p. 9.
[424] ibid., p. 24.
[425] Taylor, *Evolution's Edge,* pp. 149-51.
[426] Kostakis & Bauwens, *Network Society and Future Scenarios for a Collaborative Economy,* loc. 561.

assumption that if parts of this theory can be disproved, then the rest of his theories are necessarily false as well. Rifkin, as do many of the macrohistorians, challenges the idea that economic activity is 'the culture' and suggests that it is merely a subset of 'a culture.' If that so, then the case can be made that capitalism is simply a phenomenon of the 1st and 2nd Industrial Revolutions, and that the concepts of economic growth and economism are not a necessary precondition for the existence of a future civilisation.

Theory of Transformation

At its most fundamental level, the argument for the Third Industrial Revolution is one of transformation. It operates both as a meta-theory that incorporates all Rifkin's other theories and it coheres in the *Transform* or *Collapse* meta-narrative or scenario. Conceptually, for Rifkin these two options frame the existential question facing contemporary humanity; a question that perhaps has only been visited in a similar fashion once before, where the options were nuclear annihilation or peace. Consideration of these alternatives emerges in Rifkin's writings within broad narratives, punctuated by case studies and theoretical assertion. The 'voice and the style' through which they are articulated has an urgency, as this civilisation is at a critical moment of reckoning[427].

From Rifkin's perspective, which path a society at the crossroads decides to take largely depends on two things. The first is its level of commitment to the rate of IoT infrastructure substitution, thereby establishing a new and dominating system architecture. Secondly, how the tensions are resolved that will emerge from the clash of the new collaborative commons with the conventional capitalist market place, will determine what subsumes what in the final analysis. If the latter overcomes the former then *Collapse* is the most likely scenario. If the reverse is true then *Transform* becomes the most probable outcome, and momentum towards a new collaborative and ecologically sustainable system will develop at an exponential rate. In summary, the options of ***Transform*** **or** ***Collapse,*** **and the paths to either provide the litany of transformation, which is core to Rifkin's advocacy.**

At a systemic level, *Transform* is premised on known and emergent shifts in economic advantage in energy, manufacturing and services. These will be realised through a new

[427] Rifkin, *The Third Industrial Revolution,* p. 270.

communication technology, a new energy regime and an accompanying production and distribution model that provide the platform for the near zero marginal cost IoT infrastructure, on which the economic future pivots[428]. In energy, this advantage will come from increasingly costly fossil fuels being replaced by renewable energy generation and storage infrastructure, where the marginal cost is nearly free[429]. In manufacturing, with the emergence of 3D printing, advantage will move from those engaged in large scale subtractive processes to local additive processes. Finally in services like education, advantage will be delivered through shared experiences among communities of peers, rather than authoritarian, top-down models of instruction[430].

Rifkin submits that this reorientation of economic arrangements has a striking resemblance to Gandhi's 'ideal' economy where "self sufficient village communities join together and ripple outward into wider oceanic circles, [places] where happiness is the optimization of one's relationships in shared communities"[431]. In this definition, the essence of the Third Industrial Revolution is that it presages a switch from a worldview with an econo-centric societal model to one with an eco-centric societal model. As a consequence, the nature of relationships and the value systems that underpin dominant models change the sense of identity at both an agency and a community level.

For Rifkin, *Transform* is multifaceted and multi conditional. As the effects of his Theories are actualised, in ways where they influence and define each other in positive feedback loops, those who subscribe to this narrative will "favour deep collaboration in an interconnected global networked Commons that extends across society"[432]. Its actualisation will also spawn "new models that fundamentally diverge from the standard way we have organized economic life over the past two centuries"[433]. In the process, humanity will substitute abundance for scarcity as an organising dynamic, and access rather than ownership as the basis for equity[434]. Further, as social arrangements and economic activity realign with the experience of this collaborative construct, worldviews will emerge (and for some are already emerging), across cultures and epistemes consistent with the reconstituted senses of time, spatial orientation and structure/form that the new system

[428] Rifkin, *The Zero Marginal Cost Society,* p. 86.
[429] ibid., p. 92.
[430] ibid., pp. 90 -91.
[431] ibid., p. 107.
[432] ibid., p. 222.
[433] ibid., p. 270
[434] ibid., pp. 268-73.

privileges. If the transformation is successful, then the cultures of the planet will promote and look toward narratives that insist that success and happiness does not equal growth. As they do so, they will need to discard deep human instinct and civilisational patterns that foster the enduring belief that the principle goal of nurture is to ensure that in a material (more of) sense, future generations will be better off than we are.

However, while it is possible to conclude that the Theory of Transformation is primarily optimistic, the obverse, the potential for the alternative doomsday scenario is ever-present. Rifkin's concluding thoughts in all his recent works display deep concern about the two wild cards of the Modernist Apocalypse: a warming planet and cyber terrorism[435]. Either, he suggests, could create the system conditions for *Collapse.* The choices, in his view, are obvious. There is "nowhere for us to escape or hide, because the entropic bill our species has created has now enveloped the earth and threatens our mass extinction"[436]. Therefore: "we are at a critical moment of reckoning. We either change course or face the prospect of demise"[437]. The only solution, in his mind, is a new way of living on Earth if our society is to flourish, and clearly the Third Industrial Revolution provides the pathway to that new way.

The starkness of this choice seems at odds with his descriptions of a journey of evolution and hybrid economy. This might well be because Rifkin does not use 'layers of reality' as a framing methodology, although he is certainly aware of the difference at the litany-system level. While he postulates that the Collaborative Commons will ultimately absorb the capitalist system rather than the other way around, it is likely that "the two economies will become accustomed to functioning in more of a hybrid partnership with the Commons becoming dominant by the mid twenty-first century"[438]. This is consistent with historical comparisons and present trajectories[439]. But what if the system effects of the Wild Cards are ahistorical and exponential in nature and override systems in transition, before there is time to react? Rifkin's only counter is one of hope and a belief that our sense of biosphere empathic consciousness will ensure action is taken in a timely fashion.

[435] Rifkin, *The Zero Marginal Cost Society,* p. 285.
[436] ibid., p. 295.
[437] Rifkin, *The Empathic Civilization,* p. 616.
[438] "We have the architecture of the plan as well as the technological knowhow to implement it." Rifkin, *The Zero Marginal Cost Society*, p. 297.
[439] Rifkin, *The Third Industrial Revolution,* p. 270.

One further concern with Rifkin's Theory of Transformation is that it is essentially just two scenarios presented as diametric opposites. There is little discussion of any other possibility, or indeed any extension, beyond whichever of those destinations are arrived at. In presenting the future as just two scenarios there is a predictive assumption contained within them. It shuts off the possibility of unimagined perceptions and other valid narratives. Many of these could exist between, alongside or even beyond, what Rifkin has considered. Galtung would argue that through *Transcend Approach* dialogues there is capacity to expand not just the spectrum of outcomes, but still others that lie beyond the framing a spectrum implies[440]. Some may be part of cycles or spirals, and therefore may be constituted in ways that different conceptions of time, form and space permit. By only having two options, Rifkin may have set up conditions that inhibit the very process of mindset and empathic shift that he deems as essential to his preferred scenario. The scenario theorist Schwartz noted that according to Pierre Wack: "scenarios deal with two worlds, the world of facts and the world of perceptions. They explore for facts but they aim at perceptions inside the heads of decision makers"[441]. It might even be that at least a partial *Collapse* is required before *Transform.* Certainly macrohistorians, including Ibn Khaldun (loss of *asabiya*), Spengler (civilisation), Toynbee (Universal church and dissolution), Vico (Barbarism) and Sorrokin (Chaos) all consider that some period of disruption is a defining and necessary part of the transition from one civilisation to another.

With *Transform or Collapse,* Rifkin has concentrated his gaze and ours on the near term future. This is entirely consistent with, though not necessarily a logical extension of, the theoretical framework that has enabled him to arrive at this position. Indeed he proposes we must harness all of our public, social and economic capital to do so. While he is explicit that this is necessary to renew the planet for future generations, what he misses is the possibility that there may be other narratives and different pathways that might bring us, and those in other civilisations, to the same place, or even to a different place with equal or more value.

[440] J. Galtung & F. Tschudi, 'Crafting Peace: On the Psychology of the Transcend Approach', *Peace, Conflict, and Violence: Peace Psychology for the 21st Century,* 2007.
[441] P. Schwartz, *The Art of the Long View [Planning for the Future in an Uncertain World],* New York, Bantam Doubleday, 1995, p. 37.

Summary

The focus in this chapter has been to deconstruct Rifkin's contention about Industrial Revolution, its causes and consequences into a series of theories. The aim in this process has never been to reduce these theories to a point in some kind of postmodernist 'nowhereland', where everything, including "conceptions of reality and truth can be deconstructed and shown to be a chimera"[442]. Rather, the intent has been to offer perspectives on his advocacy and a synthesis that are different from the 'superior' narratives in which his particular viewpoints are normally situated. It is suggested that this alternative construction has made visible a number of important considerations that are otherwise not evident. Firstly, it is posited that the process of revolution redefines (or enables) the nature of socio-economic relationships at multiple levels, be they economic (ownership to access), political (vertical to lateral power), environmental (masters to partners of nature) or physical (fossil fuels and centralised knowledge communications to decentralised renewables and networks).

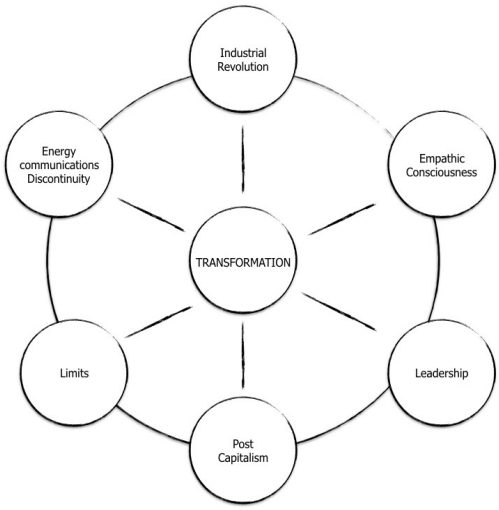


Figure 3.8 Diagram showing Rifkin's theorisation as a holistic proposition

Secondly, it is argued that these macro-social revolutions have, not only systemic, but also worldview and deep mythology levels of reality that are distinct from those in the dominant hegemonic model. This suggests that civilisational revolution cannot be properly understood if attention is simply on the technologies or other externalities, and that, as Rifkin asserts, it has consciousness and even philosophical dimensions.

[442] Sardar, *Postmodernism and the Other,* p. 37.

Finally, in this deconstruction, the point has also been made (see Figure 3.8) that each of these theories cannot be considered in isolation. Instead, it suggests they are part of an integrated holistic argument for transformation, where each influences the other. One of the characteristics of this integration is that it rejects the proposition that if one part of any theory fails to meet a particular empirical or applied test (a method of understanding that is privileged in modernity), then the whole proposition must consequently fail. This is not to suggest that Rifkin's ideas are beyond criticism, indeed to the contrary, as it is now proposed to examine the deeper levels of reality his theorisation contains through the perspectives of selected macrohistorians who have considered many of these themes of revolution (transition) and transformation in other situations.

CHAPTER 4

UNDERSTANDING RIFKIN

The intent of this thesis has been to suggest an appropriate framework within which to explore Rifkin's Third Industrial Revolution, and to identify key elements of his collected works, as a series of foundational concepts or hypothesis. This process has allowed a number of postulations to emerge that, with further exploration, predominantly through the lenses of various macrohistorians, will provide useful insights both to the nature of the revolution and the emergence of the Collaborative Age that develops as a consequence. It is suggested that such perspectives deepen the understanding of theorising with respect to revolutionary and civilisational limits, foundations, transitions, conditions, beliefs, emergence, identity formation and dimensions, as we navigate "an in-between period where old orthodoxies are dying, new ones have yet to be born and very few things seem to make sense"[443]. To succeed, it requires a rethinking of what constitutes viable society. This necessitates the development of an alternative to a Euro-centric modernity that, because of the way it characterises itself, will ensure the ecological destruction of the planet and the continued institutionalisation of hunger, violence and marginalisation for a substantial majority of the planet[444].

Based on the deconstruction and macrohistorical commentary of Rifkin's theories in the previous chapter and the logical extension of them, beyond the contemporary to a nomothetic level, seven key hypotheses might be considered. These are:

- Social systems have limits, and when all possibilities are exhausted, or large system threats are ignored, they will change;
- Infrastructure frames mentality;
- Social evolution at a macro level is linear;
- Revolutionary change is conditional on a shift in consciousness and philosophy;
- The emergence of a Collaborative Age requires and defines new kinds of identity and leadership;

[443] Sardar, 'Welcome to Postnormal Times', p. 435.
[444] Dussel & Mendieta, *Beyond Philosophy,* pp. 68-70.

- If mentalities define economy, a new Collaborative Age mentality will by definition create a different economic reality; and
- The shift from a mechanistic to a distributed society is nomothetic in nature, and thus is beyond characterisation as simply a logical extension of Western epistemological dominance.

These hypotheses do not preclude other considerable epistemological and ontological challenges that any consideration of Rifkin's Third Industrial Revolution raises. For instance, these might include the acceptance or otherwise of Kantian views of reality[445] and /or the use of dialectics as a privileged philosophical platform[446]. However, while such issues are important, philosophical explorations of this kind are not the focus of this thesis. That said, some consideration of the nature and interaction of 'revealed truth' and 'constructed truth' will be explored, with respect to understanding how a shared philosophy might be developed, whatever source of truth is privileged, to "break the lock, that shackles increasing empathy to increasing entropy"[447].

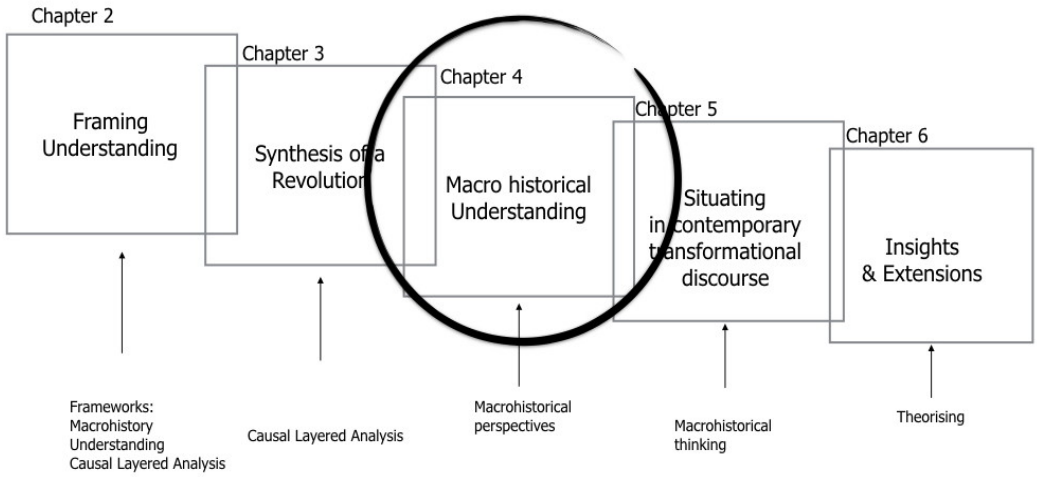


Figure 4.1 Outline of Chapter in context of the thesis

As Figure 4.1 illustrates, this chapter explores how the group of identified macrohistorians might contemplate the hypotheses delineated above. The understandings (exploration of

[445] Speculative realists reject the Kantian view of the primacy of epistemology over ontology. While they differ slightly in their articulation of exactly what this means, as a group they argue that the world is independent in some way of our conceptualisation of it. I. Hamilton et.al., 'Speculative Realism', in R. Mckay (ed.), *Collapse III*.
[446] Dussel in particular argues that dialectics is a method that privileges Western philosophy and excludes the other. Thus "ontology is to dialectics as metaphysics is to analectics." Dussel & Mendieta, *Beyond Philosophy,* p. 5.
[447] Rifkin, *The Empathic Civilization,* p. 593.

layers of reality) that emerge from these contemplations will be used as a 'scaffold' for contextualising in *Chapter 5* Rifkin's theorisation, within the contemporary transformation discourse.

In creating a scaffold the intention is to develop a 'mosaic of understandings' where both the current mechanistic system and the emerging Collaborative Age can be interrogated: in their parts; in combination; or through possibilities that evolve from self-referencing feedback loops that recognise, in an interconnected world, nothing exists in isolation. It seeks to explore these understandings in a way that includes, yet steps outside of, the linear causation and binary logic models which dominate the preferred thinking paradigms of our times[448]. It asserts that simplifying the complexity of the 'postnormal,' to a point where we cannot ascertain what the system effects are of those pieces that have been left out (either deliberately or through neglect)[449], is to invite the possibility that our understandings of the present condition and potential alternative conditions will be flawed, both in conception and execution.

Social systems have limits and when all possibilities are exhausted, or large threats to the system are ignored, they will change.

An overriding and consistent concern about impacts and limits of the current socio-economic system, and the causal relationship to entropic debt (including anthropogenic climate change), is central to all of Rifkin's collected works and theorising. His perturbation challenges a dominant discourse that suggests whatever problems face the global community, they can be addressed and rectified within the existing set of social, economic, technological and institutional arrangements. Any consideration that the entire system might be at its limits, for whatever cause, is therefore antithetical to that discourse. This normative discourse marginalises those whose litany explores alternatives, and it rarely considers the existential nature of the challenges these other senses of reality present. Therefore, some understanding at a structural level that such a possibility (the system reaching its limits) not only *could* occur, but *has* occurred before, provides the opportunity to go beyond the limitations, to learn from distant peoples and past peoples, to access critical parts of all traditions and wisdoms, in a way that no society has ever been able to do before [450].

[448] Gidley, 'Postformal Priorities for Postnornal Times'.
[449] Sardar, 'Welcome to Postnormal Times', p. 438.
[450] Diamond, *Collapse,* p. 525.

Three possibilities are canvassed in macrohistorical literature about the limits of social systems and their capacity, or otherwise. The first suggests social systems either adapt or fail to adapt, at a rate necessary to allow them to live compatibly within the wider systems in which they operate. In that instance, causation is principally external and often easy to define. For instance, the conventional litany considering the fall of Rome points to the was the failure of its armies to defend their interests against the 'Barbarian hordes.' The second possibility allows that the limits of the system are inherent in the structure of the system itself. This concept of inherent or intrinsic limits Sorokin terms the Principle of Immanent Change Again if the rise and fall of Rome is used as a case study and as Rifkin argues, it might well be interpreted through the lens of thermodynamics. Thus:

> [N]o longer able to maintain its empire by new conquests and plunder (including slavery) Rome was forced to look to the only other energy source available to it: agriculture. The story of Rome's gradual decline is intricately bound up with the waning fortunes of its agricultural production[451].

The third possibility suggests that key agents within the system, who are critical to its ongoing success (in Rome's case farmers, armies and allies), for external or internal reasons lose interest, cultural cohesion, or a philosophical willingness to ensure its continuation. If that occurs, then the failure to act undermines the continuation of the system, whatever the causation.

	External causation	Structural integrity	Agency and Belief
Social system	System either adapts or not at a rate required by its context	System either does (or not) do what is designed to do	Agents are committed (or not) to delivery required changes to respond to internal or external imperatives

Figure 4.2 Showing adaptive capacity possibilities in social systems

In exploring the structural responses all three possibilities consider, there is the potential to set them in opposition to each other (this *or* that), rather than in dialectic tension or even analectical possibility. Inayatullah suggests most macrohistorians would maintain: "it is not necessary to make a decision which privileges a particular way of understanding, [rather] all levels may be held onto simultaneously"[452]. If this is accepted, then a fourth possibility can be considered: that is, a change in the external context; the exhaustion of immanent system possibilities; and the abandonment of the system through agency can

[451] Rifkin, *The Empathic Civilization,* p. 250.
[452] Inayatullah, *Understanding Sarkar,* p. 167.

occur at the same time, in ways where these adaptive response mechanisms combine and feedback on each other to move a system beyond the thresholds that define it. Where this occurs an over-focus on one condition at the expense of the others is unlikely to do more than delay the process of system change while at the same time creating the illusion that the issue of system integrity is being attended to.

Rifkin considers each of these four systemic change dynamics. His concern about entropic debt explores the first condition, the erosion of the capitalist system the second, and his exhortations to move from quantity of life to quality of life, through a biosphere consciousness, the third. The adaptive capacity required to address each and all of these system limits is a collaborative sensibility; one that "acknowledges our individual lives are intimately intertwined and that our personal wellbeing ultimately depends on the larger (including ecological) communities in which we dwell"[453]. In *The Zero Marginal Cost Society* Rifkin also contemplates the fourth possibility;

> [T]he new social entrepreneurism is of a different kind. It is less concerned with pecuniary interests and more committed to promoting quality of life; less consumed with accumulating market capital and more with accumulating social capital; less preoccupied with owning and having and more desirous of accessing and sharing[454].

This new social entrepreneurism extends beyond concepts like Triple or even Quadruple Bottom Line, for these concepts, worthy as they are, belong to an existing mechanistic model which has predetermined that everything important can be measured and that attention to improving each measure in the singular will improve the overall system condition.

As has been argued previously, through his Third Industrial Revolution theory, Rifkin contends three powerful forces are challenging the limits of the current social system. These are a shift in energy infrastructure; networked based communications technologies; and the threat of increasingly unsustainable environmental conditions for humans on this planet. He suggests` these are both disrupting and liberating at the same time, for they presage the demise of the current system and the potential development of a new system. Further, they will impact in the same way those of the Second Industrial Revolution did during the 1890's, as they act, react, converge and diverge in parallel with each other. These forces, both internal (the collapse of the benefits of the capitalist model), and external (the Collaborative Commons and the threat of entropic debt), provide comparable

[453] Rifkin, *The Zero Marginal Cost Society,* p. 302.
[454] ibid., p. 309.

opportunity and choices for those who are ensconced in the heart of the capitalist system (agency)[455]. Thus a consideration of limits in the current system cannot be ignored. Moreover, because of entropic debt concerns, change is not conditional, and a response is required. Even more challenging is to accept that over time, the choices become fewer for those that have not reacted, and perhaps even for those that have, as nature does not reward motivation, or distinguish between the individual and the aggregate. More importantly there is an explicit linking of economic behaviour, societal organisation and environmental compatibility with the unsustainability of a contemporary system at its limits.

P. R. Sarkar would see much to support in Rifkin's position, but he would extend the argument. He would contend that humanity is part of a vast common ecology where "no one can survive to the exclusion of others not even human beings".[456] Further, the pursuit of selfish pleasure (*atmasukha tattva*), a prime focus in the current system, is directly opposed to the sentiment of a social equality consciousness (*sama-sanja tattva*) that is the ultimate goal of everyone[457]. For Sarkar, economic systems that reward accumulation are not only incompatible with environmental sustainability; their resolution requires a change in consciousness and a shift in how humans view their relationship with the planet and the cosmos. In this sense, external change factors not only have physical internal drivers that must be addressed, they also have philosophical drivers, some of which require rethinking the language and epistemic basis through which the real is constructed[458].

Spengler would concur. In his view Faustian materialism, whose technical outlook enables the world to be "experimentally probed and numerically fixed so that man can dominate it, distinguishes our particular return to nature from all others"[459]. If accepted, this position suggests the debate about entropic debt and environmental sustainability cannot be addressed solely on the basis of the science that pertains to this matter. It postulates that one of the defining evolutionary characteristics of humans, beyond our capacity for symbolic language and collective learning, is "the acquisition of

[455] In this reading, 'convergence' is the process of creating a new time-space and culture where the barriers between discrete systems or agents disappear, thus redefining both the nature of, and the relationships between, particular entities, or agents, in such a way they create a new system. 'Divergence' on the other hand, is the dissolution of established and successful coherent entities, in a manner where discrete parts of that coherence are released from that system, so they are then able to join other systems. M. Herkenrath, 'Convergence and Divergence in the Contemporary World System: An Introduction', *International Journal of Comparative Sociology,* vol. 46, no. 5-6, 2005.
[456] P. Sarkar, *Neohumanism in a Nutshell,* as quoted by R Bjonnes in Fitzgerald & Inayatullah, *Transcending Boundaries,* p. 126.
[457] R. Bjonnes in Fitzgerald & Inayatullah, *Transcending Boundaries,* pp. 126-27.
[458] Inayatullah, *Understanding Sarkar,* p. 65.
[459] Spengler, *The Decline of the West*, p. 346.

consciousness and will"[460]. However this is arrived at, it suggests a higher consciousness as a necessary precondition for dealing with systemic change. As a premise, it is a direct challenge to the view that asserts system response can be reduced to a reductionist scientific logic, where causes and factors are explored and determined, externally to the system in question.

Sorokin, while not dismissing external causality, considers that causation often lies within the system itself. This he describes as "immanent change in any sociocultural system. It is inherent in it and inalienable from it"[461]. Sorokin argues that it is empirically easy to establish that all socio-cultural systems change all the time. Further, there is never a point where systems remain in stasis, regardless of external conditions, which may at some point be in such a condition that they have little causal impact. As asserted in the discussion on the *Theory of Limits,* socio-cultural systems continue to change, until a time when the effects of this change are so radical, the system concerned loses all the essential characteristics that make it identifiable[462]. In that instant, the system may be said to have reached its limits and ceases to exist. It is useful to note that he uses a similar typology to Rifkin's *Theory of Histo*ry to provide examples of both immanent change and limits[463]. If Sorokin's theory is valid, it is reasonable to suggest that no characteristics, or conditions of the current system, will continue to hold or remain the same, while the system continues. If that is the case then the assumption of continuous economic growth cannot be sustained, nor can the view that 'capitalism' and the 'market' are concepts that are essentially static in nature[464].

However, Sorokin goes on to opine that, in our knowledge of how previous socio-cultural systems and processes have behaved, there are only a limited number of change or adaption possibilities available to any system. As each system explores and uses up such possibilities, certain rhythms—what he terms 'super-rhythms'—can be observed in the system condition that signal both the demise of the current system and the mentalities of an emergent system. These super-rhythms, he asserts, help us understand both the nature of the present systems limits as well as emergent characteristics of the system that will replace it. For Sorokin, super-rhythms relate to what he terms as mentalities, or ways of thinking, with an ideational orientation at one pole, a sensate orientation at the other, and

[460] Spengler, *The Decline of the West*, p. 59.
[461] Sorokin, *Social & Cultural Dynamics,* p. 633.
[462] ibid., p. 654.
[463] ibid., p. 658.
[464] Kaletsky affirms this point with a useful descriptor of 'stages of capitalism.' Kaletsky, *Capitalism 4.0*, p. 44.

with a mixed or idealistic mentality operating in the middle. These mentalities define every part of the system they dominate, including the most widely accepted sense of philosophy and spirituality[465]. Therefore as societies act, interact and react to these mentalities, they confront the limits inherent in each one, and then swing in pendulum fashion towards the other.

Given the contemporary condition is deemed as primarily sensate, it is useful to understand how and where the limits for sensate societies emerge. Sorokin argues it is inherent in the nature of a sensate culture that reality is perceived primarily as a product of the sense organs. By definition it does not believe in supersensory reality. "Its needs and aims are mainly physical and maximum satisfaction is sought of these needs"[466]. Thus sensate cultures can be active through the most efficient construction of the external milieu: *passive* where external reality is utilised to satisfy self centered and self determined sensual pleasures; or *cynical* where satisfaction is derived through "donning and doffing of ideational masks which promise the greatest return in physical profit"[467]. Consequently, it is possible to conclude that sensate cultures concentrate the gaze on built form and infrastructures that assist in the creation and satisfaction of whatever particular pleasure is required, by either the collective or the individual. Also, it is inherent in their nature that they continue to exploit the resources required to satisfy those same needs, until such time that the systems, which are directed towards exploitation, can no longer provide the required resources. At that point, limits have been reached and perhaps thresholds crossed (Rifkin's existential concern) that preclude the possibility of the pendulum swing required to restore balance.

In essence, Sorokin articulates similar concerns to Sarkar, although this cosmology does not access the transcendental in the way Sarkar's does. Both assert the challenges facing contemporary society cannot be resolved, nor can leadership of alternatives occur, within the ways of knowing and mentality of the society that created them. However, and this is Rifkin's dilemma, either utopia (successful transformation), or dystopia (failure to transform) will emerge when systems reach a point where there seem few conditions under which they can perpetuate their continuation in their current form [468].

[465] Sorokin, *Social & Cultural Dynamics,* Ch. 2.
[466] ibid., p. 27.
[467] ibid., p. 28.
[468] The case for this contention espoused by a series of contemporary transformational theorists will be canvased in *Chapter 5.*

For Ibn Khaldun, Sorokin's 'point of crisis' represents a complete collapse of *asabiya*, a juncture where there is no interest, by sensate individuals, in accepting the notion of the greater good[469]. Agents of change therefore disengage with the current system and begin to explore both identity and mythology in another domain. Khaldun would be convinced that this was yet more evidence of urbanised societies as sedentary cultures "beyond the necessary conditions of civilization"[470]. In this situation, he would argue, leadership needs to come from elsewhere, as the generations of leaders who governed the current system have exhausted all their authority. They confuse prestige with nobility and misunderstand the qualities that are essential to maintain whatever benefit and power they exercise.[471] His premise that leadership is exhausted within four generations of about thirty years each correlates remarkably well with Rifkin's Stages of Industrial Revolution.

Toynbee describes these leaders as corrupted by the 'mimesis of their times', where "man has become the slave of his machines", and the leaders who have originally benefitted from mechanisation "may infect themselves with the hypnotism that they have induced in their followers." As a result, without leadership there is a secession of the proletariat from "a band of leaders, who have degenerated into a dominant minority"[472]. Consequently, in conditions where a sensate culture privileges extreme individualism, the willingness of the collective to allow, or even accept, acts designed by few to maintain the system which maximises their benefit to the exclusion of others, seems unlikely.

From these macrohistorical reflections, a number of propositions have been developed that maintain social systems have limits, and there are few, if any, circumstances that would exempt the contemporary society from this experience. If these multiple understandings about limits are contextualised in terms of Toynbee's 'Challenge and Response' theory, what emerges is that system failure, or the crossing of limits, cannot be determined, by any particular response. Rather, failure emerges, as part of the patterns of human life, but "with a texture of freedom not of necessity; but like other observable patterns, they are unlikely to be all-prevailing and ubiquitous".[473] This suggests that whilst concentrating on one aspect of 'the failure to adapt' to the exclusion of others cannot be causally predetermined, it is not necessarily uniform in all cases, and is therefore intrinsically unpredictable[474]. However, this does not negate the structural reality that systems have limits, and that it is

[469] Ibn Khaldun, *The Muqaddimah*, vol. 1, p. 279.
[470] ibid., vol. 2, p. 270.
[471] Toynbee, *A Study of History*, vol. 1, pp. 280-81.
[472] ibid., pp. 277-79.
[473] Toynbee, 'Reconsiderations', p. 261.
[474] ibid., p. 261.

possible that these have been reached in the modernist experiment. Within this framing the senses of reality that have been preferred (what is often referred to as 'normal') are unlikely to exist beyond the system limits and therefore invite contemplation of how this mechanistic society needs to transition through, increasing levels of complexity, chaos, contradiction and uncertainty. These are scenarios its philosophies and institutional arrangements seem ill equipped to facilitate; yet both external and immanent conditions suggest it should.

Infrastructure frames mentality

As has been asserted earlier, Rifkin posits that key technologies can and do merge, and converge, to act as infrastructure platforms, for any given civilisation. Additionally he contends, over time, new infrastructures frame mentality and identity together with a built form (the physical manifestation of a society conceives its social arrangements) that reflects and interacts with that mentality and sense of identity. A dialectic tension emerges from this consideration that feeds upon and reinforces the other. It is, as Churchill suggested, that "we shape our buildings [and our infrastructures] and afterwards our buildings shape us"[475]. This 'shaping' operates, not just in explicit form, for instance in the superhighways of the oil age, but through the manner in which their thematic form is expressed; in this instance mechanistic progress, where form and mentality become part of an indivisible and implicit spectrum[476]. However, this infrastructure-mentality nexus poses a dilemma; that is, how can those who have been brought up in, and depend upon, the mechanistic mentality of the Second Industrial Age, find a way to step outside of that mentality, in order to consider how to respond to the challenges to the system that they are an intrinsic part of?

For Oswald Spengler, understanding the nature of the relationship between mentality and form is an important part of a "morphology that discovers and orders nature-laws and causal relations into a Systematic"[477]. He describes the expression of explicit form, or what has 'been fulfilled,' as that which '*has become'*, and the process of realising the

[475] Hansard, House of Commons, 28 October, 1943, on deliberating the upgrading of the House of Lords.
[476] Brunel, the engineer of the Great Western Railroad in Britain, envisaged trains 'floating through the countryside and the process of travel, be it train or ship from Bristol across the Atlantic as one of pleasure not endurance...In many ways the company employed the stylistically inspired characterisations of so much of its tourist identity to dramatise and mythologise industrial and merchantile interests." A.D. Bennett, *The Great Western Railway and the Celebration of Englishness*, University of York, 2000, p. 31.
[477] Spengler, *The Decline of the West,* p. 71.

possible, as '*becoming*'[478]. In this actualisation of external form—the artefacts that we produce—infrastructure can be defined as the realisation and thus described as '*the become'*. However, by the nature of its design and functionality, infrastructure is also an enabler of the realisation of other explicit forms (the creation of suburban living artefacts for instance) and therefore is part of '*the becoming*.' Thus, the relationship is explicit, implicit, interdependent and reinforcing. At the same time, Spengler maintains it is through understanding the nature of the mathematics and logic patterns that articulate the conception of time, form and space, used in both '*becoming'* and '*the become',* that we can understand the culture or mentality involved in the development of a particular culture and the artefacts that are the expression of that culture. These culturally determined mathematics and logic patterns provide a way to frame meaning and reference and thus the ability to construct a logic that provides distance, in a systemic way, from the contemporary situation[479].

This exploration of time and space, from a mathematical perspective, is critical to Spengler's cosmology. Spengler asserts, "every philosophy has grown up in conjunction with a mathematic belonging to it"[480]. It suggests 'numbers' are both science and arts and furthermore that these numbers reflect and inform the conventions that inform form and shape, within the culture those particular conceptions belong to. In other words, a society's infrastructure is an explicit and tangible expression (in both *the becoming* and *the become*) of mathematical and dimensional (time) constructs, peculiar to a particular culture. Significantly for the Western culture, this mathematic liberated itself from the visual, to encompass multidimensional space, and the expansion of function theory into groups, which allow the possibility of algorithms.

As Figure 4.3 suggests there are significant implications of this numbers-form-shape relationship in understanding the causal layered implications of a transition away from the fossil fuel infrastructures to renewables and the IoT (Rifkin's central thesis). Firstly it establishes that infrastructure considered in this way is both an artefact (what is *become*) and also a (systemic) structure that enables those artefacts at the same time (the process of *becoming*), together with any reformulations of time and space they engender. Secondly through interaction and experience with that artefact and the system on which it depends,

[478] Spengler, *The Decline of the West,* p. 42.
[479] Putnam, in his development of *a Theory of Meaning and Reference,* has developed useful linguistic devices for metaphorically standing outside of the experienced present. These are particularly pertinent in the consideration of many of the issues confronting humanity, in particular global environmental threats. Putnam, 'Meaning and Reference'.
[480] Spengler, *The Decline of the West* p. 43.

the mentalities of those that are immersed in those experiences are modifed and new perceptions of 'reality' are developed. On the other hand those who chose not to or cannot have that interaction remain within located within the infrastructures they privilege and the senses of reality it engenders.

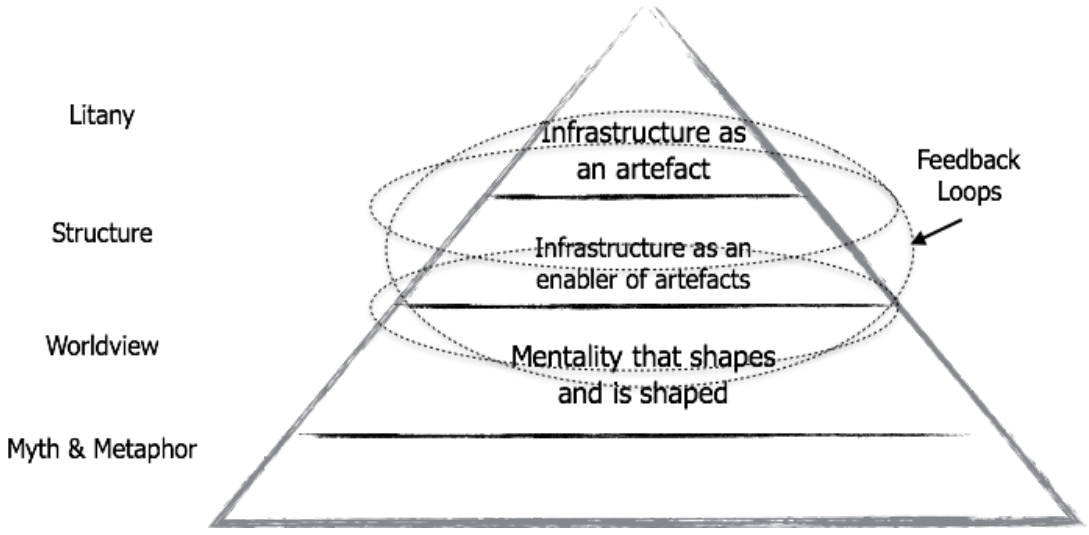


Figure 4.3 Showing the causal layered nature of the Infrastructure-Mentality relationship

This link, between mathematic and the dynamics of relationships and form, has recently found contemporary theoretical support, in the development of what is known as 'Promise Theory.' In essence, Promise Theory provides the basis for governance models in a distributed society, where autonomous agents, freed from external rules, voluntarily agree to act in certain ways for the benefit of the relationships in which they wish to become engaged[481]. In other words, as autonomous agents recognise the need to act in a manner that serves their needs without disadvantaging others, they need to establish and maintain relationships with those others so long as there is a need to do so. Whatever is decided in these relationship arrangements creates the rules for that specific engagement. At the core of that agreement is a sense of the space-time that they inhabit, and thus the means to establish the proximity and relationship with those agents, with whom they are interested in engaging. Moreover, the process by which 'spacetime' is conceptualised, is semantic (for instance it might be Cartesian, polar or Euclidean) and thus relative to the mathematical culture intrinsic to that conceptualisation. In its design Promise Theory provides a holistic mathematic, one that can escape from sets of generalised rules, established by some socially accepted (almost certainly modernity inspired) third party. It

[481] M. Burgess, *Spacetime with Semantics. Notes on Theory and Formalism*, http://arxiv.org/abs/1411.5563 2014.

allows for agency, semantics (identity), dynamics (magnitude), coordinate systems, space phases (the ability to exist as gas, solid or molecular), the fidelity of information transmission and branching into causally independent worlds, to all play a part in a particular conceptualisation[482]. This control of the variables allows for any next engagement to be negotiated in an entirely different way. Under Promise Theory, it is possible for multiple mentalities and multiple infrastructures to coexist simultaneously and to self organise how they will relate in the simultaneity. They will also know how to act in the event that particular agents or entities are unaware or ignorant of the environments that Promise Theory seeks to create. Promise Theory therefore gives contemporary practical expression to the Spenglerian premise that the nature of mathematics and logic patterns frame culturally determined meaning and reference, and how that framing is linked to mentality.

In contextualising contemporary mentality, Spengler argues 'culture' or 'mentality' relies on two specific components. The first is how the people of 'higher cultures' synthesise and interpret the immediate impressions of their senses. The second is 'history'; "that from which their imagination seeks a comprehension of the living existence of the world, in relation to their own life, which the thereby invests with a deeper reality"[483]. Over time these cultural artefacts are expressed, perhaps even ossified, through external or artificial states we call 'Civilisations.' In turn, these exhibit a historical process that "consists of a progressive exhaustion of forms that have become inorganic or dead"[484]. For Spengler, the current Western culture is defined as 'a Faustian Soul' whose prime symbol is pure and limitless space[485]. Contrary to its self-serving belief, this is not a high point of an ascending straight line of world history, in accordance with its ideals (viz. never ending growth). Rather it is a stage of history that covers a few centuries, and which is strictly limited and defined as to form and duration[486]. The Faustian allusion suggests an explicit compact between the current Western culture ideal and the forms of mechanism that are the explicit expressions of its civilisation. In this sense Spengler would find considerable agreement with Rifkin's infrastructure-mentality premise, but in so doing, he invites a reconsideration of European centrality and its role in the prosecution of modernity, in the way Dussel characterises it:

[482] M. Burgess & J. Bergstra, *Promise Theory: Principles and Applications,* Oslo, Norway, XtAxis Press, 2014, p. 77.
[483] Spengler, *The Decline of the West,* p. 7.
[484] ibid., p. 25.
[485] ibid., p. 97.
[486] ibid., pp. 29-30.

> ...one that considers the process of modernity as the already rational 'management' of the "world-system". This position intends to recuperate the redeemable of Modernity to negate the domination and exclusion in the world system[487].

Toynbee also made the connection between the Machine Age and 'mentality and form'. Although Toynbee in many ways disagreed with Spengler, probably because Spengler's assertion that the formalisation of 'culture as civilisation' presaged decline directly contradicts Toynbee's use of civilisation as the preferred unit of analysis[488]. Even so, Toynbee notes "the penchant of Western civilisation towards machinery: a concentration of interest and effort and ability to...ingenious constructions of material and social clockwork"[489]. While he argues that form is a superficial phenomena, he also claims it masks "an underlying unity without impairing it". Again, as quoted earlier, he makes the link, noting "the rising gale of scientific discovery has blown the chaff of traditional religion", and while at one level this is a great service, with it has come a disservice: "since neither science nor ideologies have a grain to offer as a substitute"[490]. In Toynbee's mind, therefore, the nexus between mentality, values and reality has become regrettably absolute. Mechanism has become a universal church that presages the decline of the civilisation that bought it into being.

For Sorokin there are explicit, observable and systemic patterns; a cosmology that emerges as a consequence of dominant technologies of a time (including infrastructures), how people think (mentality), and the nature of the relationship models they prefer as a result of that mentality. Contemporary theorists concur. Castells suggests "networks constitute the new social morphology of our societies and the diffusion of networking logic substantially modifies the operational outcomes in processes of production, experience, power and culture "[491]. Thus the Collaborative Age may be in part understood through exploring the social morphologies it creates.

Sorokin extends this by arguing profound political and economic revolution, of the type that the Third Industrial Revolution contemplates, involves a change of the proportions and quality of familistic-contractual-compulsory relationships. He suggests there are only

---

[487] Dussel and Mendieta, *Beyond Philosophy,* pp. 87-88.
[488] "Some writers including Spengler have pursued this subject of the characters of the different civilizations to a point at which sober diagnosis passes into arbitrary fantasy!" Toynbee, *A Study of History*, vol. 1, p. 242.
[489] ibid., vol. 1, p. 242.
[490] Toynbee, 'Reconsiderations', p. 533.
[491] Social morphology, defined in this way, (Castells, *The Rise of the Network Society,* loc. 11706) will be used later to explore the emergent nature of the Collaborative Age.

three types of relationships: familistic (or in modern parlance interpersonal); contractual; or compulsory, where the latter concerns the exercise of dominant power, in some way over other kinds of relationships. While making the point that for most of, what Eisler would call 'dominator' history, compulsory relationships have been the most common, he argues that the contractual relationships are the principal, social structure of the 'over-ripe capitalist regime'. He then contends, if contractual relationships continue to increase, there will be an increasingly powerful capitalist society, with both contractual and compulsory relationships in the ascendancy. But if these contractual and compulsory relationships decrease, not only are the days of the system that favours those contractual systems numbered, one could logically anticipate that a future ideational model will be based on an interpersonal relationship model[492].

Therefore, if relationships and the mentalities they engender reflect the dominant technologies of one's time, then those afforded by network technologies are more suited to the interpersonal or inter-agent model, than they are to contractual models. Further, in a world where technologies enable almost seamless relationships without physical barriers, there is a case to be made that a fabric of networked interpersonal relationships can be considered a new social morphology, and as such, infrastructure; in the same way that physical entities are characterised. If this were to be the case, then the mentality and infrastructure become interchangeable and indistinguishable one from the other; in the pattern that emerges it makes little sense to explore demarcations.

In another reading, the linking of infrastructure to mentality is simply the assertion of a Western technological hegemony on all other cultures; one that has "primitivised 'the Other' as being backward, pre-modern and traditionalist"[493]. It represents the evolution and extension of infrastructures that firstly enabled the commoditising of space and secondly the commoditising of time. In contrast, other cultures regard space differently. They talk about places that have been moved through, and who they involved. They designate other kinds of spaces as important for cycles, energies and life forms where the space represents an experienced living connection to the Whole[494]. But in these multiple expressions the central premise that infrastructure influences mentality still holds. It is just that what is considered important infrastructure differs considerably. However, as *Chapter 5* elaborates, network technologies have been appropriated and adapted for

[492] Sorokin, *Social & Cultural Dynamics,* p. 453.
[493] Fitzgerald & Inayatullah, *Transcending Boundaries,* p. 109.
[494] ibid., p. 111.

culturally sympathetic use by a number of cultures in ways that seem to negate the influences that at least on the surface, these technologies promote.

With an orientation in the Indian episteme, P.R. Sarkar explored components of social theory and science that reflect other senses of time and space. He maintains that the level of consciousness of those taking an action influences the action itself, and he inserts the influence of this consciousness into the triangle of empirical formation (data), theory and values. However, unlike the traditional view where values (mentality) are seen as universal, individual or group preferences, he contends these values are a consequence of structure and episteme, where disinterest is impossible[495]. In the Sarkarian perspective it would be almost impossible for infrastructures to exist in the absence of a mentality, or of power relationships that privileged those infrastructures. Thus he, like the others, affirms seamlessness and interdependence.

In all the ways that infrastructure and mentality may be considered, a commonality emerges in the macrohistorical discourse. This suggests our understanding should move from seeing infrastructure as just material artefacts (in one sense the ultimate sensate expression of a concept), to seeing infrastructure as an expression of how space is conceptualised, framed and engaged with through a particular culture or mentality. Further, the manner of engagement, in the latter definition, informs the observer about conceptualisations and mythologies that are fundamental to, and inherent in, those infrastructures and mentalities. In this understanding, if infrastructure is defined as '*the becoming',* rather than *'the become',* its influence on what "drives causality, 'systematicity' and the rational" is what matters[496].

Infrastructure therefore, is not just a set of artefacts; it also defines meaning and reference patterns intrinsic to the functioning of any given society, at multiple levels. As Figure 4.4 (overleaf) illustrates, infrastructure when explored through the lens of multiple layers of reality is a 'design architecture' on which socio-economic activity and cultural norms are arranged. In this wider definition it has an influence that is much greater than the one traditionally ascribed to it. This same design architecture also provides a mechanism to understand and explore alternatives to the contemporary infrastructure narrative.

[495] Inayatullah, *Situating Sarkar,* p. 99.
[496] ibid., p. 95.

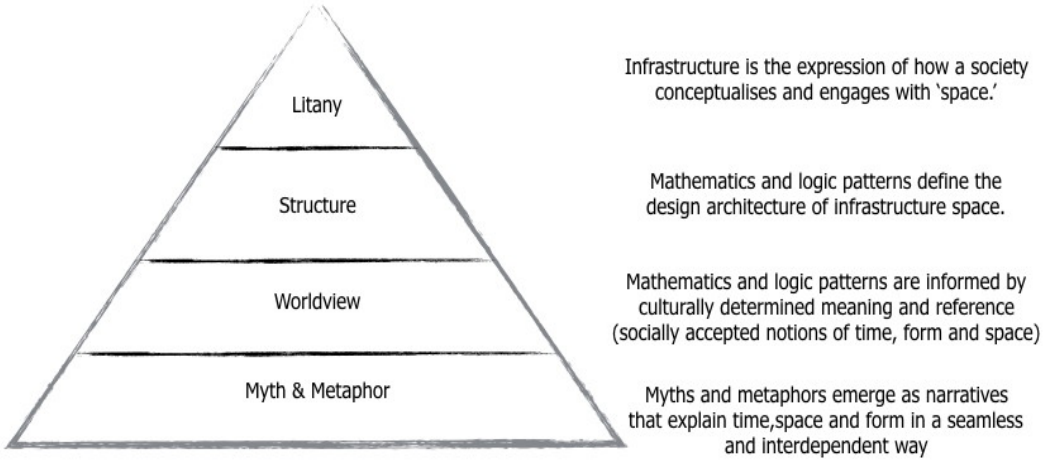


Figure 4.4 Causal Layered Analysis of Infrastructure within a macrohistorical framing

The implications of this infrastructure-mentality 'patterning' are considerable for Rifkin's Third Industrial Revolution. Firstly, to succeed, it needs substantive investment in the infrastructures to create a critical "enabling' mass that will allow future infrastructure to fulfill its role as *the becoming*. Secondly, it requires the articulation and adoption of ways of thinking (mentality) and expressions of identity that will use those infrastructures to create *the become* of the Collaborative Age. There is, though, one important caveat. Such mentalities cannot and should not represent a Western hegemony that privileges exploitation, materialism and unneeded accumulation, and the trampling of other worldviews, for that is to ignore the systemic realities of entropic debt, intrinsic to the contemporary system, and thus undermine the global synchronistic action required to avert "an act of suicide on a grand scale"[497]. Rather, a different mentality must be privileged, with a rethought social cosmology that has within it realistic conceptions of a good and benevolent society, together with identification of the infrastructures that will enable it. Essential to this mentality and cosmology will be the emergence of interpersonal and networked relationships as the dominant relationship model, with those that privilege contractual or compulsory relationships occupying a subservient role.

Social evolution is linear

The idea that societies and economies evolve in a linear fashion is evident in Rifkin's Theory of History and the Industrial Revolutions it describes. It is also central to the Western notions of history, progress, 'enlightenment' and the concept of modernity. While

[497] Ehrlich, 'Can a Collapse of Global Civilization Be Avoided?', p. 1.

the linear view offers at least the prospect of escape from the consequences of negative environmental effects, it has defined humanity's relationship with the planet in anthropocentric terms. At a system's level, it privileges particular constructs of time, especially the dominance of clock-time and the 'apparent' primacy of the empirical over the mental and spiritual. While this linear view of civilisation has strong support, among some macrohistorians and many contemporary theorists, others propose cyclical or transcendental approaches, where particular patterns of social evolution emerge in almost a nomothetic fashion. It is suggested that a deeper understanding of both the process of transition, and what emerges from that transition (the central question of this thesis), benefits from exploration of these alternative constructs. This is because it is at least possible that an unquestioning acceptance of the linear mental model may work against the transformation proposed. On the other hand, it might be that linear, cyclical and transcendental framings can coexist simultaneously, and as a consequence, different dimensions of possibility and conversation may be available in the simultanity.

In Rifkin' s *Theory of History,* each stage of Industrial Revolution is presented as a discontinuous, linear, 'step up,' because of the availability and access to increasingly complex energy sources, and to improvements in communications technology. This increase in complexity is potentially problematic in a Collaborative Age, where reductions in entropic debt are necessary. However, what is implied in this linear, or perhaps 'exponential curve'[498] evolution is an increase in the sophistication of the societies that have access to these energy-communications infrastructures. It is within this framing of 'sophistication,' defined by available technologies and the materialistic products that emerge from those technologies, particular definitions of progress are privileged. Furthermore, these definitions are central to the ethos of Western societies and its domination, to the point where the notion of modernism and Westernisation have been conflated and other civilisational norms have been marginalised. The British-Muslim futurist, Sardar, suggests such is the influence of this modernism; those from other cultures "cannot even choose not to be victims of the dominant culture; their victimization is inbuilt into the global economic and political system"[499]. In other words, in this reading, social evolution, linearity, progress and modernism are intertwined and interdependent at a systemic level.

[498] This refers to the exponential adaptive effects of symbolic language and collective learning available to homo sapiens. Christian, 'World History in Context', p. 445.
[499] Sardar, 'Welcome to Postnormal Times', p. 879.

This proposition that social evolution is linear has dominated philosophical and ideological thought, at least in the West, in the 20th century. Hegel, Marx and Adam Smith, in particular, all propounded a linear view of history, although their units of analysis are very different. For Hegel, who privileges a particular definition of absolute truth, social evolution correlates to the development of freedoms, a sense of spirit and the union of objectivity and subjectivity. These came together, at least in his mind, with the establishment of the German Prussian state:

> [This] right of the state is higher than the other stages...of ethical life and spirit in which both individual independence and universal substantivity are found in gigantic union It is freedom in its most concrete embodiment which yields to nothing but the highest absolute truth of the world spirit[500].

For Adam Smith, history is a linear record; initially from Pasturage to Agriculture and then later to an emergence of "the great commerce of every civilized society, carried on between the inhabitants of the town those of the country"[501]. In Smith's view, this 'great commerce' is the ultimate expression of progress, on the condition it is moral and has a unity of love, for both the self and others. For Marx, as he was interpreted in the twentieth century, social evolution is the narrative of a struggle for who controls the relations and means of economic production, from feudalism to capitalism, socialism and finally communism, although the historian Hobsbawm suggests that his real focus was principally on advanced capitalism: "bourgeois society as the most developed and complex historical organization of production,"[502] and that more explicit expressions of his historical theory can be ascribed to the theorists who followed him.[503]

What is common to all three models is the possibility of regression to previous stages and/or stagnation through a failure to advance. Evolution is conditional. Success therefore, in the linear model, is to develop a path to the future; one essentially unfettered from the hegemony of the present system conditions. This needs to have within it the characteristics to create and sustain 'the next step' in the evolutionary process. A linear revolution is not sufficient for a Third Industrial Revolution that establishes a viable, alternative hegemony

[500] G. Hegel, *Elements of the Philosophy of the Right*, [1820], A. Wood (ed.), Cambridge University Press, 1991, p. 30, [online text] International Relations and Security Network, available from www.isn.ethz.ch., (accessed 28 October 2014).
[501] A. Smith, 'Wealth of Nations', Pennsylvania State University, 2005, p. 307. [online text], available from http://www.rrojasdatabank.info/adamsmith/wealthp1.pdf, (accessed 28 October 2014).
[502] E. Hobsbawm, 'Marx and History', *Diogenes,* vol. 32, 1984, pp.103-14, available from http://dio.sagepub.com.ezproxy.usc.edu.au:2048/content/32/125/103, (accessed 2 August 2015).
[503] Gramsci (and later Dussel) for instance was particularly concerned at misreadings and inappropriate attributions to Marx, particularly those in relation to Marx's conceptions of materialism. Gramsci & Forgacs, *The Gramsci Reader, pp*. 36-39.

based on network thinking and collaborative models, without having the capacity and capability at the same time to sustain the same, once the revolution has occurred.

In contrast to the linear thinkers, the group of macrohistorians whose perspectives are central to this thesis, all have non-linear models. These models suggest patterns in the way that 'civilisations' rise and fall. Ibn Khaldun maintains that social evolution occurs through successive cycles, will see the corruption of *asabiya* across three or four generations. "In this way the life span of a dynasty corresponds to the life span of an individual; it grows up and passes into an age of stagnation and thence into regression"[504]. Similarly, Toynbee adopts a wave-like 'rise and fall' model with disintegration occurring when "a creative minority, which once evoked a voluntary allegiance from the uncreative mass [so they respond to challenges], now gives way to a dominant minority, destitute of charm, because it is uncreative"[505]. Moreover, in Toynbee's mind, this lack of creativity drives a qualitative effect of disintegration, which is standardisation[506]. It is useful to note that while there has been much criticism of Toynbee's taxonomy of civilisation, it is based on a set of characteristics he believes constitute civilisation. In establishing where and what these civilisations were or are, some civilisations in his taxonomy exist in parallel, although there is little correlation in time spans. He therefore eschews linearity or rankings based on the strength of their philosophy and "hesitates to divide full blown civilisations in his list into categories standing for supposed differences in importance and value"[507].

Spengler's thesis also has elements of rise, maturity and decline, although he likens this to what occurs in nature, "as the shape in which the man of higher cultures synthesizes and interprets the immediate impression of the senses"[508]. Where Spengler differs from the others is in his belief Western 'Faustian' culture has 'transvalued' the cultures that went before it, by "remoulding [how it] understands them otherwise and practices them in a different way"[509]. Because of this, we cannot learn much from what has been, as the images used to explore have been already modified by our own mentality. Sorokin's pendulum, from sensate through idealistic to ideation, might also be recast as a 'wave theory,' with intervening periods of chaos. He suggests that while evidence of the pendulum exists, how it manifests itself differs in the way it is actualised in any given

[504] Ibn Khaldun, *The Muqaddimah,* vol. 1, p. 346.
[505] Toynbee, *A Study of History*, vol. 1, p. 366.
[506] ibid., p. 367.
[507] Toynbee, 'Reconsiderations', p. 551.
[508] Spengler, *The Decline of the West*, p. 7.
[509] ibid., p. 181.

civilisation. Therefore, in Sorokin's cosmology, stages of history are neither linear nor cyclical: "thus history ever repeats itself and never repeats itself; both seemingly contradictory statements are true and are not contradictory at all, when properly understood"[510]. So it would seem that the linear-cyclical dichotomy may be an illusory, false or unnecessary choice, with resolution of the issue being 'and both'.

However, what both Spengler and Sorokin are proposing is that only where 'clock time' is taken for granted could a philosophy of evolution exist. If, conceptually, the past, present and future can only be visualised through the lens of the present, there is no evolution. There is simply the hermeneutic expression of everything, through the lens of the dominant culture's 'present,' where there is a unity of temporalisation; the coming toward, having been and making present. As a consequence Ricoeur suggests: "through its transcendental determinations, time determines the systems of nature, but time, in turn, is determined by the construction of the axiomatic system of nature"[511].

None of this, though, negates the concern that, in the expressed and experienced present, with its sensate culture, many privilege the empirical world as the 'only real', and what is mental, philosophical and spiritual as less real, or a derivative of the same[512]. For Sarkar and many other macrohistorians, perhaps with the exception of Marx and Gramsci, this is unacceptable. The transcendental is essential to, and a necessary part of, the human condition, and its absence is seen as towards the end point of decline or disintegration. By definition it cannot be owned, although Hegel's 'Absolute Truth' attempts to do just that. Rather, it functions "to liberate our minds from our own minds. It creates ways of knowing, love or devotion that attempt to break the bonds of family, race and the nation"[513]. More importantly, in doing so it makes possible the escape from the experienced present. Sarkar's theorising attempts to address how this might be actualised through the role of the *sadvipra*; those 'spiritual intellectuals' who, by enlightened action, can accelerate the historical social cycle of worker (*shudra*), warrior (*ksattriya*), intellectual (*vipra*) and capitalist (*vashya*), through an evolving spiral, where the benefits of each phase are experienced, but excesses are obviated before they can occur. What this introduces into the theorising of Stages of History is the influence of 'the Other,' in a way that is beyond knowable and therefore, by definition, beyond linear or cyclical or 'both.'

[510] Sorokin, *Social & Cultural Dynamics,* p. 56.
[511] Ricoeur, *Time and Narrative*, vol. 3, loc. 1103.
[512] Inayatullah, *Understanding Sarkar,* p. 165.
[513] Fitzgerald & Inayatullah, *Transcending Boundaries,* p. 22.

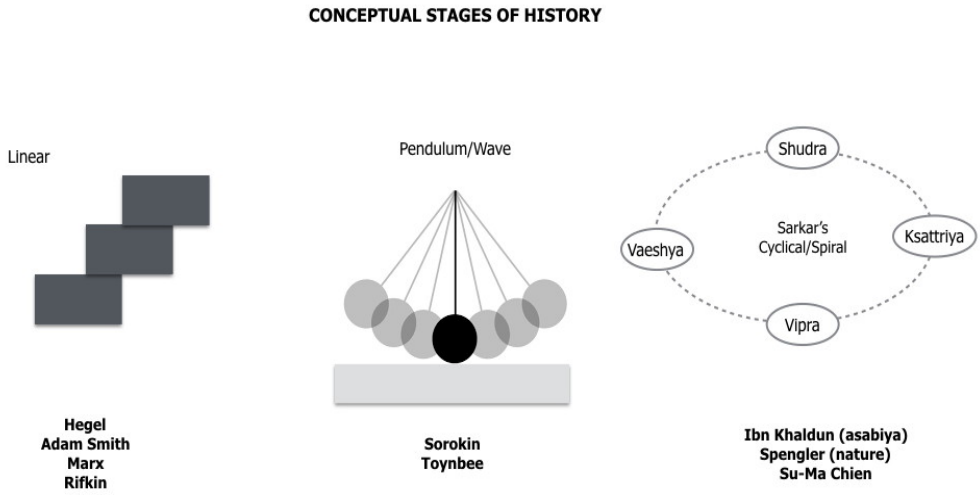


Figure 4.5: Diagram showing conceptual options when considering the Philosophy of Evolution

Each of these perspectives assists in understanding the Third Industrial Revolution transition and an embryonic Collaborative Age. The linear theorists propose that the architecture of the Collaborative Age must be systemically different from the current mechanistic construct. The non-linear theorists argue that as contemporary civilisation comes to an end, patterns of decline and future possibility emerge (e.g. Sorokin's shift from the sensate to the ideational). They also suggest that in 'learning from history' we must be careful about how we have moulded that learning into our own likeness, without realising the distortion that implies. Finally the transcendental theorists encourage the rediscovery of the spiritual; one that goes beyond privileging the intellect, where the spiritual is not reduced to the relative. However, whichever perspective is privileged, at the core of this collective understanding is the assertion that a future system will have an entirely different morphology than the current system. This new morphology ideally will shape a system that will overcome the issues of entropic debt that the current system has created, and develop a just and benevolent society in the process. The question that remains unanswered in this process is: can this new collaborative morphology sustain itself without a concomitant change in consciousness and philosophy?

Revolutionary change is conditional on a shift of consciousness and philosophy.

In the conclusion to *The Empathic Civilization,* Rifkin considers what he terms 'the endgame of historical consciousness': a point in time and space where humanity needs to

go beyond individuation and intimacy to universality and integration, for to do otherwise would create a set of conditions that would make dealing with entropic debt almost impossible. This requires "a powerful new narrative for the generations that will follow and in whose hands will rest the awesome responsibility of re-healing the Earth and creating a sustainable planet"[514]. Thus revolutionary shift, or 'enlightened action,' as Rifkin defines it, is absolutely dependent on a change in consciousness together with a philosophy that goes beyond those that dominate a late stage mechanistic, sensate society. The question therefore turns on understanding what constitutes consciousness and philosophy. Can one exist without the other or are these framings a mere privileging of the intellect, where the spiritual is reduced to the relative? Is there something more, or can it be both? These are not matters of idle speculation, for a misreading opens up the possibility that the Revolution might stagnate and the Collaborative Age might 'fail to thrive,' if a sense of philosophy and collaborative sensibility is not widely distributed and shared. As will be investigated later, there are only a few contemporary theorists who have explored these questions in a beyond 'postmodern' or 'postnormal' context[515]. However it is suggested that macrohistorical perspectives can add significantly to our understanding of these questions, but within these understandings is a postulation that revolutionary shift is not just conditional on a shift in consciousness and philosophy: it is systemically impossible unless both are present.

At the beginning of this exploration it is contended that 'consciousness' and 'philosophy' are not necessarily the same thing, although they can be[516]. The Latin American 'liberation' philosopher Enrique Dussel provides useful definitions on the distinctions between the two and Sarkar on the rationale for their unity. Dussel argues that humans face two core problems. The first is to confront *the totality of the real* in order to manage things for the benefit of the communities in which they live. This, one might define as 'consciousness.' The second is to contain their bewilderment for those things that they do not understand, and how they "*interpret the ultimate foundation* of everything that is real and the universe itself"[517]. This, one might call philosophy (from the Greek philosophia or 'love of knowledge',or alternatively 'pursuit of wisdom') or even analectics (from the Greek *ano*- beyond) where "the other is beyond the horizon of what is already experienced

[514] Rifkin, *The Empathic Civilization,* p. 613.
[515] The concern with the use of the term 'postmodern' is that by definition it uses modernism as the frame of reference.
[516] Again this is a subject that could occupy a substantive part of this thesis, but interesting as it is, it is not the focus.
[517] E. Dussel, 'A New Age in the History of Philosophy: The World Dialogue between Philosophical Traditions', *Philosophy & Social Criticism*, vol. 35, 2009, p. 500.

and comprehended"[518]. He goes on to suggest that these core problems have been present in every society: "they are among the many possible variations of the universal whys and are present in every culture and tradition"[519]. In this reading, 'consciousness' can be taken to mean how one conceptualises time, form and space, and 'philosophy' the ideas that both form that consideration, as well as the beliefs and deep mythologies that govern our actions, on a personal and/or a societal level. If Dussel's definitions are accepted, then clearly one cannot exist without the other, although what constitutes the nature of each may differ from society to society, and from individual to individual.

Sarkar on the other hand—and Dussel also includes the possibilities he canvases—argues in his discourse *The Future of Civilizations*, that *spiritual ideology* (the philosophy of self and consciousness, a theory of meaning and its origins) and *spiritual practice* are the way to experience ideology in a way that cannot be empirically realised[520]. For Sarkar, there is a transcendental unity that redefines and rebalances the nature of the relationship with the empirical. More importantly, he declares, civilisations die if they are missing these factors[521]. In developing a cosmology that is additive, rather than exclusive in nature, Sarkar addresses the empirical through the spiritual, "where the goal is to reduce human suffering by finding ways (both structural and personal) where individuals can achieve their spiritual destiny"[522]. Sarkar therefore, in considering Rifkin's *Zero Marginal Cost Economy*, would suggest his concept of PROUT articulates a philosophy of distributed wealth and relationships, where both humans and nature inform the necessary consciousness for a Collaborative Age; one that can be operationalised at both an agency and a structural level. What is vital is that these structures, including infrastructures, reflect in their design the realities of the Age for which we are imagining them. In this circumstance, it suggests a future where cities are designed for collaboration, dwelling (community gathering), collisions, and exchange rather than consumerism or coliseums.

Spengler frames the consciousness/philosophy distinction somewhat differently. He argues: "cultural man lives inwards [and] civilisation-man outwards in space and amongst bodies and facts"[523]. Under this definition, philosophy and culture are again interlinked, and a Western Faustian consciousness, "whether it wears the garb of religion or not", is

[518] Dussel & Mendieta, p. 5.
[519] Dussel, 'A New Age in the History of Philosophy, p. 500.
[520] In his discourse Sarkar also argues that civilisations require socio-economic theory, fraternal social outlooks, agreed points of reference and founders who can show the way. Inayatullah, *Understanding Sarkar,* p. 212.
[521] ibid., p. 213.
[522] ibid., p. 72.
[523] Spengler, *The Decline of the West*, p. 182.

materialist, an unmetaphysical religion "evident in the Cosmopolis itself, the supreme Inorganic, whose men it is uprooting, drawing into itself and using up"[524]. The consequence is a construction of abstract ideals or theories. But:

> ...the age of theory is drawing to an end. The great systems of Liberalism and Socialism all arose between 1750 and 1850. That of Marx is already half a century old and has no successor. Inwardly it means, with its materialist view of history, that Nationalism has reached its extreme logical conclusion"[525].

For Spengler, philosophy shapes the cultural 'soul,' while consciousness is merely the outward manifestation of the condition that soul is in. It therefore follows, in the Spenglerian view, a future Collaborative Age requires a new soul—"a power can only be overthrown by another power"[526]—and a broad acceptance of the culture that informs it.

From his 14th century vantage point, Ibn Khaldun explores this concept of 'soul' together with the fusion of consciousness and philosophy. He asserts that there must be something that "exists above the soul, for it is that which gives it the power of perception and motion"[527]. In Khaldun's episteme, awareness of this 'other existence' is conditional on the nature of the relationship the brain has with the senses and how it prioritises the order of things. Some are too weak to break free of sensual awareness, some are freer from it and "cover the ground of inward observation," while a few are prophetic and are able to access revelation[528]. Whatever the constitution of the relationship, human action materialises only through thinking about the order of things, since things are based on each other[529]. Thus, the intellectual sciences of philosophy and wisdom "have existed and been known to the human species since civilization had its beginning in the world[530]. However, later he cautions—in ways that Sarkar would support—philosophers "who restrict themselves to affirming the intellect and neglect everything beyond it, are in a way comparable to physicists who restrict themselves to affirming the body and who disregard both the soul and the intellect in the belief, that there is nothing beyond the body in [God's] wise plan concerning existence"[531]. What might be concluded from Ibn Khaldun's observations, is that in a collaborative future the framing of consciousness and philosophy,

---

[524] Spengler, *The Decline of the West,* p. 182.
[525] ibid., pp. 390-91. Dussel would beg to differ. He argues through his rereading of Marx that Marx's views more closely correspond to late Schellingian metaphysical perspectives rather than the Hegelian dialectics with which they are more normally associated. If that is the case then a new Marxist philosophy is possible. Dussel & Mendieta, *Beyond Philosophy,* p. 8.
[526] Spengler, *The Decline of the West*, p. 414.
[527] Ibn Khaldun, *The Muqaddimah,* vol. 1, p. 195.
[528] ibid., pp. 198-99.
[529] Ibn Khaldun identifies four intellectual sciences: logic, physics, metaphysics and mathematics. ibid., p. 413.
[530] ibid., vol. 2, p., 415.
[531] Ibn Khaldun, *The Muqaddimah,* vol. 3, p. 111.

not only must accommodate those for whom the existence of 'the Other' is integral to their philosophy and consciousness, but it must also free itself from many of the bounded perceptions, or the unbundled postmodernist dialogues, that have dominated late mechanistic philosophical, political and economic discourse.

Both Toynbee and Sorokin also argue for revolutionary shift because, in their view, the current Western construct is in its death throes. Toynbee, mindful of the threat of Atomic war, wrote that mankind now has the power to extinguish life of any kind on the face of the planet, and thus the works of the righteous "are being demanded of us urgently, not for their own sake, but for our concern for self preservation"[532]. Sorokin contends that despite its wonderful achievements, the Sensate product is now poison gas rather than fresh air, and its debasement "now becomes increasingly dangerous for the Sensate man himself".[533] This will require a new sense of control, with a set of absolute, universal and perennial values which are "irreconcilable with the Sensate mentality and culture (or we might read consciousness) which by their nature are relative, utilitarian, hedonistic and expedient only"[534]. Again several themes are expressed which are consistent with, yet go beyond, Rifkin's theorising. The first is a strong advocacy of both a hollowness and severe limitation in the dominant sense of consciousness and philosophy. The second is the need for an as yet to be articulated alternative that goes beyond the nature of the first.

The contemporary macrohistorian, Rianne Eisler explores the question under consideration, through a completely different lens. As has been asserted earlier, she maintains that "under the great diversity of human culture are two basic models of society"[535], each with its own sense of consciousness and philosophy. The first is a 'dominator consciousness' model that for the most part has been patriarchal in nature. The second is a 'partnership' model where linking, rather than ranking, is privileged. She categorises these models as 'the Chalice' and 'the Blade,' with the power to give and nurture belonging to the former, and the power of violence and dominance belonging to the latter. In many ways Eisler echoes Sorokin's 'relationships as social texture' model but extends the concept further. Citing Erwin Laszlo, she proposes that it is a new view of reality, a chance for a bifurcation in human systems where there are choices about the evolutionary path, that should be taken (given the issues that confront us) consciously and

[532] Toynbee, 'Reconsiderations', p. 518.
[533] Sorokin, *Social & Cultural Dynamics,* p. 628.
[534] ibid., p. 628.
[535] Eisler, *The Chalice and the Blade,* p. xvii.

purposefully"[536]. Critical to this choice, in her view, is the potential to move from an andocratic to a gylanic consciousness, which transforms society from dominator to partnership relationship models, through explicit challenges to the myths and metaphors that have underpinned the dominator model[537]. While Eisler's stages of history are very different, the linkage of revolutionary shift with consciousness and philosophy is integral to her argument. It broadly aligns its expressed end states with those of Sorokin, Sarkar and Spengler, although her premise is that a shift in consciousness will drive the transformation, not the other way around.

However conceptions of consciousness and philosophy are characterised, macrohistorical interpretations would suggest revolutionary change that attempts to reconstitute our sense of time form and space, which is what Rifkin's Third Industrial Revolution asserts, cannot occur unless that sense of consciousness and philosophy is sympathetic to, and symbiotic with, that proposed reconstitution. What becomes evident is an understanding that a shift in consciousness is unlikely without a comparable change in philosophy, or alternatively, that a change in philosophy is unlikely to occur without a different consciousness. Three questions arise from this consideration. First, what is the nature of the philosophy that underpins Rifkin's biosphere consciousness? Second, if there is a definable philosophy, is it sufficient to create the revolutionary change that the Third Industrial Revolution posits? Third, how will this shift be reflected in the sense of identity and leadership that in some definitions is the manifestation of the answers to the first two questions?

The emergence of a Collaborative Age requires and defines new kinds of identity and leadership.

In exploring Rifkin's theorising, it has been proposed that the mentalities inside a particular system at it limits cannot be used to create new or other systems. If this is so then how do new mentalities and identities develop in this circumstance? What does this mean for leadership? The argument has been made that it comes in part through experience with new infrastructures, and that as interactions with these infrastructures increase, they create a new cultural milieu that reframes societal senses of time, form and space. If this logic can be sustained they define how identity is constituted, how power relationships are created and how that power is exercised. This is on two conditions.

[536] Eisler, *The Chalice and the Blade,* p. 187.
[537] ibid., pp. 187-90.

Firstly that one accepts that identity is a constitution of the self, based on an understanding of, and interaction with, the context in which that self operates and secondly that leadership (or the ability to influence) is an exercise of power by one identity over another or others.

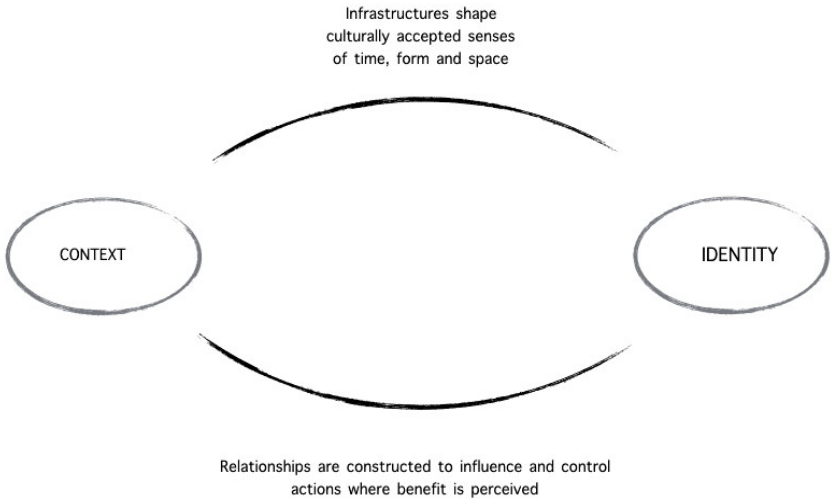


Figure 4.6 Showing the relationship between the constitution of identity and context

In considering this context- identity nexus, the linear theorists would maintain that the development of consciousness is framed through the way identities collide and react to their changed context. This consciousness then informs how power should be reconstituted and exercised. On the other hand, cyclical theorists would assert that particular types of identity, power relationships and leadership are likely to develop as a response to the overreach of previous mentalities, as well as with thorough experience of the new. In sum, even consciousness can and does degenerate. When this occurs, in Sarkar' s view, the mind is pulled outwards towards the material (avida) and, as Toynbee suggests, when this 'materialism' dominates the thinking of leaders, including the unthinking privileging of the economy, in almost every instance it manifests itself through the loss of opportunities for creative action (as all that matters is economism), and an increasing disconnect with the communities it has the social license to lead[538]. Finally, this complex dance of a changed context, emergent identity and repudiation of the old predisposes societies to new philosophies and mythologies that are consistent with their (new) experienced present. Within this complexity a seamlessness in theorising emerges, in a manner that contributes to an understanding of how new identities and leadership are constituted.

[538] Toynbee, 'Reconsiderations', p. 306.

However, as Rifkin has suggested, this reconstitution of identity and power is either implicitly or explicitly counter hegemonic, because, if the Third Industrial Revolution is to achieve its goal of morphing into an environmentally sustainable collaborative era[539], expressions of leadership and identity must be consistent with that aspiration. As such, they represent a 'distinct rupture in the historical consciousness'[540] and an explicit rejection of characterisations of identity and power that have been part of the history and mythology of those that have benefited from the Agro-Hydraulic Age and First and Second Industrial Revolutions.

In this regard, conceptualisations of power and identity that have been part of the fabric of the worldviews of the macrohistorians primarily relate to the context in which they found were situated. As a group they were familiar with environments that were often autocratic, sometimes very spiritual, and for some, the products of upheavals occasioned by 20th century Marxism and Fascism. If one accepts Spengler's advice "to understand the time for which one is born" and to "not look back to the past for measuring rods. Still less look sideways for some system or other"[541], then the understandings that emerge from macrohistory are principally conceptual, rather than explicit extensions of these contexts. From Sorokin, this means one can speculate on what an ideational relationship-based identity might look like. From Ibn Khaldun, one can begin to extend the notion of a contemporary *asabiya* as the basis for identity and leadership. From Sarkar, one can contemplate how either a *shudra* and/or a *sadvripa* future, might be represented in common structures, informed by 'promise theory' agency: the ultimate, decentralised and previously unobtainable model for relationship-based leadership and network-centric (nodular) identities, which are not always constructed within a familial epistemic model.

Rifkin has argued persuasively that a collaborative future requires a biosphere consciousness. The macrohistorians—in my interpretation—have contended that a widespread consciousness (or even the consciousness of a creative minority) that have the capacity to lead also requires a symbiotic philosophy. If this is the case, then consciousness and philosophy are inextricably intertwined. But this 'intertwining is problematic in society, where, as Spengler suggests, philosophy has been reduced to 'money thought', and an unrelenting media bombardment, which has so cowed the populous, "hardly anyone can attain the inward detachment that is required for a clear

[539] Rifkin, *The Third Industrial Revolution,* p. 260.
[540] P. Wagner, 'Modernity History of the Concept.', *International Encycolpaedia of Behavioural Sciences,* 2001, pp. 9948- 54, p. 9949.
[541] Spengler, *The Decline of the West*, p. 384.

view of the monstrous drama"[542] we call contemporary society. In this civilisational confusion an alternative consciousness and philosophy is distant and unavailable unless explicitly sought. But, in this interpretation a different consciousness, identity, and at the very least, thought leadership, is a necessary precondition for the Third Industrial Revolution.

In considering this problem Spengler was interested in how this consciousness might emerge? His answer is to hide new identities (with a different consciousness) within the current power dynamic, until such time that it is opportunistic to emerge. Spengler calls this deception 'pseudomorphosis.' Toynbee, in his interpretation of Spengler's thinking, describes pseudomorhposis as follows:

> [I]n essence the idea is a simple one. When two civilizations are interacting with each other, their meeting may be on an unequal footing. At the moment one may be powerful, the other more creative. In this situation the more creative will be constrained to conform outwardly to the more powerful civilization's configuration, like a hermit crab that fits himself into a shell that is not his own.[543]

Therefore, the process of transition, the expression of a different philosophy and a new consciousness, operates as a strange attractor for an 'oecumenical' civilisation that will break through the constraints of a Western modernity.[544] Furthermore, it encourages the articulation of new identity with fellow 'hermit crabs', and in the process of mutual story telling, both personal mythologies and new group mythologies are likely to emerge. In a pseudomorphical transition, leadership devolves in one of two ways: either it comes from those that expose to any who are interested their newly found identity, despite the conventions of the dominant society, thus encouraging mimesis; or it exists in those who empower recognition of the 'network of creative'; those who are developing modes of thought for a different landscape, but do so in a way that does not explicitly challenge the dominant hegemony. Whichever definition is used, the 'leadership' style is that of the outsider, not the insider.

As has already been stated, one of the premises that underpins the proposition that the 'leadership of the new' must develop outside the existing system, is the existing leadership cohort, through the very nature of its constitution, is incapable of recognising any sense of identity, that exists outside of its mentality. In Sorokin's view this is pertinent to the

[542] Spengler, *The Decline of the West*, p. 394.
[543] Toynbee, 'Reconsiderations', p. 620.
[544] ibid., p. 674.

current condition because of the extreme economism that defines modernism. Thus, he asserts, as Rifkin does:

> [T]he raison d'etre of Capitalism is to bring every aspect of human life into the economic arena, where it is transformed into a commodity to be exchanged as property in the marketplace. Very little of the human endeavour has been spared this transformation[545].

Under this definition, contemporary society exhibits a radical form of the sensate mentality that cannot be sustained. As a consequence, Sorokin suggests, modernism is at a tipping point, where:

> ...sensate values will become more relative and atomistic, until they are ground into the dust of any universal recognition or binding power and all sense of philosophy and beauty will be obliterated increasingly until mental, moral, aesthetic and social anarchy remains supreme.[546]

As they are challenged, authority and conscience will be supplanted by the opinions of the unscrupulous, contracts and covenants will lose their binding power, freedom will become a mere myth for the majority and rude force or cynical fraud will become the only arbiters of value in a culture that will increasingly resemble a "shapeless cultural dumping place"[547]. As the system collapses from within, an alternative must be found, and therefore, for Sorokin, the pendulum must swing, and in the process a new ideational culture will emerge.

The swing away from the degraded and shapeless sensate society to an ideational society, be that pseudomorphical or not, is therefore by definition non-sensate and non-material, and is practically expressed through new philosophy, consciousness and identities that are constituted through the same. This ideational consciousness can be expressed *ascetically*, through minimisation of carnal needs and a sense of detachment. Alternatively it can be expressed through an *active ideationalism*, where there is transformation of the sensate world, along the lines of the spiritual reality and the ends chosen, as the main value of that culture.[548] In this reading, James Lovelock's 'Gaia imperative'[549] defines a possible response to how the challenge of existential entropic debt might be considered, within an ideational cultural mindset.

Leadership in previous ideation models traditionally belonged to a sacerdotal class, and has historically been the province of theocratic leaders, be they Brahman, Buddhist,

[545] Rifkin, *The Zero Marginal Cost Society,* p. 2.
[546] Sorokin, *Social & Cultural Dynamics,* p. 699.
[547] ibid., p. 700
[548] ibid., p. 27.
[549] Lovelock, *The Revenge of Gaia,* p. 20.

Catholic, Taoist or something else. However, in modern society, having "changed one sensate horse for another, with democracy failing in the process", society will witness the development of a new ideationalism that is inclusive of theocratic forms and also those that "connect with the familiaristic form of relationship"[550]. This descriptor of a group of connected people, who privilege relationships over contracts, seems remarkably similar to Rifkin's prosumers and collaborists (peer to peer) in a collaborative commons. Again Sorokin, like Spengler, clearly demarcates differences in identity and leadership across the revolutionary divide. These differences suggest that the leadership of this ideational future is one that privileges philosophy and consciousness that is widely supported in communities, whereas leadership in the sensate world privileges the capacity to exclusively own and accumulate often in opposition to the interests of the society in which they are located.

The themes in both Spengler and Sorokin's contentions are remarkably similar. Both contend that the modern system is at its limits and cannot be sustained for long; both argue that for the creative minority, or leadership, the focus swings to the creation of something else; and both assert that this requires a new philosophical consciousness. In this way there is unity in thought and action. Ibn Khaldun would describe this unity as *asabiya.* Without reprising how it is lost, he would maintain that the creation of a new *asabiya* requires direct relations "between persons who help each other [and are] close, so that the ties are obvious and clearly assist with solidarity without any outside prodding"[551]. Furthermore, these relationships must create a 'group feeling' that is superior to that of the individual[552]. Where this exists, there is the potential for an 'original nobility' that is normally only eroded under the influence of the sensate conditions of the city. For Khaldun, this combination of relationship-based identity, shared consciousness (group feeling), and nobility of purpose (philosophy) must be defined at its beginning, by standing away in a distinct manner from the dominant hegemony: "nobility originates by standing outside"[553]. It cannot be part of what is. If this is to hold true, the *asabiya* of a Collaborative Age requires a discourse and a set of leadership behaviours that meet this test. As such, they represent an explicit rejection of the adage that it is better to change a system from within, than from without. Moreover this contemporary contextualising of *asabiya* informs key conditions for what constitutes successful revolution.

[550] Sorokin, *Social & Cultural Dynamics,* p. 469.
[551] Ibn Khaldun, *The Muqaddimah,* vol. 1, p. 264.
[552] ibid., p. 269.
[553] ibid., p. 279.

This notion of a unity of culture as central to identity and leadership would resonate with Sarkar: "the sum total of human life is called culture. Human culture is one and indivisible. [Furthermore] it is important that one can add one's uniqueness to that culture"[554]. If this is the case, then it is possible the coming Collaborative Age can and should have a shared 'unity of culture'; one that allows for a plurality of thought and belief, a statement of uniqueness within that unity, and a sense of the individual that does not compromise the other two. If this were to occur, there would be "a transformative revolution of the concept of class itself"[555]. A system thus constituted would be additive, rather than exclusive; and boundary-less, rather than bounded. This considers that the constitution of a contemporary *asabiya* does not have to be predicated on either action or reaction to the autocratic and mechanistic power structures that have previously been privileged. Furthermore, developing a frame of reference outside of the existing structures might be enabled through technology platforms like Promise Theory, which are accepting of all, and yet provide for the maximisation of individual interest in a way that enhances whatever kind of cultural unity is privileged. The introduction of such systems, though, threaten vested interests in the current arrangement, and it might well be that some kind of networked *shudra* (people) revolution, must need to first occur to confront evident injustices, disparities and oppressions. However, it is entirely possible that this could be done in a way that is sympathetic to a transition of a *sadvipra* society. Indeed, some would argue that if a *shudra* revolution were to occur first, it must be done with transitional possibilities in mind, as least by those who wish to enable a Collaborative Age, as the alternative is to engineer a situation where entropic debt overwhelms human existence before it gets the opportunity to express itself in a sustainable mode.

Four important understandings have greater clarity as a result of this contemplation of identity and leadership in the Collaborative Age. Firstly, there needs to be a unity of consciousness, philosophy and leadership action that enables the development of meaning in a way where each is mutually reinforcing the other. Secondly, this unity needs to establish itself as distinctly different, beyond the horizon of a mechanistically determined modernity, or postmodernity for that matter. Thirdly, this needs to be characterised by a plurality that allows for uniqueness in belief systems and values, both at a societal and an individual level, while at the same time tolerating other expressions of uniqueness. Finally, this new sense of identity and leadership requires construction in a manner that transforms

[554] Inayatullah, *Understanding Sarkar,* p. 268.
[555] ibid., p. 271.

many concepts, including those of class, that have created benefit for the few at the expense and oppression of the many.

If mentalities define economy, a new Collaborative Age mentality will, by definition, create a different economic reality.

In the modern market economy, exploration of how we understand and relate to that economy—what are sometimes called worldviews or mentalities—are rarely contemplated. To a society that has a hyper-economic fixation at the centre of its globalised, social and cultural discourse, and where there has been an extension of markets and market oriented thinking into spheres that ought to lie beyond their reach[556], the premise that mentalities determine the shape of economy (form), rather than the other way around, is antipathic to econocentrism. However, macrohistorians have explored this mentality–form issue within the context of the rise and fall of civilisations, or cultures. They all suggest that the nature and dynamics of the relationship between mentality and economic form not only has importance, but is also central to understanding the state and viability of the system under consideration.

In contextualising our understanding of this mentality-form lens of the Third Industrial Revolution, three interesting questions arise. Firstly, is it possible that certain cultural and mental precepts, within the mechanistic model of modernity, don't just shape, but also limit the nature of the economic form they have created? Secondly, can an emerging Collaborative Age, with its emphasis on lateral power, networking, relationships and a social commons at the core of its mentality, both require and produce a different economic form? Thirdly, if it is accepted that the mentality that produced modernity is insufficient (perhaps even systemically incongruent) for a different construction of economic reality, then the particular conceptions of time and space on which it is predicated cannot be relied on to inform a different system. Therefore, as a consequence, the ethos and competitive drive to 'grow and accumulate' through ever increasing simplification and efficiency—precepts that lie at the core of the capitalist system and the first two industrial revolutions—will need to be discarded and a different mentality embraced.

In Rifkin's works, the story of the First and Second Industrial Revolutions shapes the mythology of modernity. This is a narrative of progress through materialism and the realisation of previously unthinkable 'globalised' possibility; where dramatic increases in

[556] Sandel, 'What Money Can't Buy', p. 93.

simplification and efficiency have come about as a result of new energy and communication technologies, enriching those who took first mover advantage. However, as he points out, this drive for simplification and efficiency—an impetus that is systemic to the capitalist market economy model—when taken to its logical conclusion, not only destroys the very system that created it, but through the inequalities it engenders, also destroys the social fabric and mentality on which its existence depends. As Sandel notes: it "promotes a sense of exclusion and disadvantage, not just economically, but in "dimensions of life, that lie beyond consent, in moral and civic goods, that markets do not honour and cannot buy"[557]. For Rifkin though, the future of modernity (and its mentality) is not entirely precluded on the proviso "the European dream that focuses more on sustainable development, quality of life and social interdependence" takes precedence over the American Dream that "puts emphasis on economic growth, personal wealth and independence"[558]. In this way he offers the prospect of the evolution of modernity into a collaborative future.

Sarkar and Dussel, as thinkers who eschew modernism, would not agree. They would maintain the differences between the Anglo-American and European dreams still remain, within an orbit of 'mutual acceptance of ethical systems' that permit, perhaps even encourage, the exclusion of those oppressed through colonialism, class and/or poverty. In their expressions of modernity, these systems that also reduce spirituality to the relative, cannot confront or resolve issues beyond their instrumental framing. Therefore, as these systems privilege mentalities that make "nature solely an object for mankind; purely a matter of utility; [where nature] ceases to be recognized as a power in itself"[559], those inside modernism, despite goodwill and even explicit policy attention, cannot confront the issues of entropy the economic system produces. In other words at a structural level continued resource-based growth (the driving dynamic) is incompatible with reducing the effects of anthropogenic climate change. Consequently "human civilization now faces the final moment of a critical juncture. The dawn of a glorious era is on one side and the worn out skeleton of the past on the other. Humanity has to adopt either one or the other"[560]. If it chooses the path to a new era, an alternative mentality and economic model is imperative.

[557] Sandel, 'What Money Can't Buy', p. 94.
[558] Rifkin, *The European Dream* p. 13.
[559] Dussel & Mendieta, *Beyond Philosophy,* p. 68.
[560] Inayatullah, *Understanding Sarkar,* p. 15.

In this exploration of mentality and form, the intent is not to assert, in a unilateral fashion, that until a different mentality emerges, a new economic reality is not possible. Rather, it is to suggest that, as the limits of a particular system become an 'experienced reality,' there is intense interest in possibilities that will mitigate, or obviate, whatever shortcomings that current reality has. As people experience and accept such new possibilities, their orientations and norms are realigned through those experiences. In the process, a coherence of thinking emerges; one that provides the 'architecture of form,' in a different model.

This 'design architecture of form' in the new model affects more than just economy. It extends to reconceptualising the nature and organisation of societal relationships (a relational revolution), and also societal senses of time and space. It modifies all of what Gramsci would describe as 'structure and superstructure', and in the process, becomes a widespread socially constructed worldview or mentality. In time that mentality becomes part of received wisdom that is rarely interrogated. Toynbee, though, is insistent that, after the confusion of an interregnum, where new form is emerging, the primacy of mentality over activity is very clear. For him, economy is not some kind of master activity, rather "when people's economic interests and their political feelings have pulled in different ways, people have given rein to their political feelings and let their economic interest go hang"[561]. The implication of primacy and interplay is twofold. Firstly, the emergence of the networked economic form, within the present model, does not necessarily ensure transformation. Secondly, more attention needs to be given to defining and articulating the mentalities or worldviews (including the myths and metaphors that inform them) conducive to a Collaborative Age transformation.

In considering the narrative of modernity, Spengler draws clear linkages between this contemporary mentality, a scientific worldview that drives an 'anxious Faustian soul,' and its embodiment in 'form life,' that privileges the machine. The result, he posits, is:

> ...the specific tendency of all Western mechanics, towards an intellectual conquest by measurement, and it is therefore obliged to look for the essence of the phenomenon, in a system of constant elements, that are susceptible of full and inclusive appreciation of measurement[562].

This worldview shapes particular conceptions of how experience occurs, while rejecting others that have a different causal basis. It also defines the kinds of infrastructures and

[561] Toynbee, 'Reconsiderations', p. 662.
[562] Spengler, *The Decline of the West*, p. 188.

knowledge it privileges. The consequence is "what for us is a way to acquire experience is for the Greeks the way to lose it"[563]. The 'discoverer's soul' drives a need for "that which is not seen (to be) drawn into the light world of the inner eye so as to master it." In so doing it has created "the idea of the machine as a small cosmos obeying the will of man alone"[564]. Thus mechanism, as both the product of infrastructure and the creator of it, defines and encompasses both mentality and form. Spengler therefore reaffirms the contention that it is the mentality of modernity that drives the economic system. If this premise is combined with Rifkin's contention that the system has succeeded beyond all measure and is therefore at its systemic limits, one must conclude again that a Collaborative Age mentality will shape the form of a different economic system.

From a later perspective chronologically,[565] Sorokin considered that modernity had developed to a point where almost every aspect of socio-cultural reality was being interpreted in terms of sensual variables. and that the "main bearers of this mentality are the capitalist-commercial bourgeoisie and secular government and professional classes"[566]. These he defines as part of the *'qualitative'* form of any society and the actual economy part of the *'quantitative'* form. However, he notes that when the 'qualitative mentality' pendulum swings from sensate to ideational, "the forms of use of capital - in all the respects of economic forms and activities, differ profoundly in the Ideational, Idealistic and sensate culture."[567]. Based on Sorokin's understandings the causal/functional link is again explicit. Economy is a product of societal thinking, not the other way around, and when thinking changes, so will form. Consequently, the case that a Collaborative Age will produce a new economic reality is not just possible; it is, in Sorokin's reasoning, systemically impossible that it could be any other way.

Given the influence of Indian cosmology on Sarkar and his view that, as cycles manifest themselves, it is important to create conditions that shorten the possibilities for exploitation in order to maximise the benefits, his attention is on ensuring the participation of those 'beyond the horizon' of modernity. This necessitates engaging with and uniting the oppressed, while in the process seizing control of the means of oppression. This includes challenging the hegemony of the institutions of that oppression, such as the World Bank, and indeed the current inter-state nation-state based system. For Sarkar, this

[563] Spengler, *The Decline of the West*, p. 199.
[564] ibid., p. 411.
[565] It is important to note that Sorokin was writing in Russian in the 1920's and was therefore well aware of the primacy of economic form argued by Lenin and Marx-Engels
[566] Sorokin, *Social & Cultural Dynamics,* p. 527.
[567] ibid., p. 532.

requires the development of mentalities that are partly *spiritual* (through promoting awareness-transforming technologies, such as meditation), partly *cultural* (regaining identity, yet not being locked in particular identities based on family or religion), partly *universalistic* (what Rifkin would term a biosphere consciousness), partly *educational,* and partly *action* oriented. In the praxis of PROUT (action which draws on Neohumanism, which is the philosophic expression of Sarkar's universalism), the notion of a self-reliant economic order must lead to a fair global economy, one that has *prama* or balance. Self-reliant units expand as technology speeds up, thereby creating, through organic means, a new world economic system. Sarkar notes this cannot occur at a societal level, unless there are clear limits to the accumulation of wealth[568]. He therefore explicitly rejects modernism and the capitalist economic system it privileges. He frames, without being totally prescriptive (the whole notion of self reliance allows for diversity and multiple identity), a cosmology for a postnormal mentality [569] and a post-capitalist economic system. Importantly, this cosmology or social grammar is inclusive of those that have been excluded in the modern capitalist economy. It accepts as a fundamental tenet the requirement to live within the constraints the planet imposes. Finally, it articulates a new 'architecture' for a collaborative future and a different economic reality, against which Rifkin and other transformational theorists might be referenced.

What emerges from this exploration of macrohistorical understandings is support for the central premise that mentality shapes economic form, not the other way around, on the proviso that it is accepted that both operate in a mutually reinforcing manner. As a consequence, the nature and form of the contemporary economic reality is incompatible (from the point of view of some macrohistorians: systemically incompatible), with a Collaborative Age mentality and economic form. This incompatibility assumes considerable importance if one accepts, for reasons already stated, that the contemporary system is at its limits. Finally, our understanding of what constitutes a future Collaborative Age mentality and a different economic form, is complicated by an acceptance that such a mentality or form cannot be constructed inside the system of modernity that sits at the heart of the systemic issues currently confronting humanity.

[568] Inayatullah, *Understanding Sarkar,* pp. 26-27.
[569] The term 'postnormal' has been used in preference to postmodern, post-postmodern or transmodern, as each of these modernist terms places 'modernity', both linguistically and epistemologically, at the centre of the dialogue which, from the perspective of those on the periphery, is the primary core of the problem.

The shift from a mechanistic to a distributed society is nomothetic in nature and thus, is beyond characterisation as simply an extension of Western epistemological dominance.

It has already been asserted that the shift from a mechanistic, modernist society (the product of the Second Industrial Revolution) to a distributed, collaborative society (the product of the Third) cannot occur using the mentalities and form that created the latter. As is detailed in Figure 4.7, macrohistorical commentary—with respect to the hypothesis set out at the beginning of this chapter—suggests a number of patterns can be observed in different social systems from other times, in situations that are similar to those now being considered. As Ibn Khaldun would suggest, these patterns are part of 'the speculative intellect' perceptions and apperceptions that explore what it is to be human[570]. In this conception, these patterns assist with understanding what is required to activate both the Third Industrial Revolution (the transition) and a new Collaborative Age (the transformation). If they are both nomothetic and diachronic in their nature and application—that is, they have operated on, or in, non-Western Enlightenment systems—then it is posited they sit outside the influence of modernity and the dominance of its epistemology. Consequently, the identification of such patterns will greatly assist in understanding the nature of 'outside of modernity' dialogue.

As Figure 4.7 shows, six specific patterns can be identified, together with a seventh that might be characterised as a 'pattern of the patterns'[571], or a summation of how the other patterns act with, and feedback on, the others (this is consistent with the holistic mentality at the core of this thesis). It is maintained that these patterns are a logical consequence of an initial macrohistorical framing, the deconstruction of Rifkin's works into a series of theories and the synthesis of these into a set of hypotheses that have been explored through a macrohistorical Causal Layered Analysis. In *Chapter 5* each of these patterns will then be contextualised within the contemporary condition, and therefore used as a frame of reference for those who argue for transformation.

[570] Ibn Khaldun, *The Muqaddimah,* vol 2, p. 413.
[571] That there is a pattern of patterns is a hypothesis in itself. Goertzel argues that "the mind and the world are nothing but patterns – patterns within patterns, patterns among patterns." B. Goertzel, *The Hidden Pattern: A Patternist Philosophy of Mind,* Boca Raton FL, BrownWalker Press, 2006, p. v.

Hypothesis	Emergent Pattern
4.1 Social systems have limits and when all possibilities are exhausted, or large scale system threats ignored, they will change.	**Social systems are durable, limited and time based.** They are impacted by their capacity to adapt to the rate of external change, immanent (internal) change and the willingness of change agents to sustain, or otherwise, the system.
4.2 Infrastructure frames mentality.	**Infrastructures enable artefacts that enable societal conceptions of time, form and space**, but they are also a product of that process, in a mutual, self reinforcing feedback process.
4.3 Social evolution is linear	**A future system will have a different morphology than the system it replaces**. Its evolution may be linear, cyclical, pendulum or wave but it will create an identity that is in part a reaction to that system.
4.4 Revolutionary shift is conditional on a shift in consciousness and philosophy.	**A** (socially accepted) **reconstitution of time, form and space cannot occur without a revolution in philosophy and consciousness** that is sympathetic to that reconstitution
4.5 A Collaborative Age requires and defines a new kind of identity and leadership.	Consciousness, philosophy and interaction, frame the architecture of meaning and identity and how leadership can be exercised. Therefore **identity and leadership emerge from consciousness**
4.6 If mentalities define economy, a new Collaborative Age mentality will by definition create a different economic reality	**Mentalities determine economic form not the other way around**.
4.7 There is a pattern of patterns.	**Meta – patterns** are nomothetic and diachronic in nature and **are therefore outside of the influence of modernity.**

Figure 4.7 Table of emergent patterns

However, before doing so there are a small number of questions that are useful to resolve with respect to these patterns. Firstly, are there any contradictions between the emergent patterns, and if so, how might these be resolved? Secondly, do the systems considered (cultures/civilisations) have sufficient variation in their character that emergent patterns might be said to be free from the influence of modernity? Thirdly, what does it mean to assert that patterns are nomothetic? Again there is a caveat to the patterning and nomothetic approach: the attention is on understanding not proof, in insight, and in perspectives of multiple layers of reality that help the exploration of possibilities not previously considered.

Apparent contradictions in the patterns

There appears to be a contradiction, or at least an inconsistency, between the hypothesis that infrastructure frames mentality (4.2) on the one hand, and the contention that mentalities define economy (4.6) on the other. Under one reading, if the first hypothesis were to hold true, for there to be consistency one would have to assert that economies define mentality, yet this has been argued to the contrary.

It is contended that this is because *infrastructure* and *economy* are constituted in quite different ways and are therefore not comparable at an elemental level. It has already been asserted that *infrastructure* is both an expression of how a society creates or enables its physical conceptualisations of technologically determined senses of time and shape, and at the same time, is a product of that expression. In other words *infrastructure* is form and substance: "a logical manifestation of the Ideational, Idealistic, Sensate, and Mixed mentality of any given culture"[572]. *Economy* on the other hand is an activity, a series of transactions, in the same way that practice of politics, recreation, art and learning are activities. Where the confusion lies is that the products, structures or institutions of economy (property, foundations, investments) are sometimes conflated with the activity itself. As Spengler suggests "*economy* has no system, only a physiognomy"[573]. Moreover, in its mechanism, where the economic picture is reduced exclusively to 'quantities' we miss the important point that 'goods' have always been about quality[574]. Thus, if *infrastructure* and *economy* are seen as the same, what is described is a system that cannot be interrogated through any means, except 'money thought': the modernist worldview that cannot sustain the success of the capitalist system that created it, and cannot confront, in economic terms, the entropic issues that its system produces. This unfortunate conclusion suggests a different characterisation is required, one which redefines form (infrastructure that facilitates relationships) on the one hand and activity (markets for exchange not accumulation) on the other. More importantly, it assists in understanding where and how debates about contemporary and future mentality need to be framed. Perhaps the most important implication is that economy can be set within a culture, but unless it is an extremely sensate culture (which is not definable as a culture at all), culture cannot be set within economy.

Another way to explore the potential contradiction is through the lens of time and space. As has been already stated, *infrastructure* is the 'form expression' of socially mediated conceptions of time:

[572] Sorokin, *Social & Cultural Dynamics,* p. 158.
[573] Spengler, *The Decline of the West*, pp. 399-400.
[574] ibid., p. 407.

> …a mediation, performed by spatial operations [that] reveals in a single stroke, the connection at the very heart of the experience of time, between passivity and activity, insofar as we act temporally[575].

In contrast, *economy* needs to define itself as activity for otherwise it could not standardise, decontextualise and commodify time as it does[576]. Rather than enlarging the sense of time and space, as Brunel did with the Great Western Railway[577], or mobilising the same senses through ubiquitous mobile communication technologies[578], *economy* focuses on ritual where 'time as money' merges the mythic, the sacred and the profane as if there were no other time.[579] Through this lens, the distinction is very clear. In the infrastructure–mentality relationship the unit of analysis is temporality, where the intent is to create a particular experience of time, to encourage new experiences. Conversely, in the mentality-economy relationship the intent is one of control, and through *chronos,* turning time into a thing that can be commodified and thus bought and sold. These different senses of time therefore frame the causal nature of the relationship. They point to the possibility that in a post-mechanistic society a reconceptualisation of time, in a way that liberates activity from the strictures of *chronos*, will be necessary

Are these patterns 'outside' of the influence of modernity?

What the infrastructure-mentality-economics debate highlights is the usefulness of interrogating situations and prospective conditions through the lens of patterns that operate outside of and beyond what Galtung described as " the social sciences of three pillars of modernity: civil society (sociology); the state and coercive power (political science); and capital and exchange power (economics)"[580]. Indeed, if the future must be conceptualised and actualised, beyond the horizon of modernity, then it is unlikely that it can originate within disciplines that the system of modernity epistemologically privileges. Both Galtung and Inayatullah have argued that macrohistorians who step away from grand history or world history in its traditional conceptions are interested in understanding if there are patterns evident in the "totality of space and time, social or physical" in "different social

---

[575] Ricoeur, *Time and Narrative*, vol. 3, loc. 1185.
[576] Barbara Adam, *Time*, Oxford, Polity, 2004, loc. 2196.
[577] In designing the route through Bath to reconnect urban dwellers with the countryside, Brunel took care to "incorporate particularly distinguished architectural features - over bridges, castellated embankments and tunnels and graceful viaducts for the River Avon to harmonise as closely as possible with both natural landscape and the prevailing Georgian architecture." A.D. Bennett*, The Great Western Railway and the Celebration of Englishness*, p. 252.
[578] "We now live in a world characterized by flows (people, money, images, ideologies, information), into new imagined spaces or scapes (ethnoscape, fiananscape, ideoscape, mediascape, technoscape), producing heterogeneous contingent, complex, fractal (unbounded and irregular) networks." C. Venn, 'Altered States: Post-Enlightenment Cosmopolitanism and Transmodern Socialities', *Theory, Culture & Society*, vol. 19, 2002, p. 71.
[579] B. Adam, 'Timewatch : *The Social Analysis of Time',* Cambridge, Polity Press, 1995, loc. 1900.
[580] Galtung & Inayatullah, *Macrohistory and Macrohistorians*, p. 2.

systems along separate trajectories"[581]. If such patterns are seen as nomothetic in nature, then they are likely to be discernible in earlier and different civilisations and cultures. If that is the case, then they apply equally to the contemporary situation and therefore are useful as a framing of understanding, as such patterns have been established, in some cases, outside of the influence of modernity.

Clearly, the case can be made that Ibn Khaldun, through his location in time (14th century) and tradition (Islamic) is outside the influence of modernity. A similar case can be made for Sarkar, who sought to "speak to the Indian tradition, but through his alternative model and his social movements intended to radically revolutionize it". Further, although conscious of modernism, he explicitly rejects it. He "does not speak to the Western project except to remind one that democratic theory, atomic theory and other perspectives began in India"[582]. Of the remaining three, each in their own way—mentally and conceptually—tries to distance himself from modernity, sometimes in a vehement way. Spengler's descriptor of the West as a Faustian soul suggests not just distancing, but also a distinct bias. Likewise Toynbee, while bemoaning his knowledge gaps about modern Western achievements, notes that the Western society is only one of a number of specimens of the species of society it represents[583]. Sorokin also, through his Russian Orthodox culture and his experience of, and banishment from, the Russian revolution, stands outside Western modernism. Like the others, he seeks to remain clinically detached, while recognising his place within it:

> Our whole social, cultural and personal way of life is in the state of a tragic and epochal transition from the dying sensate culture of our magnificent yesterday to the coming culture of the creative tomorrow.[584]

In summary, each in their own way is within, yet mentally outside of the times in which they lived. They understand one cannot escape the episteme in which one is located, and the seductiveness of metonymies that shape many things, including what is real, truthful or beautiful,[585] yet, through the sheer scope of their enquiries, they are able to discern patterns and senses of reality from 'the Other' that, by definition, are outside modernism.

---

[581] Inayatullah, 'Macrohistory and Futures Studies', p. 381.
[582] Inayatullah, *Understanding Sarkar,* pp. 91-93.
[583] Toynbee, 'Reconsiderations', p. 601.
[584] Sorokin, *Social & Cultural Dynamics,* p. iv.
[585] "It is deeply ironic that the process of the philosophy of history was emptied from reflection on what actually happened in the past, from the search for laws and patterns, from questions about how history comes about, from —in short—all brands of metahistory." M. Foucault, 'What Is Enlightenment?', 1984, p. 39, in Rabinow (P.), éd., *The Foucault Reader,* New York, Pantheon Books, 1984, pp. 32-50.

What does it mean to assert that patterns are nomothetic?

The process of enquiry, central to this thesis, has been to identify patterns in large social systems and use them to interrogate Rifkin's Third industrial Revolution and the shift to a Collaborative Age: premises which by their nature sit uncomfortably inside the disciplines of modernity. If they are characterised as nomothetic then, it is posited, they equally apply to the current social systems, notwithstanding the challenge this equation poses to the mythology of endless growth, on which its capitalist economic engine and its nation state institutions rely.

In proposing that patterns are nomothetic, a number of points might be made. Firstly there has been a renewed interest in what is variously termed 'civilisational history', 'speculative history' or 'macrohistory'. Navari argues that recent works exploring limits and transformational possibility have:

> …raised questions of social forms as the basis of identity and cohesion. The notion of civilization, instead of state, has suddenly regained salience, in the context of globalization, as liberal powers seek to define their values, in the context of a new world order[586].

Runia develops a similar characterisation, describing it as a search for patterns; "speculation's attempt to reconstitute key ideas, from largely forgotten philosophies of history".[587] What both Navari and Runia are suggesting is that other layers of reality become evident if the scale and consideration is beyond the hegemony of the nation state.

As Figure 4.8 (overleaf) shows, all the macrohistorians have different units of analysis, and privilege particular epistemes. That said, it is asserted that they all broadly subscribe to the patterns outlined above. While there is some interest in a 'grand debate'[588] about these units of analysis, particularly with respect to whether it is civilisation or culture that matters, this is not a distinction that necessarily needs to be made. Both concepts can be held simultaneously, and if a Chinese or Indian cosmology is considered, then the tensions between the two, through additive thinking and acceptance of contradiction, can be seen as a source of enrichment[589].

[586] Navari, 'Arnold Toynbee (1889-1975)', p. 289.
[587] Runia, *Moved by the Past,* loc. 1078.
[588] Galtung & Inayatullah, 'Macrohistory and Macrohistorians', pp. 216-18.
[589] Inayatullah, *Understanding Sarkar,* pp. 77-84.

Figure 4.8 Table Showing emergent patterns in comparison to Rifkin and selected macrohistorian

EMERGING PATTERNS	RIFKIN	IBN KHALDUN	SARKAR	SPENGLER	SOROKIN	TOYNBEE
1. Social Systems have limits, are durable and time based.	A system that privileges unsustainable entropic debt cannot continue.	Sedentary cultures corrupt asabiya within 3-4 generations (120 years).	Economic systems that reward only selfish pleasure unsustainable & require shift in consciousness.	Every system has genesis, grows, matures and dies for that is the law of nature.	Principle of Immanent Change – all social systems contain within factors for own demise.	System unable to respond to challenges.
2. Infrastructures enable artifacts that reflect conceptions of time, form and space.	Energy and communication shifts establish new infrastructures that reframe socio-economic life.	Infrastructures reflect the character (strengths, weaknesses and engineering knowledge) of a dynasty.	Infrastructures reflect in their design the realities of the Age for which they were created.	The mentality-form relationship defines the morphology of become and becoming.	There are observable patterns and cosmologies that emerge from dominant technologies.	Infrastructures are influenced by the dominant religious or political 'master- activity upon which a civilisation is based.
3. The evolution of history has its own morphology (Linear/Cyclical/ Spiral/Pendulum/ Wave.	The evolution of energy-comms infrastructures define a series of revolutionary shifts and are reflected in social identity..	History is a cyclical expression of dynastic asabiya.	Cycles continue, exploitative phases can be minimized.	Cultures are conceived, grow, mature and die like biological organisms.	Cultures swing from ideational to idealistic to sensate.	Civilisations grow and disintegrate – with a universal church emerging from the disintegration.
4. Revolutionary shift and social form is conditional on the consciousness and philosophy that underpins it.	A biosphere consciousness (v a psychological) is an essential part of the Third Industrial revolution otherwise system conditions will overwhelm.	The power of a dynasty is directly linked to the purity of its asabiya.	The cycle will continue preferably with reduced negative effects unless the Sadvipra (spiritual wise) lead way out of cycle into a spiral	Cultures have a personality and follow a life cycle.	A shift in mentality is both a precondition and 'the condition' for swing in the pendulum	Renewal comes from an internal proletariat who give allegiance to creative minority in whose hands genesis of next civilisation rest
5. Identity and leadership emerge from consciousness.	Prosumer collaboratists develop counter hegemonic cosmopolitan commons for ideas sharing and markets of exchange.	Power originates by standing outside the current systems. A new shared group feeling (asabiya) identity emerges among the outsiders.	The level of consciousness of those taking action influences the action itself.	Pseudomorphosis (deception is the process by which a new consciousness and identity emerges.	Leadership of the new must develop outside of the existing system - which is incapable of developing that alternative.	Pseudomorphosis enables the more creative to operate in the face of the more powerful.
6. Mentality defines economy.	The drive for simplification and efficiency has created a capitalist system where the margins are at almost zero.	Human action in the outside world materialises only through thinking about the order of things.	Through PROUT a new humanism emerges that enables among other things a self-reliant economic order seizes control and overcomes .means of oppression.	Worldviews (mechanism/the Faustian soul) shape how experience occurs.	Qualitative thinking drives sensate economies, qualitative thinking drives ideational economy.	Although economics is important where there is no vision the people perish.
7. Unit of analysis.	1. Technological disruption. 2. Level of entropic debt	Asabiya –Dynasty.	Varna- Social cycles.	Cultures – mathematical patterns.	Supersystems – Sensate- Idealistic- Ideational.	Major Civilisations.
9. Episteme.	European Modernism.	Andalusian Islamic.	Moves from to outside of Indian tradition to create own cosmology.	Critical Westernism.	Russian Orthodox-Western.	Classical (Greek/Roman).

The third element of nomotheticism to be considered is one of perspective or *scape*: is it comparative; a contrast of contexts; a macro-causal analysis; or something more? Again the temptation is to be exclusive rather than additive. It might be possible to speak of general trends at work across historical divides and cultural boundaries[590]. If that is the case then speculation has an unlimited canvas. Mann, for example, asserts "the emergence of a civilization represents a break with the previously operative logic of social evolution. The decisive components of the new pattern were three social institutions, the ceremonial center, writing and the city"[591]. While this articulation of potential patterns is attractive, in that it fits neatly with Rifkin's view of the primacy of communications in revolutionary shift, Mann's 'patterns' operate only at a litany level; they don't explicitly examine or manifest deeper structures and mentalities.

Where the macrohistorians differ from macro-sociologists is that they provide a "combination of ontological and cosmological visions of transmundane and mundane reality, with the definition, construction and regulation of the major areas of social life and interaction"[592]. Comparison as a condition is therefore of limited use, as across space and time if there is too much variation. Context has some merit, as it might indicate patterns of behaviour that might be instructive or avoided. A further possibility is macro-causal analysis. Under this approach, one that Sorokin chooses to pursue, the assertion is made that, on a macrohistorical scale, logic can be used to quantitatively determined patterns from the examination of particular facts. While this might be possible, given variabilities in time, space, culture and recording, such macro-causal logic can at best be only partial, despite its privileging in the Western scientific condition. It can only work on that which is known: it will always privilege the epistemological framework of the writer and it will always ignore that which our ignorance does not allow us to know.

However, macro-causality does not have to necessarily be quantitative. Qualitative thinking is also capable of pattern recognition. This can emerge from examining maps of complexity in their totality rather than concentrating on the minutiae; accepting the nature of chaos rather than imposing order; embracing contradiction rather than looking to

[590] ibid., p. 68.
[591] Mann as quoted in J. P. Arnason, 'Civilizational Analysis, Social Theory and Comparative History', *Handbook of Contemporary European Social Theory*, Routledge, 2006, p. 232.
[592] Einstadt, cited ibid., p. 235.

standardise; and finally realising that uncertainty has always been a most certain constant in the human condition and that looking for certainty in such circumstances is futile. If these latter factors are accepted as the start point of macro-causal analysis, then the postulation of patterns, however fragmentary, invites consideration of integral perspectives that reach beyond the piecemeal approaches of quantitative 'scientific' systems, which fail to consider, and sometimes, through institutional and power arrangements, actively exclude the complexity of social, environmental, and economic interactions.

Conclusions

As has been a constant theme in this thesis, the patterns that have emerged through this exploration are necessarily not right. Right and wrong sits more easily within applied and empirical understandings. All that patterns achieve, even within a nomothetic construct, is the provision of a conceptual prism, for evaluating whatever condition concerns those who hold that prism in their hands. In this thesis the prism concentrates macrohistorical understandings, the contention of a Third Industrial Revolution and the potential transformation to a Collaborative Age.

What these patterns provide is a framework for exploring layers of reality within the Third Industrial Revolution. Each pattern challenges orthodoxy at all levels of Causal Layered Analysis. For example, within the contemporary condition, the proposition that social systems have limits represents a different litany to that which is commonly espoused; it raises systemic issues that should be examined (as Rifkin suggests); it challenges the Western enlightenment world view of never ending progress through technology; and it brings into stark relief myths and metaphors about growth, benefit, mechanism and our relationship with, and role in, the wider environment. Similar arguments can be made about the other patterns that have been identified, and they will be explored in the context of the contemporary transformation discourse.

What is evident is that in the 'pattern of patterns' there is considerable tension and uncertainty at both a contextual and an identity level that suggest the development of options should those uncertainties manifest themselves. As Figure 4.9. illustrates, both identity and context are in the middle of profound change where reversion to the 'old

normal' is unlikely and undesirable. Moreover, as both context and identity evolve (perhaps exponentially) the nature of the relationship between them, as expressed in socially understood conceptualisations of time, form and space, will alter as well. The process of change in these conceptualisations is the process of revolution, and the widespread acceptance of a new understanding of these same conceptions underpins the physical and philosophical architecture of the Collaborative Age.

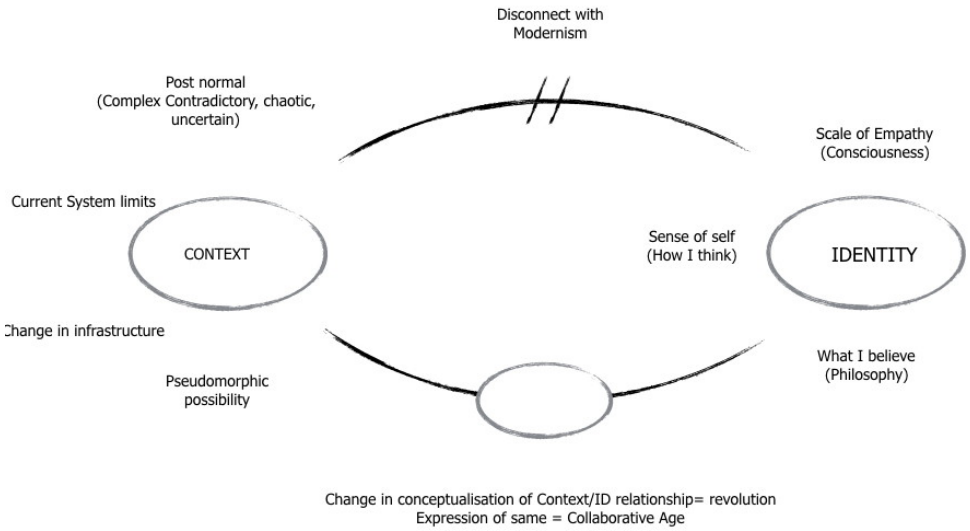


Figure 4.9 Showing the Nature of Change, Tension and Uncertainty in the Context–Identity Relationship

In considering Rifkin's work within this pattern of patterns it is notable that, while for the most part there is a high level of consistency, there are four aspects of Rifkin's work that are not as yet as well developed as the patterns suggest they should be. They are as follows. First, while Rifkin has a strong argument for a biosphere empathic consciousness, the philosophy that is required to accompany such a consciousness is not stated with clarity. Second, Rifkin's linear narrative opens up the possibility that the future must necessarily privilege modernity, although Rifkin often warns against that possibility. Third, it suggests that Rifkin's earlier theorising about the nature of time and space needs to be integrated more explicitly into his considerations of the Third Industrial Revolution and the nature of the Collaborative Age. Fourth and finally, Rifkin fails to articulate how those 'beyond modernity' will be included in the creation of the future in a way that liberates them from the dispossessions that currently constrain them. These concerns may well be addressed in future work either by Rifkin or others, as our understanding of the future he proposes is very much a work in progress and our reconstituted understandings of time, from space and identity, are still in their infancy.

The patterns that have emerged through this macrohistorical analysis give weight to the proposition that these understandings provide considerable insight into the contemporary condition, the realities that inform it and the issues it confronts. It challenges on many levels the proclivity to begin so many enquiries at a discipline, rather than holistic, level. It contends many of the units of analysis we consider useful are either misleading, or obscure what is really important. Finally, the macrohistorical patterns provide the basis for framing and understanding an emergent transformational discourse, and for situating Rifkin within that discourse.

CHAPTER 5

SITUATING RIFKIN IN THE CONTEMPORARY TRANSFORMATIONAL DISCOURSE

It has been asserted that Rifkin's contentions of a Third Industrial Revolution and an emerging Collaborative Age are ideas that can be usefully conceptualised and understood within a macrohistorical framework; the conceptualisation of movement of civilisations and cultures, and the patterns they exhibit—be they linear, spiral, pendulum or cyclical—through time. This is because Rifkin's fundamental propositions are transdisciplinary and non-event based in their nature, and consequently problematic, when considered solely through a disciplinary lens that, by nature, may exclude some of the ways of knowing that macrohistory embraces.

Within this framing, it has been possible to deconstruct Rifkin's body of work, through insights from five selected macrohistorians, which have previously been articulated as emergent 'patterns of understanding'. These patterns provide 'fractal scaffolding' within which to situate Rifkin in the contemporary transformational discourse and interrogate critical issues that consequently arise through that interrogation. The intent is three fold. Firstly to contextualise the theoretical understanding of Rifkin's work in a contemporary setting. Secondly, to argue macrohistorical insight has value in understanding how senses and emergent patterns of reality are conceptualised within the emerging transformational dialogue. Thirdly, to propose a methodology that allows transformational thinking to be at least considered in a wider normative context, where the incessant dialogues of those who privilege the normal create, either deliberately or unconsciously 'white noise'[593], which

[593] *White noise* is a term that is becoming more widely used to denote confusion created by the sheer volume of information/disinformation in the 24 hour media cycle. At a conceptual level, Frow describes it thus; "it is no longer possible to distinguish meaningfully between a generality embedded in life and a generality embedded in representations

screens out consideration of alternatives to that normal. As Figure 5.1 illustrates, 'Situating Rifkin' is the penultimate step in the logic of this thesis, before concluding with a number of insights and potential extensions to his work.

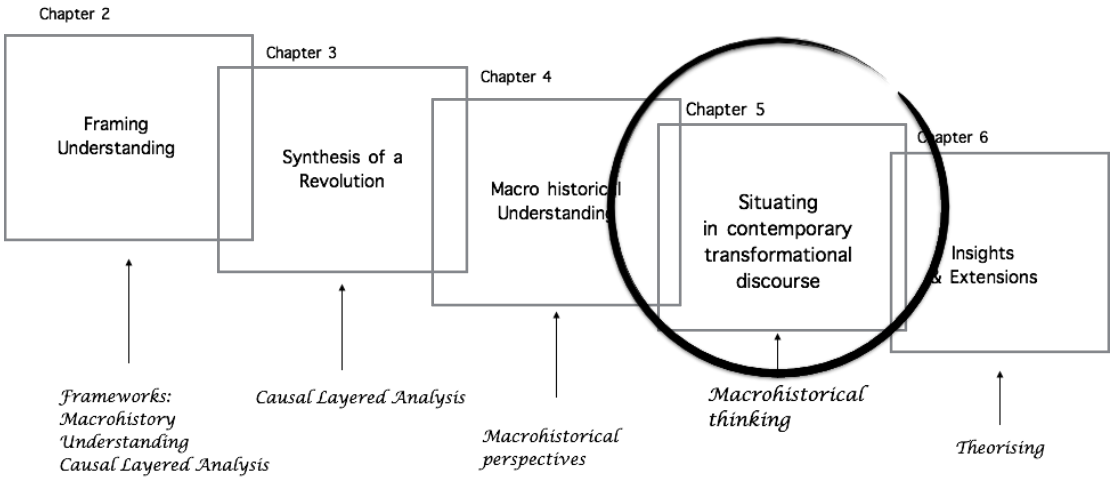


Figure 5.1 Diagram showing Chapter 5 in the context of this thesis

As Figure 5.2 (overleaf) suggests, before exploring this 'situational understanding' there are a number of definitional considerations. If we accept that "contemporariness is a singular relationship with one's own time, which adheres to it and at the same time keeps a distance from it"[594], the first of these is to define what constitutes a contemporary transformation discourse. The second is to explore differences, or 'schools of thought ', within that discourse. The third is to establish that while Rifkin's work lies principally in the Transformist discourse it draws heavily on the other two. Using this definitional framing, and consistent with the focus of this thesis, Rifkin's theorising of emergent (macrohistorical) patterns in the revolutionary process will be interrogated, as will assertions of pseudomorphic Collaborative Age identities, to establish if there is support or otherwise for these positions.

---

of life." J. Frow, 'The Last Things before the Last: Notes on White Noise', *Sth Atlantic Quarterly,* vol. 89, no. 2, 1990, p. 416.

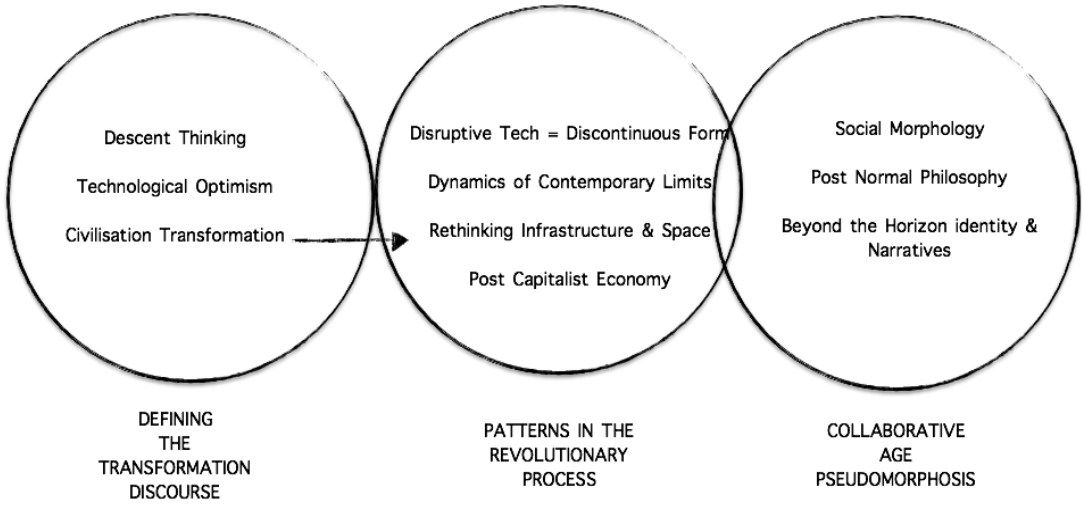


Figure 5.2 Schematic showing the Scaffold of Enquiry through which Rifkin is interrogated in the Contemporary Transformation Discourse

Defining the Contemporary Transformational Discourse

In this thesis, the contemporary transformation discourse is defined as a wide-ranging and extensive transdisciplinary body of work, which takes at its starting point the premise that the present socio-economic construct has reached a 'crisis of limits', and therefore an adjustment or exodus from the conditions that created this crisis is required. For the purposes of this thesis, the examined body of contemporary transformational theory is explicitly post 2000 (as it is with Rifkin's writings), given that the technological discontinuities of networking technology and widespread mobility were simply unknown before that time (although it should be noted that concerns about resource limits, environmental sustainability and unstable economics have been the subject of academic commentary since the 1960's).

It can also be distinguished from a wider modern discourse that advocates particular (or individual) changes, while retaining a set of assumptions that all the current senses of form and shape will remain intact[595]. It can be differentiated from a discourse that is principally

[595] The Australian economist Ross Garnaut is an example of one who takes this change inside the model position. Essentially as his recent work, [Op Cit.] Garnaut, *Dog Days: Australia after the Boom*, and the 2011 Climate Change Review demonstrate his view that change can essentially be effected simply through policy settings.
R. Garnaut, 'Garnaut Climate Change Review', 2011, available at http://www.garnautreview.org.au/update-2011/garnaut-review-2011/summary-20June.pdf, (accessed 6 November 2011).

technology-centric. In that type of theorisation, while the future is seen as different, attention is principally on the profound implications of a (newly discovered) disruptive technology, without altering the wider system conditions in which that technology sits. The work of Tapscott[596] exploring the impact of networking technologies is illustrative of a theorising of this kind. This is not to discount what is proposed. Rather, it is to suggest that a true transformational discourse explores alternative realities in a multifaceted and multi-layered way that cannot be contained within the existing system.

School of Thought	**Descent**	**Techno Optimism**	**Civilisational Transformation**
Mental Model & Discourse	Limits Stepping back	Limits Stepping forward with technological advancement	Limits Stepping beyond
System Effects	Transition	Technological Revolution	Transformation of socio-economic form and shape
World View	Agency drives change to modify current hegemony	Advances in technology will overcome effects of limits & introduce new possibility	Nomothetic predetermination based on emergence of new energy & communication constructs
Mythology (Images of)	Descent (7 realms of Hell)	Technological Optimism (Robots will save us)	Civilisational Shift (The Butterfly)

Figure 5.3 An outline of Transformational Schools of Thought, through a CLA lens

Conceptually, if the transformational discourse is to escape the boundaries of contemporariness or modernity it must necessarily be global with respect to the scale of change it considers, and systemic in regard impacts the changes it proposes contemplates. How this sense of 'scale and systems' is interpreted provides a way to delineate three

[596] Tapscott & Williams, *Macrowikinomics*.

broad schools of thought[597] within this discourse. Essentially, there are three options: step back (descent); technology will save us (techno-optimism); and civilisational transformation (the old system must be discarded and a new system embraced). Using CLA as an organising methodology, as Figure 5.3 outlines, each school of thought has its own normative sense of the 'future real,' based on their shared perceptions of the context in which reality and possibility are situated. While it will be argued that Rifkin is most appropriately situated in the Civilisation Transformation or 'Transformist' School, before doing so it is important to briefly understand the characteristics of the two other schools of thinking and how they contribute to an understanding of Rifkin's theorising.

Descent Thinking

The 'Descent School' contends that the threat of environmental calamity is both imminent and urgent: a global emergency of unprecedented proportions. Gilding typifies this alarm. "Humanity, the economy and the planet's ecosystem operate as a single interdependent system and this system is in serious trouble"[598]. However, having established this position (which Rifkin would wholeheartedly support), descent thinkers then assert that through concerted agency, a society can reduce its reliance on those activities that create unsustainable entropic effect within the system conditions as they currently exist. In this way the threat of *Collapse*, can be mitigated through significant change, without essentially changing the constructs on which the global social system relies[599].

The origins of this approach can be found in the work of Brown[600], Porritt[601] and Hawken[602]; smart sustainability advocates who have long sought to engage and convert current powerful leaders to their ideas, without those same leaders having to compromise in systemic ways the economic system on which their power relies. Writers like

[597] At one level, the use of the term 'school of thought' suggests a coherence of philosophy, values and opinions that this 'group' of thinkers would not subscribe to. In the sense it is being used here is to describe a stream of thinking, a sense of shared reality that differentiates them from the others: hence the use of CLA as a tool.
[598] P. Gilding, *The Great Disruption: Why the Climate Crisis Will Bring on the End of Shopping and the Birth of a New World* (1st U.S. edn.), New York, Bloomsbury Press, 2011, p. 30.
[599] Hopkins, through his Transition Towns essentially argues resilient action based on a reduced reliance on fossil fuels and increased activity to reduce the environmental footprint. He does not advocate a complete rejection of the fossil fuel system. R. Hopkins, *The Transition Handbook: From Oil Dependency to Local Resilience*, Totnes, Devon, Green Books, 2008.
[600] L. Brown*, Plan B 4.0: Mobilizing to Save Civilization*, (1st edn.), New York, W.W. Norton, 2009.
[601] Porritt, *Capitalism as If the World Matters*.
[602] P. Hawken, A. Lovins, & L. Lovins, *Natural Capitalism: Creating the Next Industrial Revolution* (1st edn.), Boston, Little, Brown and Co., 1999.

Slaughter[603], Gilding[604] and Klein[605] don't accept this premise, although in some ways their argument is essentially the same. They maintain that although society is on the verge of collapse, it is possible to "depict an emerging narrative that moves the debate to notions of descent"[606], while accepting that these same "dynamics of descent could endure for several centuries"[607]. While the Descent School has a deep understanding about the need to move from "options about simple and immediate externals to [necessary changes to] processes of self-constitution and the mediation of power and meaning"[608], there is little engagement with structural and systemic alternatives to the ideas of modernism that have created the potential for collapse in the first place. In other words the future is still framed within the conditions of the contemporary system; albeit they argue for solutions where less is more.

From the Descent School position there are three important insights with respect to Rifkin's thesis. The first is that '*the state of the environment'* evidences a system at its limits, and that the current economic model has a causal relationship with respect to those limits[609]. Where the distinction lies between the Descent School and Rifkin is not in the litany of end states but in the way that the proposition is explored. The former traverse the proposition from an environmental science perspective, whereas Rifkin canvases the same concern through the lens of physics and thermodynamics. The second shared understanding relates to Rifkin's *Transform* or *Collapse* scenario. Perhaps influenced by Diamond's provocative analysis *Collapse*[610], or Oliver Markely's early writings[611], Slaughter characterises the situation as one of overshoot and collapse[612]; Ehrlich as civilisation collapse[613]; Gilding describes it as 'the Great Disruption'[614]; and Klein as a full blown crisis[615]. As will be determined later, this notion of collapse also features in the

[603] R. Slaughter, *To See with Fresh Eyes: Integral Futures and the Global Emergency,* Indooroopilly, Qld., Foresight International, 2012.
[604] Gilding, *The Great Disruption.*
[605] Klein, *This Changes Everything*.
[606] Slaughter, '*The Biggest Wake up Call in History',* p. xi.
[607] ibid., p. 109.
[608] Slaughter, *To See with Fresh Eyes,* p. 92.
[609] Gilding describes it as follows: "our human society and economy is now so large we have passed the limits of the planets capacity to support us and it is overflowing. Our current model of economic growth is driving this system." Gilding, *The Great Disruption,* p. 1.
[610] Diamond, *Collapse*.
[611] O. Markely, 'Rethinking the Leagacy of Columbus: A Vision of Business - University Collaboration between North and South', *Futures,* vol. 26, no. 7, 1994, pp.771-80, p. 775.
[612] Slaughter, *The Biggest Wake up Call in History,* p. 41.
[613] Ehrlich & Ehrlich, 'Can a Collapse of Global Civilization Be Avoided?'.
[614] Gilding, *The Great Disruption.*
[615] Klein, *This Changes Everything,* p. 5.

cosmology of the Civilisation Transformists who question why "the proponents of Western civilisation know what is happening to them but seem unable to stop it"[616]. The third shared understanding relates to the sustainability of the current economic model. Again where the Descent School differs from Rifkin is not in its concern about the durability of the current model, but in the course of action required to address that concern. Each descent theorist in their own way suggests simple, less stressful modifications to the existing model, rather than rethought alternatives. In contrast, Rifkin argues that systemic failure that is explicitly linked to the global economic system, requires a completely different socio-economic and energy system alternative. Therefore his challenge is to both articulate what a viable 'other socio-economic future' might look like, and how the transition to that other might occur.

Technological Optimism

Technological Optimists are different from the Descent School in that their directional advocacy for advancement rather than descent. While most do not interrogate the contemporary condition at a whole of system level, they mainly concentrate on what the Hawaiian futurist Dator terms 'novelties'; "new technologies that permit novel behavior and modify or restrain earlier behavior"[617]. They often also argue for the reappearance of things that used to exist but could, with technological improvement, dramatically change the system condition. Modern windpower is a prime example of this 'old in the new' phenomenon. They then draw these together to suggest that the appropriate mix of either known or soon-to-be technologies can effect transformation that facilitates 'acceptable' change within the present system. While the Transformists accept that the role of technology is a vital part of the future fabric, where the Transformists differ from the Tech-Optimists is in their gaze. They argue that it is not the technology that matters, but the possibilities these technologies enable to reconstitute social morphology or senses of meaning, necessary to create optimal and enduring systems, that will enable humanity to live within the constraints of the planet. Despite this caveat, the Tech-Optimists do assist understanding important aspects of the transition. In summary, these are firstly, why at particular points in time some technologies have a disruptive and revolutionary effect;

[616] N. Oreskes & E. Conway, *The Collapse of Western Civilization: A View from the Future*, New York, Columbia University Press, 2014, p. 1.
[617] Dator, 'Alternative Futures for K Waves', p. 311.

secondly, why the impact of the revolution is not the application of technologies per se, but rather how they enable the reconstitution of social and economic forms (e.g. global interconnectedness and a potential global demos); and thirdly, why the present set of technologies is contributing to the next phase of success of the current capitalist models, and in the process, the destruction of those same models.

Before dealing with these questions it is useful to explore the situational relationship of the Technological Optimists within the wider discourse. Some theorists including Brynjolsson & McAfee[618], Ford[619] and Shirky[620] focus principally on the reasons for, and effects of, a range of disruptive networking technologies. At first glance, with terms like the 'Second Machine Age' and 'Rise of the Robots,' they seem to be aligned with Rifkin's broader advocacy of revolutionary shift. They are, in the sense that they maintain that networking technologies will be fundamentally disruptive to society. However, they also maintain that these new technologies can coexist with the current socio-economic paradigm of progress, with little modification. The inconsistency is most noticeable when they attempt to situate disruptive technologies within a broader socio-economic context[621]. For example, in Brynjolsson and McAfee's theorising, they contend all that is required to accelerate entrepreneurism—a cornerstone of their new age—is the removal of unnecessary regulation; but that this is likely to be difficult and slow work[622]. Likewise, Ford, while raising important considerations about wealth distribution in a post-work society, still explores possibility within a conventional economic frame, although he acknowledges "accelerating technology could disrupt our entire system to a point where a fundamental restructuring may be required if prosperity [again a privileging of the worldview of current system] is to continue"[623]. Finally, Shirky describes it as "the ability to share, to cooperate with one another and to take collective action, all outside the framework of traditional institutions and organizations"[624]. What he doesn't do is make the link between this

[618] Brynjolfsson & McAfee*, The Second Machine Age.*
[619] Ford, *Rise of the Robots.*
[620] Shirky, *Here Comes Everybody.*
[621] K. Schwarb, the CEO of The World Economic Forum (wef.org), recently described the next revolution of technology as a Fourth Industrial Revolution. However he makes little mention of how such a revolution will fundamentally change the (still capitalist) social and economic fabric beyond obvious issues like the role of work. I would posit that his revolution is perhaps more accurately described as *a technology revolution* rather than *a social revolution* in the manner Rifkin conceptualises it. K. Schwarb, *The Fourth industrial Revolution,* [online text] 2015, available at www.wef.org, (accessed 1 Febraury, 2016).
[622] Brynjolfsson & McAfee, *The Second Machine Age,* p. 215.
[623] Ford, *Rise of the Robots,* loc. 208.
[624] Shirky, *Here Comes Everybody,* loc. 310.

collective action and the potential of these technologies to create new form and shape; a global demos, where "institutions will be fashioned in ways that make them beholden to the whole body politic rather than merely balancing the interests of competing states and actors"[625].

Disruptive and Revolutionary Technology

This apparent inconsistency, though, in no way denies that technologies can engender revolutionary effects. Technology that is disruptive at a civilisational scale, occurs when particular technologies (in the contemporary situation networking, robotic and energy technologies) reorder, replace and integrate, certain dimensions of human life, while excluding others previously used to establish 'meaning'; how we connect, organise, express culture or enable power. Consistent with this disruptive characterisation Castells postulates, what these networks are doing is redefining cultural and social meaning, in ways that hitherto have been defined by 'place' on the one hand and the 'functionality of wealth and power flows' on the other[626]. Others like Katz extend exploration of these technology effects. They assert that just as the ethos of mechanical progress influenced the 2nd Industrial Age, so too the design and the use of the technology has assigned a number of new meanings to network technology devices, an *Apparatgeist,* that was never intended when the technology was created. In a sense, the machines have become us[627]—and for that matter, more than us—to a point where one of the defining characteristics of individuality and our age—what we call 'work'—"will soon come under threat from forged labourers and synthetic intellects"[628]. So pervasive will be their impact "the future will be a struggle of assets against people, as the resources accumulated by our creations serve no constructive purpose or are put to no productive use"[629]. As the technologies evolve or are replaced by newer and smarter versions, the revolutionary effects of the never ending redefinition of meaning permeate ever deeper into the existing fabric, eroding what is and providing opportunity to establish what might be (a process previously described as pseudomorphosis).

---

[625] P. Raskin, 'A Great Transition? Where We Stand', *Biennial conference of the International Society for Ecological Economics (ISEE),* [conference paper], Reykjavik, Iceland, 2014, p. 5.
[626] Castells, *The Rise of the Network Society,* loc. 801.
[627] J. E. Katz, 'Mobile Phones as Fashion Statements: Evidence from Student Surveys in the Us and Japan', *New Media & Society* vol. 8, 2006, pp. 321-37, p. 325.
[628] J. Kaplan, *Humans Need Not Apply*, New Haven, CT, Yale University Press, 2015, loc. 166.
[629] ibid., loc. 177.

Disruptive Technology enables Discontinuous Form

If technologies enable 'meaning' to be redefined, and if such reconstitutions are widely shared, then the entire social and economic fabric is also rearranged to an extent that it can only be described as revolutionary. For example, with almost ubiquitous technological connectedness (a central tenet of Rifkin's sense of revolution) Perez argues what distinguishes a technological (network) revolution from the emergence of interesting but random technologies is the strong interconnectedness and interdependence of the participating technologies in how they influence markets and societies, together with their capacity to profoundly transform economies, institutions and society itself[630]. Figure 5.4 suggests that it is at deeper levels of reality that redefinition, due to the introduction of a particular technology, becomes important. This importance might be measured by the capacities any particular technology creates, to enable transformation; to redefine society at a structural level—thereby reframing worldviews and creating new myths and metaphors—that defines revolution at a scale that is material.

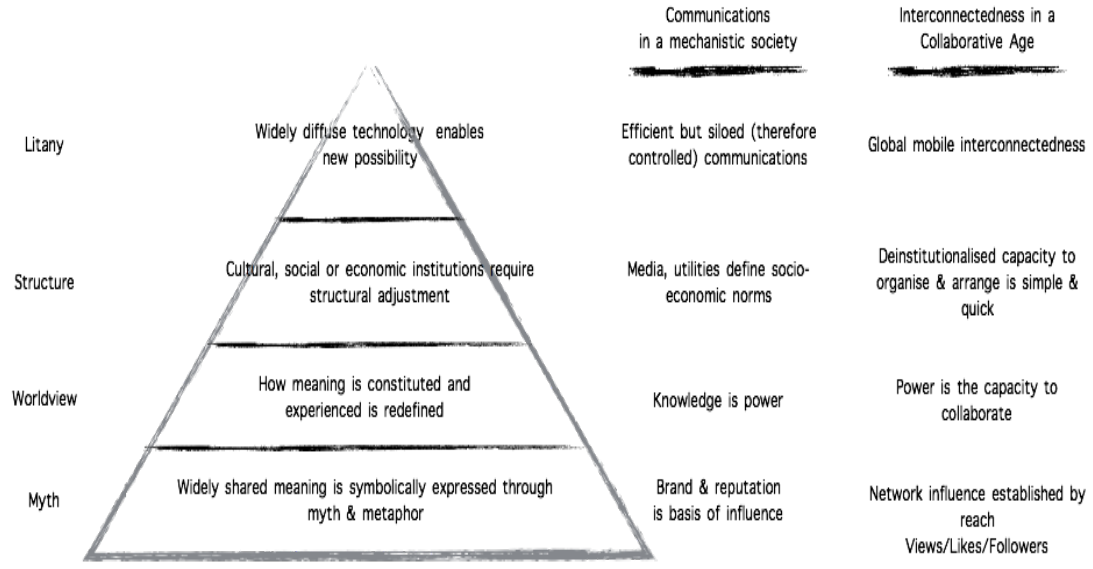


Table 5.4 Using CLA to show why the revolution in interconnectedness is a reconstitution of meaning, enabled by technology

[630] C. Perez, 'Technological Revolutions and Techno-Economic Paradigms', *Cambridge Journal of Economics*, vol. 34, 2009, p. 189.

Why Network Technologies Undermine Continuity

Almost paradoxically, an understanding that it is the reconstitution of meaning that matters in transition and transformation assists in understanding the dialectic tension that exists between the widespread dissemination of network technologies and at the same time the evident capacity of some of those technologies to undermine the existing system (particularly capitalist economic systems). While the implications of this tension and the possibility that it will usher in a post model, will be explored later in this chapter, there are a number of more generalised effects that might be considered. Firstly, they enable a radical redefinition and rearrangement of transaction costs[631]. This has profound implications, for both margins (on both the supply and demand side) and on the form-shape-size of organisations. Secondly, as was alluded to earlier, advances in robotics and cognitive technologies will see the end of work, as we understand it. If this is as rapid, as some argue[632], then how wealth is socially distributed to allow any kind of economy (be it for accumulation or exchange) will require a different alternative to work as a wealth distribution mechanism[633]. The third reframing reflects the tension engendered by technologies that allow for significant global, and therefore non-state based, economic activity. This allows particular classes of actors to avoid or go beyond the frameworks of any particular nation whose policy settings they perceive are not in their best interests, thereby challenging the close connection that the nation state has with economy[634]. While each of these contentions is important and are worthy of further exploration within the context of this study, what they demonstrate both separately and together is that networking technologies create significant disruption to current arrangements, and the

[631] The Nobel Prize winner Coarse argued in *the Nature of the Firm* that organisations are the size and shape they are because that size and shape is the most efficient way to bundle a set of transaction costs. It therefore follows that if technologies enable significantly lower transaction costs (often in the order of more than 75%) then the shape and form of organisations will necessarily change. Op cit. Coase, 'The Nature of the Firm'.

[632] While this topic is canvassed generally in most Western economies (e.g. Pearson, *The End of Jobs. Money Meaning and Freedom without the 9-5*.), a recent Australian report showed that the average time for young people to transition into full time work has increased markedly since 2008. J. Stanwick et.al., 'How Young People Are Facing the Transition from School to Work', National Council for Vocational Education, Australia 2015.

[633] Ford, *Rise of the Robots,* Ch. 10.

[634] There are a number of tensions that might be considered but two (the regulation of global capital and the emergence of potential digital currencies) are causing systemic instability. With respect to issues of global capital, as Thomas Piketty points out, "regulat[ing] the C20th fiscal and social model and adapting it to today's world will not be enough". T. Piketty and A. Goldhammer [translator], *Capital in the Twenty-First Century*, Cambridge, MA, 2014, p. 515.
Bitcoin, also as a digital currency operating outside of the conventional exchange rate, directly threatens the ability of the nation state to view wealth and therefore tax. M. Babaioff, S. Dobzinski et al., 'On Bitcoins and Red Balloons', [online text] 2011, Available at *arXiv:1111.2626 [cs.GT], (accessed February 1, 2015).*

potential for the reconstitution of an economic system or systems[635] that is different from these arrangements.

Civilisation Transformation

The Civilisation Transformists, including Rifkin, can be distinguished from both the Descent School and Technological Optimists in three important ways. The first is their shared perspective that environmental issues confronting contemporary society are so severe they not only cannot be resolved inside the current system. Indeed if left in situ, they will ensure 'civilisation collapse' sooner rather than later[636]. Thus, Transformists argue descent contemplates particular change trajectories that are insufficient, Further that technological advancement, without concomitant socio-economic shift, merely amplifies the problems humanity now faces. For the Transformists therefore the societal arrangements must be constituted in a way that extends beyond the accepted conventions and assumptions that dominate the contemporary condition. Theirs is an eschatological proposition, the present or near future a time of profound global discontinuity. Secondly, they contend this 'beyond state' requires fundamental and systemic change. It is the only hope for a viable future. In other words, to avoid *Collapse*, a transformation or revolution is required. Thirdly, they maintain that this revolution will reframe socially accepted constitutions of reality at multiple levels. As the futurist Polak asserts, this means that the dynamics of continuous interaction, in all parts of the social and cultural fabric, will result in the form and shape of most of what we now understand being altered[637], thus ushering in a new civilisational model. The contemporary civilisation transformist discourse therefore argues for a reframing of reality at multiple levels, in both systems and mentalities and can thus be defined as revolutionary.

In this definition transformation is both additive (in considering technologies and limits) and discontinuous and the revolutionary effects it contemplates are deeply embedded in transformist literature. One of the earliest contemporary revolutionary theorists, Alvin

[635] The assumption that there should be only one global economic system is just that, an assumption.
[636] While there is a wide variety of views about precisely when the tipping point into collapse might occur, James Martin argues that to avoid the canyon from which humanity may not emerge, "drastic change is needed in the first half of the 21st century to set the stage for the extraordinary events in the rest of the century". J. Martin, *The Meaning of the 21st Century*, p. 5.
[637] F. Polak & E. Boulding [translator], *The Image of the Future*, Amsterdam, New York, Elsevier Scientific Pub. Co., 1973, p. 286.

Toffler in *Future Shock*, contends humanity is on the brink of a Third Wave, a post-industrial shift driven by technology and enhanced communications that would be so distinctly different it would "alter the chemistry in our brains"[638]. The sociologist Wagner is equally dramatic in asserting that modernity (civilisational shift) is "a distinct rupture of historical consciousness"[639]. Eisler also argues for a transformation, one that is not just 'civilisational' but also 'relational' in nature. By this she means that any transformation that continues to be andocratic merely perpetuates the mythology of domination. To effect Eisler's revolution, a future networked society would at a systemic level require partnership systems where gylany is normative[640]. This argument for philosophical shift is extended by Henderson, who suggests that moving beyond the competitive model that characterises what she terms as global economic warfare, is fundamental to the social architecture of the 21st century[641]. What these descriptors of revolution suggest is that the transformation being contemplated here is non-event based, multidimensional, philosophical and multifaceted. It is a revolution whereby understandings of form and shape reach far beyond the explicit to include the implicit of cultural and behavioural orientation.

Above all, the Civilisation Transformists can be distinguished by their alternative narratives, or proposed escapes from the existing condition. In analysing their thinking, Figure 5.5 has been reordered from previous tables to align common questions/issues in both Rifkin's and other Transformist theorising and discourse with (already explored) various macrohistorical understandings. The intent is to establish where there are shared and common understandings or extensions to Rifkin's work.

[638] Toffler, *Future Shock*, p. 175.
[639] Wagner, 'Modernity History of the Concept', p. 9949.
[640] Eisler, *The Chalice and the Blade,* p. 194.
[641] H. Henderson, *Building a Win-Win World : Life Beyond Global Economic Warfare*, San Francisco, Berrett-Koehler Publishers, 1996, p. 48.

Hypothesis	Emergent Pattern	Questions/Issues in the Contemporary Context
Social systems have limits and when all possibilities are exhausted, or large scale system threats ignored, they will change.	Social systems are time based and durable. They are impacted by their capacity to adapt to the rate of external change, immanent (internal) change and the willingness of change agents to sustain, or otherwise, the system.	1. Unsustainable entropic debt must be faced and resolved. 2. A future system cannot hardwire into the future more (resource) complex systems. 3. The emergence of postnormal conditions (complexity, chaos, contradiction and uncertainty), describe a system that is spatially and socially different
Infrastructure frames mentality.	Infrastructures not only create societal expression of time, form and space but they are also a product of that process, in a mutual, self-reinforcing feedback process.	The mentality and cosmology of a Collaborative Age will be network and relationship-centric and infrastructure will rapidly evolve to reflect that change.
If mentalities define economy, a new Collaborative Age mentality will by definition create a different economic reality.	Mentalities determine economic form not the other way around.	An econo-centric capitalist system, which privileges simplification and efficiency, is insufficient for the future.
Social evolution is linear.	In any linear, cyclical or transcendent understanding, a future system will have a different morphology than the system it replaces, while at the same time creating an identity that is in part a reaction to that system.	The shapes and spaces (morphology) of the Collaborative Age, must reduce entropic debt and consequently must be systemically different from the morphology of the mechanistic society.
Revolutionary shift is conditional on a shift in consciousness and philosophy.	A socially accepted reconstitution of time, form and space cannot occur without a sense of philosophy and consciousness that is sympathetic to that reconstitution.	While there is a wide acceptance that the future requires a 'biosphere' consciousness, there is less clarity (or acceptance) about the essential elements for a 'postnormal' philosophy.
A Collaborative Age requires and defines a new kind of identity and leadership.	Consciousness, philosophy and interaction, frame the architecture of meaning and identity and how leadership can be exercised.	Collaborative Age identity and leadership must occur beyond the horizon of modernity (which privileges the current system) and facilitate a plurality in belief systems and values consistent with a beyond the horizon worldview.

Figure 5.5 Alignment of hypotheses from Rikin's theorisation, emergent patterns from macrohistorical understandings and issues in the contemporary Transformist discourse.

This sense of revolution frames the comprehension of the real at multiple levels. It provides a scaffold for a contemporary discourse—one on which Rifkin's work might be 'arranged'—and, through which different understandings that have been made visible through macrohistorical investigation might be explored in the contemporary condition. A critical outcome of this exploration will be to inform and extend perspectives about a

number of questions central to this thesis. Within this 'situational' context these are as follows:

- Firstly, are Rifkin's propositions consistent with other contemporary theorists in describing the challenges of transforming society, beyond the limits?
- Secondly, does the proposed revolution resolve critical issues in a way that enables collective humanity to live within the constraints of the planet?[642]
- Thirdly, can either of the above occur without the emergence of a new philosophical construct? If so, then this discourse must always be contextualised as 'contemporary' rather than 'modern', for to consider it otherwise frames senses of reality that privilege the centrality of modernity, and thus retention of the system conditions that have created the point of 'historical rupture' in the first place.

Furthermore, it is posited that the macrohistorical and transformation wisdom available to all of us has an important place in contemporary dialogue. It argues that the Transformists, however, complete their narrative, and are a 'creative minority' whose role is vital in the rise of a new civilisational idea. Toynbee, writing about such roles in either the growth or dissolution of a civilisations, described them as theorists who:

> ...have learnt the tricks of the intrusive civilisation's trade in so far as it may be necessary to enable their own community, through their agency, just to hold its own in a social environment in which life is ceasing to be lived in accordance with local tradition and...more and more in the style imposed by the intrusive civilisation. [643]

Thus Transformists, including Rifkin, have a critical role in creating an 'intrusive pseudomorphosis' enabled by superior narratives. In the contemporary situation these narratives enable those who subscribe to transformation to visualise alternatives to the litany of modernity; a new context "where new kinds of stories arise and [where] tracing the consequences of adopting those stories rather than others [makes these] in principle available"[644]. The question in all circumstances is: do such narratives create the systemic conditions that will either enable or defeat the possibility of the narrative they visualise?

---

[642] To do so, by definition it must create system conditions that are less complex than those that now exist. Tainter, 'Energy, Complexity and Sustainability'.
[643] Toynbee, *A Study of History*, vol. 1, p. 394.
[644] Tilly, *Stories, Identities, and Political Change,* loc. 1032.

The Dynamics of Limits in Contemporary Systems

Among Transformists there are three core arguments. The first, aligned with those of the Descent theorists, is that established environmental trajectories are both inconsistent and incompatible with current socio-economic realties, in ways that destroy the fabric on which these present realities depend. The second, and less well-known, (dependent) premise is that any future state must exhibit a level of (lower) resource complexity, at a level that is determined by the constraints planetary existence imposes. The third and final postulation is that the mentality in which modernity is both conceptualised and is maintained no longer reflects accepted constructs of reality, even by those inside the conclaves that depend on modernity for their continuation. In other words, as Sorokin would suggest, the conditions that sustain the system, from within (immanent change) and without, no longer exist.

Rifkin, in the early 1980's, expressed his concerns about the declining state of the environment through the lens of the second law of thermodynamics: entropy. He saw that this was a consequence of "modernist notions of a future without physical constraints and a world without material boundaries"[645]. He contended that using entropy as the unit of analysis helped define 'the physical rules within which the game of life unfolds"[646] and challenges "the colonizing ways that are destroying everything in its path, leaving us without a choice in the future"[647]. He consistently reprises this argument throughout his collected works noting that:

> [W]hile we will need to transition into the new distributed green energies, it will be necessary to use these energies more parsimoniously to make sure that we do not strip our planet of the low entropy matter that is equally critical to support life on earth[648].

Rifkin is not alone in his use of thermodynamics as a unit of analysis. Christian in particular uses entropy in his consideration of 'Big History' arguing "there is a close link between the notions of order and complexity and the laws of thermodynamics"[649]. What both Rifkin and Christian do is centre their concern at a systemic and structural level, one that explicitly rejects the ability of a system that created the problem to be able to solve it without altering the system conditions.

---

[645] Rifkin & Howard, *Entropy,* p. xi.
[646] ibid., p. 297.
[647] ibid., p. 83.
[648] Rifkin, *The Third Industrial Revolution,* p. 209.
[649] Christian, 'World History in Context ', p. 441.

It is this propensity to address the effects of limits and system change at an 'other than litany' level that distinguishes Transformists from other theorists. In essence, they understand Sorokin's point that when a system changes radically "its limits are transgressed and it disappears"[650]. Rifkin synthesises the consequences of limits as a point of *Transform or Collapse*, that moment where "civilizations have experienced critical moments of reckoning [and] have been forced to radically change course to meet a new future or face the prospect of their demise"[651]. Taylor, in similar fashion, in *Evolutions Edge*, contends that the issue of limits relate to "a socio-economic system based on "a belief system that does not recognise the need for limits"[652] and therefore promotes 'overshoot', "that point in the 1980's when the annual consumption of renewable resources and production of waste began to exceed the carrying capacity of the planet"[653]. This has the potential to trigger catastrophic change and it will "require the complete transformation of our society, from unethical to ethical; from paranoid to peaceful and from serving false greeds to meeting real needs"[654]. Again Henderson also affirms any contemplation of limits requires the ability to conceptualise the larger systemic picture, within the evolutionary narrative of both humanity and the planet. Thus, having established that current dysfunctional economism requires deconstruction because "humans have clearly demonstrated the limits of their six thousand year experimentation with competition, territoriality, expansionism and military conflict"[655], she then opines "we must reaffirm our species' spectacular history of continual adaption to changing climatic and ecosystem conditions"[656]. What Rifkin, Taylor and Henderson demonstrate is that rarely should consideration of limits be considered in isolation to the larger systems in which they reside. Further, when such connection and embrace of complexity does occur, the worldviews and mythologies on which those systems depend become visible and the strengths and weaknesses evident.

[650] Sorokin, *Social & Cultural Dynamics,* p. 654.
[651] Rifkin, *The Third Industrial Revolution,* p. 270.
[652] Taylor, *Evolution's Edge,* p. 64.
[653] Ibid., p. 93.
[654] ibid., p. 128.
[655] Henderson, *Building a Win-Win World,* pp. 1-2.
[656] ibid., p. 152.

The Hawaiian futurist Dator describes these limits as a new normal; a set of conditions that must be at the centre of any or all scenarios going forward[657]. This '*Unholy Trinity',* both individually and collectively, frames all of the available options for the future. Dator argues that a decreasing differential in the Energy Return On Energy Investment (EROEI) means that the level of investment in fossil fuels on which contemporary society relies to drive its economy cannot be sustained in a way commensurate with the growth conditions economies require. He further contends that there will be no alternative but to address this issue at the same time, as there is incontrovertible evidence that changes in the natural environment are of a level and scale that are both unaffordable and inconducive to previously accepted socio-economic practices. Finally, he asserts that the current economic model requires "urgent replacement with an economy that serves the needs of humans not the other way around"[658]. As a consequence, in the Anthropocene Era either '*New Beginnings'* after *Collapse,* or *Transformation* before or during *Collapse* must now be framed through the new normal of Dator's *Unholy Trinity* and Sardar's postnormal in governance.

While Rifkin and others have made a causal link between the environmental crisis and the need to move past the carbon economy, one of the key challenges in that process is to ensure that both what is proposed and what is actually established has a level of complexity consistent with living inside planetary limits. This might be termed the 'energy complexity limit': " the inescapable relationship between increasing energy throughput and a rising entropy debt"[659]. The challenge with the complexity limit is that, until now, in the history of the rise and fall of civilisations, each new society and culture becomes more complex, in both energy and societal arrangements, than its predecessors. However, the anthropologist Tainter suggests that the concern is more nuanced. He contends:

> [A]bundant inexpensive energy generates more complexity and simultaneously produces new kinds of problems such as waste and climate change. Addressing these and other problems (complex problem solving) requires complexity to grow, imposing the need for still more energy[660].

[657] J. Dator, '"New Beginnings" within a new normal for the four futures', *Foresight,* Vol. 16 (6), pp. 496-511. 2014
[658] ibid., p. 498
[659] Rifkin, *The Empathic Civilization,* p. 223.
[660] Tainter, 'Energy, Complexity and Sustainability' p. 93.

In short, the history of most civilisations or cultures is one of increasing complexity[661] and perhaps, in the early 21st century, of exponential complexity. Two important conclusions emerge from Tainter's observations. Firstly, there is a temporal relationship—a reframing of time, form and space—between energy form and the way society operates. Secondly, it is reasonable to suggest, consideration of a society's characteristic modes of technology be given along with other key attributes, in considering a society's prospects[662]. In other words, technology and social arrangements are inextricably intertwined, and if the limits are reached in one part (energy and sustainability in this case) then limits are also reached in the other parts as well. This energy-complexity narrative strongly supports Rifkin's contention that the future energy issues of the planet are unlikely to be resolved, indeed cannot, within the contemporary fossil fuel energy system.

On this basis one might assume that if there are limits in physical systems and social arrangements, there are also likely to be emerging limits in symbiotic mentalities and decision-making processes. As has previously been asserted, the cultural critic Sardar argues that the mentality of the mechanistic age—the notion of 'progress'—privileged a sense of normality; a construction of reality that had simplicity, order, consistency and certainty as the preferred systemic conditions through which to manage complexity. Leaving aside the question as to whether this was ever true, societies built on this sense of normal now finds themselves in postnormal conditions, partly of their own making, which are complex, chaotic, contradictory and uncertain. He asserts that this drive for normalcy in a postnormal context means that

> …modernisation has now become a toxic notion" and that this has "precisely [been because] unchecked linear progress and accelerating growth [another manifestation of assumed normality] has bought us to the age of chaos[663].

Others agree. Taylor, for example, characterises the complexity and chaos as a system condition, where "the number and complexity of large crises is increasing at the same time the global system is progressively losing its ecological, economic and social resilience"[664]. The outcomes of any decision making process is substantially affected by the starting

[661] It is useful to note that Ibn Khaldun describes this complexity as 'sedentary culture' and the *asabiya* of the Bedouins as noble and simple (less complex). Ibn Khaldun, *The Muqaddimah*.
[662] J. Floyd, 'Energy, Complexity and Interior Development of Civilisational Renewal', *On the Horizon,* vol. 21, no. 3, 2013, p. 3.
[663] Sardar, 'Welcome to Postnormal Times', p. 441.
[664] Taylor, *Evolution's Edge,* p. 107.

point. So, if what was considered 'normal' no longer exists, then it seems unwise to anchor conversations in that mentality.

Any consideration of limits in the contemporary discourse must therefore be explored through multiple lenses[665]. This is because there are both numerous, evident and hidden relationships between physical systems, man-made systems, mentalities and reasoning processes. Where there are limits in one part of 'reality', it is almost certain that these limitations have an impact on, or are manifested in, another. Therefore to address any given set of limits in one part of the system it is necessary to go beyond the logics in other parts of the system as well. If this is the case, then systemically (and logically) it is not possible to address the issues of climate change without a complete civilisation transformation.

Rethinking Infrastructure and Space

If it is established that technology, and infrastructure technology in particular, is merely a physical manifestation of the mentality of the age in which it is situated, then it is possible to argue that the transformation to a Collaborative Age by definition requires a different infrastructure than that which currently exists. Further, it is also contended that the emergence of such an infrastructure is both informed through, and shaped by, an alternative mentality (a theoretic self-reinforcing feedback loop) that promotes, among other things, reframed conceptions of time, form and space. Within Rifkin's, and the wider Transformist, discourse, there are three themes emerging in this infrastructure–mentality interaction. They are: changes to perceptions of place and space because of network technologies; advocacy of a shift to post-carbon energy systems; and articulation of an infrastructure, based around the Internet of Things (IoT) that will, over time, replace the existing paradigm. Each of these themes is a response to a concern about systemic limits, where "the technology platforms of the First and Second Industrial Revolutions [have] aided in the severing and enclosing of the Earth's myriad ecological interdependencies, for market exchange and personal gain"[666].

[665] Consistent with other parts of this thesis, Inayatullah's Casual Layered Analysis is used as a methodology. Inayatullah, *Causal Layered Analysis.*
[666] Rifkin, *The Zero Marginal Cost Society,* p. 13.

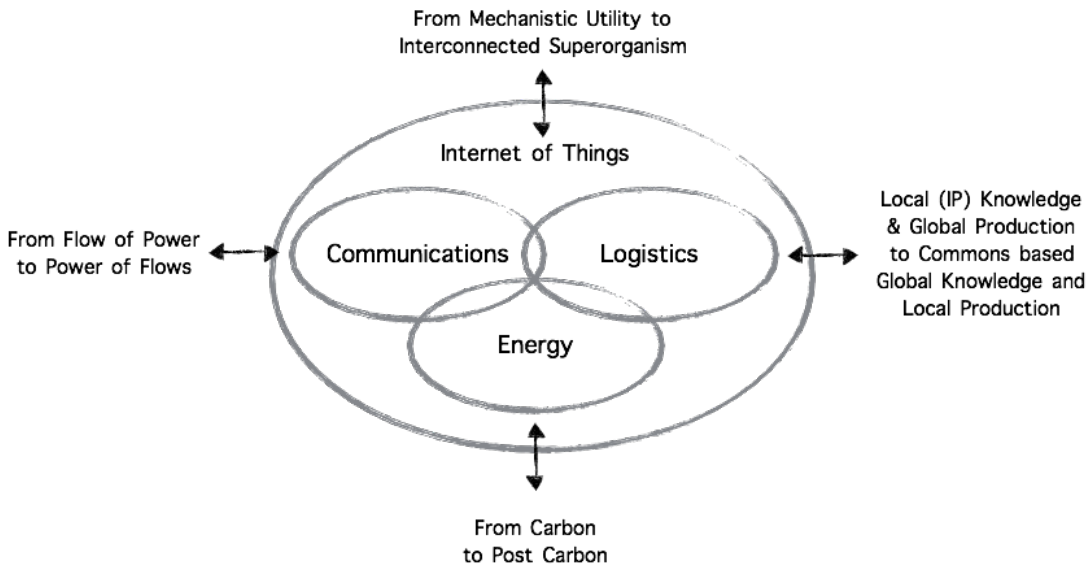


Figure 5.6. Schematic showing Mentality (way of thinking) in the Third Industrial Revolution

Manuel Castells suggests that network communication technologies (now widely dispersed on a global scale[667]), are already changing contemporary conceptions of time and the social understanding of how space is constituted. He argues that in social theory conceptions of space are "crystallized time" and cannot be defined without reference to the social practices in which they are conceived[668]. Thus, if the social practice is understood through the lens of mechanism and efficiency then the protocols and arrangements of organisations and institutions will reflect this particular form of the 'space of place'. However, as has been asserted earlier, networking technologies by design, privilege the space of 'flow' rather than space of 'place.' Hence the 'space of flows' will become a taxonomy for multiple processes that will dominate our future economic, political and symbolic life[669]. This reconstitution of form and shape is a systemic perturbation of social and economic order; one that suggests that a society predicated on *clock time of the industrial age* will give way to the *timeless time of the networked society*, where time is compressed in such a way that the time sequence, and thus time itself, disappears[670]. Recent studies suggest that up to two thirds of the value generated through 'the space of flows' will be captured by

[667] The 2015 GSMA Report suggests that now half of the world's population (3.5 billion) has a mobile subscription. Groupe Speciale Mobile Association, 'GSMA Global Mobile Economy Report 2015', London, 2015.
[668] Castells, *The Rise of the Network Society*, loc. 10336.
[669] ibid., loc. 10361.
[670] As will be explored later, this reframing of time lies at the core of many examples where there is a radical reduction in transaction costs. ibid., loc. 10883.

consumers (or citizens) rather than organisations and institutions that have traditionally captured value in the contemporary context[671]. This observation is consistent with a general view among network theorists that most value in a relationship centric networked environment is held by those that participate in any user defined set of networks For Rifkin, this change in capacity to both create and capture value (mentality) allows the possibility for economies of access, not ownership, peer-to-peer production and a "new economy that will optimize the general welfare by way of laterally integrated networks on the Collaborative Commons rather than the vertically integrated businesses in the capitalist market"[672]. More importantly, it enables the design of systems that overcome some of the issues in complex problem solving inherent in the mechanistic conceptions of space of place.

The radical Italian philosopher Virilio, however, offers an alternative narrative. He argues that conceptually the space of place is not about political and social constructs, rather it is about perceptions and information, related to protection. In modernity these spaces are synthetic modules that, while designed primarily for protection of reality, create an almost cinematic construction of reality, where what is in front of us is perceived as 'real' and what is gone past or is behind us has disappeared and thus is no longer remembered as real. In this construct the automobile experience is an archetype of a different sense of reality, where the 'space of displacement,' replaces flow and where "rushes of landscape are nothing but hallucinations, which is the opposite of stroboscopy. In *'dromoscopy'* (our reality is the chimera of the journey) the fixity of the presence of objects ceases, seducing the voyeur-voyager"[673]. For Virilio these new dromoscopic spaces are the successors of a long history of spaces of protection and defence, which humans have privileged above all else. However, in a world of ubiquitous networks, the concept of place as the source of security gives way to a new architecture of protection and militarisation, one that recognises that the presumed security of space does not equal protection in the same manner it used to. In the networked world we now live in a deteritorialised meta-city, whose centre is everywhere and whose circumference is nowhere[674]. Where Virilio differs from Castells and Rifkin is that he privileges the role of protection and the military

[671] R. Dobbs, J. Manyika, & J. Woetzel, *No Ordinary Disruption*, Public Affairs, 2015, loc. 807.
[672] Rifkin, *The Zero Marginal Cost Society,* p. 64.
[673] P. Virilio, 'Dromoscopy and the Ecstasy of Enormity', *Wide Angle,* vol. 20, no. 3, 1998, p. 12.
[674] P. Virilio, *The Information Bomb*, Radical Thinkers, London, Verson, 2000, p. 11.

complex in the networked world (the Information Bomb), above the social and economic in framing mentality and reality. While this different understanding certainly has validity, for the purposes of this thesis, his contentions merely underscore Castells characterisation of the space of flows, where the primacy of the physical domain makes way for spaces that seamlessly integrate the physical with the virtual. In other words, his litany is different, but systemically, the process is the same.

As has been established previously, energy systems as infrastructure (rather than information or protection, or perhaps both) have a close, even deterministic, relationship with dominant mentalities and the conceptions of time, form and space that inform that mentality. As the futurist Floyd observes, energy systems play an intrinsic role in shaping a social system's prospects[675]. It therefore follows that the emergence of post-carbon, renewable energy systems will necessarily transform conceptions of time, form and space, given that connectedness technology is at the core of its architecture and it therefore has a lateral orientation that flourishes in borderless open spaces[676]. Through visualising energy systems as part of a multi-layered but interconnected sense of realties, and mythologies of those realties, it is possible to propose a design symmetry, between emerging technology systems that will be produced at the source of consumption, and the 'space of flows' as articulated by Castells. In contrast, existing technologies designed and engineered to run on fossil fuels, like the internal combustion engine, have exhausted their productivity with little potential left to exploit, and are asymmetric to the notion of the space of flows[677].

There is considerable academic support for Rifkin's conceptualisation and position on the coming energy transition. Pearson describes it as a 'very different kind of industrial revolution,' where "the challenges of achieving a low carbon transition may well require societal changes on a scale compatible with previous industrial revolutions"[678]. For Pearson, it involves transitions that include a switch from private benefit to social benefit (because of decentralised generation and control); the attractiveness of the low carbon technologies from energy security, affordability and international competiveness

[675] Floyd, 'Energy, Complexity and Interior Development of Civilisational Renewal', p. 221.
[676] Rifkin, *The Third Industrial Revolution,* p. 171.
[677] Rifkin, *The Zero Marginal Cost Society,* p. 72.
[678] P. Pearson & T. Foxon, 'A Low Carbon Industrial Revolution? Insights and Challenges from Past Technological and Economic Transformations', *Energy Policy*, vol. 50, 2012, pp.117-27 p. 126.

perspectives; and finally, an understanding that the time scale needs to be shorter (because of environmental concerns) than other transitions[679]. The techno-economic determinist Perez concurs. She argues that when there is a strong interconnectedness and interdependence in the participating (technological) systems, they have the capacity "to profoundly transform the rest of the economy (and eventually society)"[680]. Finally, the critical theorist and policy analyst Mathews points out that, while the views of Perez and Rifkin were considered utopian in the early 2ooo's, their perspectives are now supported by an emerging literature regarding renewables as providing "an anticipated 100% replacement for fossil fuels within a reasonably short time frame (perhaps as early as 2030)"[681]. The cosmology of a post-carbon future has now entered the mainstream lexicon. Thus possibility becomes probability, and it is doubtful if the change envisaged can occur only at the litany level of reality. Hence a deeper understanding of the 'other than energy' consequences of such systemic change is required.

Rifkin articulates just how different this new cosmology (social grammar) is in his descriptions of the Collaborative Commons. He visualises it as an ecology; a way of thinking where "the emphasis is one of complex interrelationships that function symbiotically and synergistically to maintain the functioning of the whole"[682]. The European mathematician and cyberneticist Heylighen, in a manner that perhaps brings Spengler's precepts into the 21st century—where Promise Theory meets nature—contends that as the infrastructure of the space of flows develops it might be best thought of as *a global superorganism* (not in the strict sense of the term, but as a conceptual model[683]); a complex and adaptive system that provides for a multitude of interactive processes that allow the organism to adapt to an ever changing environment[684] which, if considered within the Gaia hypothesis, is also a 'superorganic' system. This organism is not simply a complex mechanistic system, where the nodes operate with a pre-programmed response (as the internet does), but rather it operates as:

---

[679] Pearson & Foxon, 'A Low Carbon Industrial Revolution?', p. 119.
[680] Perez, 'Technological Revolutions and Techno-Economic Paradigms', p. 189.
[681] J. Mathews, 'The Renewable Energies Technology Surge: A New Techno-Economic Paradigm in the Making?', *Futures,* vol. 46, 2013, p. 18.
[682] Rifkin, *The Zero Marginal Cost Society,* p. 184.
[683] Just as in the strict sense modern society has never been a machine but it is often modeled and linguisitcally described that way.
[684] F. Heylighen, 'The Global Superorganism: An Evolutionary-Cybernetic Model of the Emerging Network Society', *Social Evolution & History,* vol. 6, no. 1, 2007, pp. 57-117 p. 60.

> ...specialized cells, organs and tissues (both natural and man made), that are functionally autonomous but tightly integrated, in a global self organizing network of mutually feeding processes. This is in clear contrast with the traditional view of society as a bunch of essentially interchangeable individuals, groups or subgroups separated by geographic distance or historical accident, all jostling for power, while making temporary alliances.[685]

In reprising Virilio's 'non-space of the virtual display,' Heylighen proposes a complete reconceptualisation of what constitutes infrastructure. In his view, the observable, human-determined and controlled symbols and icons of conventional infrastructure are complemented by agreed processes that appear, morph and then dissolve on an as-required basis. As macrohistorians identified earlier, in this reading infrastructure is both a physical, or process, representation and also the process through which that representation is created. As a 'superorganism' it will progressively substitute thermodynamic systems, whose resultant change results in an increase in entropy, with dissipative structures that privilege order, "where energy is transformed, recycled and used for self repair and renewal"[686]. Conceptualising core infrastructures, and indeed global society, as ecologies is both a symbolic and conceptual break from the mechanism of the Second Industrial Age. It requires new language and different thinking that, over time, will reshape every decision-making entity on the planet.

Given this imperative, the question still remains: can energy infrastructures change quickly enough to avoid planetary collapse? Theorised as 'Kondratieff Waves'[687], some suggest that energy and other systems have, and will, transition in an observable wave-like manner. The Russian scholar Yakovets has described them as "rhythms in the development of economy and the whole of society that will cause a transition of post industrial and ecological ways of production during the first half of the 21st century"[688]. Similarly, Dator suggests these waves describe changes in energy sources that in turn led to new forms of transportation[689], which progressively (but cyclically) "transformed time and space."[690]

---

[685] Heylighen, 'The Global Superorganism, 90.
[686] Adam, *Time and Social Theory*, p. 82.
[687] Nikolai Kondratieff a student of the Russian cyclical school, like Pitirim Sorokin, was very interested in long term fluctuations, dynamics of economic conjunctions and other rhythms (particularly technology). From this has emerged a series of theories, which suggest that energy systems emerge and change (Kondratieff Waves), over a forty-year period. Yakovets, 'The Kondratieff's Waves and Cyclic Dynamics of the Economy and Wars', pp. 3-5.
[688] ibid., p. 7.
[689] In Dator's view these new forms could include either a neurotechnology wave driven by advances in biotechnology and nanotechnology and/or a 'dream society' of icons and aesthetics where the medium will be the image (however that is generated and interacted with). Dator, 'Alternative Futures for K Waves', p. 313.

However they are characterised, what emerges are substantive changes in energy form that radically reframe all social and economic arrangements, including the organisations that represent those arrangements. This is supported by the view that previous 'energy' Kondratieff Waves substantially transformed infrastructure within forty years, about "the span of an individual and a generation"[691]; a time frame that perhaps reflects the time it takes to shift mentality on a generation-by-generation basis[692]. This time frame, however, is problematic given the levels of entropic debt, and it might be necessary that the next wave has a half-life of previous waves. Such a consideration at a technology level is possible given the rate of contemporary global connectedness and the capacity to rapidly distribute desirable technology. What remains unanswered is whether there is sufficient plasticity in the global mentality to allow this to happen. Perhaps those whose vested interests lie with existing technology (or policy frameworks related to the perpetuation of those technologies) will be able to exercise power in a way that inhibits deployment at the rate that is required? If this is to be resolved in favour of *Transform,* a new litany and system will need to be informed by an existential environmental philosophy (worldview).

Consequently the emerging Internet of Things is more than just deployment of a collection of interesting technologies. It is a coherent, alternative-infrastructure wave–like architecture. Rifkin describes it as a platform that "offers the prospect of a sweeping transformation in the way humanity lives on earth, putting us on a course toward a more sustainable and abundant future"[693]. As Figure 5.6 identifies, in Rifkin's cosmology the IoT has three interoperable internets; communications, energy and logistics, "continuously finding ways to increase thermodynamic efficiencies and productivity in the marshalling of resources, the production and distribution of goods and services and the recycling of waste"[694]. Conceptually the IoT also redefines the notion of the energy system, away from an emphasis on the dominant inputs (fossil fuel or post-carbon) to the processes that will enable a particular set of outcomes. Thus the wave is not just about the 'what', it is also

---

[690] Dator, 'Alternative Futures for K Waves', p. 312.
[691] Ibn Khaldun, *The Muqaddimah,* vol. 1, p. 344.
[692] The American generational theorists Strauss and Howe argue that a generation is the aggregate of all people born over roughly the span of a phase of life who share a common location in history and hence a common collective persona. W. Strauss & N. Howe, *The Fourth Turning : An American Prophecy* (1st edn.), New York, Broadway Books, 1997, p. 16. With global connectedness it might be assumed that this collective persona is even more sharply defined as that particular generation experience, or knowing about and reacting to specific events or technologies (like the introduction of the iPhone or the iPad).
[693] Rifkin, *The Zero Marginal Cost Society,* p. 13.
[694] ibid., p. 14.

about the 'how'. As such it has 'technology agnosticism' and a potential for rapid evolution, unavailable to previous systems. Further, with its focus on outcomes, it places the emphasis on the consideration of infrastructure as a mentality (a way of thinking) in the same way that Industrial modernism has.

While the architecture of both the Communications and Energy Internets has been previously described in this thesis, the emerging Logistics Internet is a recent phenomenon. It is a combination of emerging autonomy, the transition from fossil fuel to electric vehicles, an interest in access rather than ownership and rapidly developing services that operate laterally, and that allow the bypassing of vertical organisations, who, until now, have controlled logistics chains. When combined with the other Internets, Rifkin contends that just as "the digital world took up the superhighway metaphor, now the logistics industry ought to take up the open-architecture metaphor of distributed Internet communication to remodel global logistics"[695].

What makes this new Logistics Internet wave so transformative is that, through the development of commons based transaction software that produces processes like Bitcoin's blockchain and the autonomous vehicles 'Promise Theory,' the capacity to radically reduce transaction costs through reconceptualising the space of flows is profoundly disruptive. This is particularly threatening to incumbents who, unless they too adopt such processes, will rapidly be replaced. Again, it should be emphasised, what Blockchain and Promise Theory do is reframe how we define and use time and space as we interact with others. In many ways it is a practical manifestation of the space of flows. It provides for a 'topology of spacetime' where every state (agent) recognises that it has, inseparably bound to it, time (however it conceives it), including a sense of position and thus "time can be linked to the level of entanglement of the different elements forming the space"[696]. What is not immediately apparent, though, is whether this Logistics Internet will genuinely usher in a future where benefit moves more toward the users (markets for exchange) rather than the few (markets for ownership and capital gain). The vested interest scenario suggests *same mentality, new clothes;* "a form of cognitive capitalism, where the forces of the few protect

[695] Rifkin, *The Zero Marginal Cost Society,* p. 219.
[696] Burgess, 'Spacetime with Semantics', p. 8.

their interests through the control of technological and media platforms which in turn encourage certain behaviours and logic while discouraging others"[697].

Despite this reservation, at both a theoretical and practical level there appears to be significant support for Rifkin's contention that new 'energy regimes as infrastructure' create disruptive transformation, along with an emergent position that suggests interaction with such infrastructures frames mentality, as well as being informed by it. As Figure 5.7 postulates, these new possibilities and understandings, which explicitly link infrastructure with mentality, now have a coherence that until recently was unavailable.

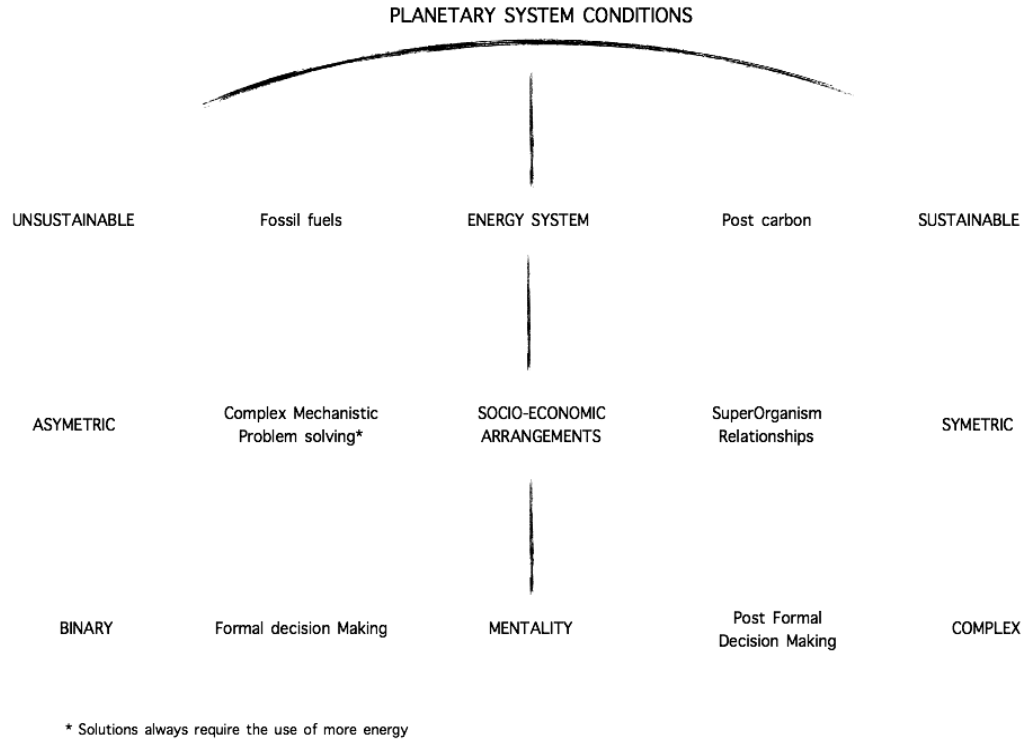


Figure 5.7 Nature of the relationship between infrastructure, mentality and choices in the transformation

Situating the Post Capitalist Proposition

Rifkin, in his latest work *The Zero Cost Marginal Society,* extends his earlier argument that capitalism will move from a vertical to lateral orientation to assert:

[697] Kostakis & Bauwens, *Network Society and Future Scenarios for a Collaborative Economy*, loc. 320.

> [T]he Capitalist era is passing and although the indicators are still soft and largely anecdotal, the Collaborative Commons is ascendant and by 2050 it will most likely settle in as the primary arbiter of economic life[698].

He contends there are essentially three reasons for this. Firstly, with the use of network technologies the capitalist system is increasingly able to produce constructs of simplification and efficiency (competitive advantage) that enable near zero marginal cost and "if that were to happen the lifeblood of capitalism [margins] would dry up"[699]. This proposition suggests that this drive for competitive advantage is inherent in the system and, as each new advantage is obtained, the margins available reduce. Logically, this will reach a point when there is no margin left and the system is at its limits. When that occurs, then the only option is to expand the market into areas of what were considered societal responsibilities (e.g. prisons, health, security) [700] until the same point in the process occurs again. Secondly, the entropic bill for industrial capitalism has arrived, because the economic model and its related energy system see environmental effects as unaccountable externalities. Consequently, the energy systems on which capitalism depends[701] must rapidly change if *Collapse* is to be averted, thus "throwing the whole economic model into question"[702]. Thirdly, Rifkin proposes the emerging Collaborative economy is developing as a viable, perhaps even preferred, alternative to a capitalist model that is, by design, systemically inequitable.

While some of Rifkin's propositions are still evolving, a prime concern of this thesis (as has been stated) is to determine if there is also a contemporary body of literature that supports his fundamental proposition that the system is at is limits. An exploration of Rifkin and Transformist contentions is important because an understanding of the outcomes (not proof!) to these propositions has implications for mentality, philosophy and narratives of engagement with a global community who currently do not see any viable alternative to a mythology that argues (in a rephrasing of a Churchillian quote on democracy) "as a system, capitalism is not perfect but it is far better than the

---

[698] Rifkin, *The Zero Marginal Cost Society,* p. 1.
[699] ibid., p. 4.
[700] As will be explored later, the intrusion of the private sector under a philosophy of neoliberalism into the public sector, and the potential for corruption of those goods as a result of that intrusion, is precisely Sandel's point. Sandel, *What Money Can't Buy: The Moral Limits of Markets*.
[701] There is an explicit link between economy and energy as in the contemporary model "real economic activity is about the irreversibility of events – how energy and material resources are harnessed, transformed, utilized, used up and discarded". Rifkin, *The Third Industrial Revolution,* p. 195.
[702] Rifkin, *The Zero Marginal Cost Society,* p. 10.

alternatives"[703]. However, it should be noted that, to date, the use of 'alternative' has always been contained within the boundaries of the contemporary discourse (capitalism v socialism). 'Alternative' as it is used here describes a transformational imperative, one that stands outside of contemporariness because either the system is at immanent limits, or a better option is in prospect.

Capitalism as a system

While both civilisations and cultures are seen within macrohistory as systems, the question is: can capitalism also be considered as a system in the contemporary context? If so, then it is possible to hypothesise that, not only will it have a beginning and an end, but it will also be subject to forces that affect the system's condition. The heuristics of capitalism are complex because the term is frequently conflated with the concept of industrial society or Enlightenment philosophy. There is further confusion when one understands that the practice and structures of capitalism are different in various societies. Most often it is known as 'free market capitalism' (USA), but it is sometimes oligarchical (Russia), and sometimes state-sponsored (China). However, what these capitalist systems have in common is that they privilege 'markets for accumulation. ' It is through this common definition that this thesis (and Rifkin) explores Capitalism as a System.

Conceptualising capitalism as a system, and existential threats to system integrity, are a consistent theme in contemporary transformation discourse. Wallerstein, whose *World Systems Theory*[704] might be considered an interpretative history of the evolution of the system, is very explicit. In his view (capitalist) systems have laws, which produce "particular historical configurations of markets and state structures, where private gain by almost any measure is the paramount goal and measure of success[705]. However, this system has now "moved too far from equilibrium and no longer permits capitalists to accumulate capital endlessly"[706]. As a result, there is a civilisational crisis that, if it is to be resolved, will require a successor system. This successor will require "the rejection of the basic objective of economic growth [and the] search for rational balances of social

[703] Brynjolfsson and McAfee, 'The Second Machine Age', p. 230.
[704] Wallerstein, *World-Systems Analysis*.
[705] Wallerstein, *Does Capitalism Have a Future?,* p. 10.
[706] ibid., p. 35.

objectives"[707]. Others, including Kaletsky, support this need for radical systemic adaptation; to survive there is a requirement for both institutional adaptation and ideological flexibility to create a mixed economy with governments and business in partnership, together with a balance of both competitive and controlled markets[708]. In a similar vein the Yale economist Thurow asks:

> …how does a system that believes it takes competition to make firms within the capitalist system efficient, adapt to a changing environment and maintain its efficiency if the system of capitalism itself has no competition?[709]

Still other Transformists locate the system in environmental terms. Taylor argues that the system problem is its location "in a belief system that does not recognise the need for limits. It is like a car that has an accelerator but no brakes"[710]. Based on the examples above, it is suggested all Transformists explore their concerns about capitalism in systemic terms, and all express the same as evidence of an unsustainable system logic (immanent change), or irreparable damage from its continuation. In a further distinction, Transformists, having articulated the position on system (un)sustainability, advance an alternative system or 'post capitalist' propositions.

Entropic Debt makes Capitalism Unsustainable

The origins of Rifkin's imperative to *'Rethink Adam Smith'* relates to his concern about unsustainable entropic debt. Other Transformists have similar concerns, and while only Christian explicitly echoes Rifkin's thermodynamic thesis, all are concerned about the effect of capitalism on environmental sustainability. Slaughter goes as far as suggesting that "the industrial worldview can in fact be seen as an experiment to discuss how far the (capitalist) constellation of values, ideas and beliefs can go, before they hit their human, cultural and environmental limits"[711]. Similarly, Ehrlich contends the foremost challenge facing humanity is our inability to "face the problems that lie at the heart of two gigantic, complex, adaptive systems; the biosphere and the human socio-economic system"[712]. Tainter, who has explored the effects of *Collapse* in complex societies[713], notes that, while

[707] Wallerstein, *Does Capitalism Have a Future?,* p. 35.
[708] Kaletsky, *Capitalism 4.0,* p. 190.
[709] L. Thurow, *The Future of Capitalism : How Today's Economic Forces Shape Tomorrow's World* (1st edn.), New York, W. Morrow, 1996, p. 3.
[710] Taylor, *Evolution's Edge,* p. 64.
[711] Slaughter, '*The Biggest Wake up Call in History*', p. 182.
[712] Ehrlich & Ehrlich, 'Can a Collapse of Global Civilization Be Avoided?', p. 1.
[713] J. Tainter, *The Collapse of Complex Societies*.

complex societies are historically vulnerable—and this fact alone is disturbing to many—the difference between us and ancient societies is that our world is full and "*nothing can ever happen again without the whole world taking a hand [my emphasis]*"[714]. But perhaps it is Klein, whose assertion is that the economic system is at war with the planet, and that nature will only play by its own rules[715], who almost irrefutably makes the case that it is almost impossible to continue with an economic system that, by design, asserts its primacy over the biosphere.

Immanent limits

The second argument in Rifkin's theorising is one of immanency. It relates to the overreach of success in the system. Among the theorists there are several issues responsible for the system acting against itself. The first is the radical decline in options for growth, and as a result, the ability to accumulate. The second is the destruction of the structures and frameworks that support the system because the system, by commodifying everything, corrupts that on which its existence relies. The final concern relates to the consequences of connectedness, because this makes evident the inequalities inherent in the system to those who have been exploited or marginalised through the activities of the system. In recent times each of these issues is exacerbated by a dominant worldview, inside the capitalist system, known as *neoliberalism* (in reality very conservative economics and philosophy). Neoliberalism, as the Harvard philosopher Sandel notes, now freed from the constraints of liberal philosophy, privileges markets of accumulation and the value of money over everything[716].

As Rifkin notes, while margins are necessary for both growth and accumulation in Capitalism, the current system has a margin's crisis. This is because the opportunity for returns is diminishing, partly because of "declining returns based on our reliance on fossil fuels"[717], and partly because of the emergence of unprecedented levels of sovereign debt. Both effects reduce the levels of financial circulation, thus slowing the nature of the market and limiting, once again, the opportunity to profit from exchange. The effect of this "probable 21st century context of low growth and the potential degradation of natural

[714] Paul Valery, cited ibid., p. 213.
[715] Klein, *This Changes Everything,* p. 21.
[716] Sandel, 'What Money Can't Buy'.
[717] Tainter, *The Collapse of Complex Societies* p. 215.

capital"[718] is that "the next generation will be poorer than this one; the old economic model is broken and cannot revive growth [as we have traditionally understood it[719]], without reviving financial fragility"[720].

This 'returns on capital' crisis is exacerbated by the effect of emerging network technologies. They enable techno-economic paradigm shifts that disrupt not just particular competitive modalities, institutional contexts and cultures, but also they introduce opportunities to access almost zero-cost structures, disruptive innovation (e.g. crowd funding) at the expense of existing players, and new organisational dynamics (lateral v. vertical power). As Perez opines, this time of 'shift' represents the exhaustion of the current mode of wealth creation, whose actors, in the face of revolution will use "embedded habits and institutions [to] act as a powerful inertia force, [one that] must be transformed to enable the next surge"[721]. This, however, is a short-term and limited strategy that only obscures the profound change that a low margins environment engenders.

The third dynamic is the assumption that growth will continue. However, as the economic historian Fischer points out, every previous economic growth model has come to an end, and there is no reason to suggest that this one will be any different. He argues there is no historical basis for suggesting that the laws of supply and demand have ever worked, and that the record of using short-term thinking to fix long-term problems is a dreary run[722]. Moreover, the sovereign debts that developed as a result of the 2008 'Great Recession' have permanently curtailed the ability of governments to invest in growth, when the market can or will not do so. Thus the concept of margins and accumulation face a triple threat: the exhaustion of opportunities within the dynamics that created the Second Industrial Revolution; the emergence of networking technologies that create a techno-economic

[718] Piketty & Goldhammer, *Capital in the Twenty-First Century* p. 540.
[719] In a useful redefinition of growth Hanauer et al in *Capitalism Redefined* suggests it should be reconceived as an evolutionary problem solving system that redefines growth as 'the rate of necessary solution creation' around those issues that are required for global prosperity in the widest sense of that term. H. Hanauer & E. Beinhocker, 'Capitalism Redefined', *Democracyjournal.org* 2014, pp.30-44, ProQuest (accessed 7 December 2015).
[720] P. Mason, *Postcapitalism: A Guide to Our Future*, London, Penguin, 2015, p. 5.
[721] Perez, 'Technological Revolutions and Techno-Economic Paradigms', p. 200.
[722] D. Fischer, *The Great Wave: Price Revolutions and the Rhythm of History*, New York, Oxford University Press, 1996, p. 253.

paradigm shift; and the need for a low-growth environment to counteract undesirable levels of entropic shift.

Faced with these unfavourable dynamics, the literature suggests the neoliberal mindset has refocused on the monetarisation and commodification of what were previously considered public goods. The contention is that as this neoliberalism intrudes and acquires what were previously seen as public goods (e.g. education, security, health, social welfare, independent arbitration), the stable social fabric on which markets depends (these same public goods) is progressively destroyed, through "the corruption of the [non monetary] ideas the [public] practices properly express and advance"[723]. This corruption also undermines the idea of civil society on which the institutional and economic arrangements were developed. Sandel contends that corruption of the public sphere creates an unsustainable social inequity where

> …people are not truly free to choose and pursue their own values and ends," [thus encouraging] "the rich to act only in their own interest and unwilling to obey… while the poor shackled by necessity and prone to envy are ill-suited to rule[724].

From a systemic perspective the development of economic practices by the rich to avoid the obligations of civic society dismantles parts of the social scaffold on which capitalist modernism has traditionally relied. As the system loses its distinguishing characteristics (this is Sorokin's point) there are only three (non exclusive) possible scenarios: the creation of an even more oppressive, globalised non egalitarian hegemony[725]; the development of unsustainable conditions for human existence on the planet in the near future (circa 2050)[726]; or a rapid evolution into a different civilisational construct.

If this inequity continues and is taken to its extreme conclusion, and has already occurred in many developing countries, then as the British economist Picketty asserts: "there are no rational spontaneous processes to prevent destabilising non egalitarian forces from

[723] Sandel, 'What Money Can't Buy', p. 119.
[724] ibid., p. 119.
[725] A. Roy documents graphic and harrowing accounts of inequities and exploitation that are accompanying the commitment to market progress in contemporary India. As case studies they support Sandel's view that freed from constraint (in this case institutional governance that acts as a brake on excess) corruption is both possible and likely. Arundhati Roy, *Capitalism: A Ghost Story*, London, Verso, 2014.
[726] Martin, *The Meaning of the 21st Century.*

prevailing permanently"[727]. This literature suggests that the privileging of wealth over need in civil society creates further inequity and suffering.

Perhaps the greatest tension confronting modern capitalism is that, now those that are on the wrong side of the inequity ledger are not only acutely aware of their situation (through access to mobile technologies[728]), they are not prepared to accept its continuance. The Indian essayist Roy indicates not only don't 'they' (the elite 1%) know our anger could be enough to destroy them, but "we want to put a lid on the system that manufactures inequality" and a "cap on unfettered wealth". This will mean, among other things: an end to cross-ownership; an inability to privatise key natural resources and infrastructures; an allocation of resources so everyone has shelter, education and health care; and perhaps, most controversially, that "the children of the rich cannot inherit their parent[']s wealth"[729]. Dussel, at a systemic level, posits that this rebalancing requires the discontinuance of systems that deprive people of their dignity, *'those who are not'* either within the system or outside of it[730]. The problem is that, by design, Capitalism argues that inequality is good as "this is the natural state of humanity, a bunch of individuals competing ruthlessly with each other"[731]. This is the very antithesis of the Roy/Dussel contention. The difficulty with this 'human as competitor' position is that it is premised on an earlier Western Enlightenment cosmology that presupposed effort and labour (either one's own or others) is semantically interchangeable with 'competition.' However, given the inequality, with respect to capital—which is always more concentrated—is always greater than that with respect to income from labour, this proposition is rapidly becoming untenable[732].

This realisation is likely to be further exacerbated as what we now term 'work' is progressively dismantled through an explosion of technologies, both robotic and algorithmic. These are rapidly replacing human labour, thus creating "superfluous or

[727] Piketty & Goldhammer, *Capital in the Twenty-First Century*, p. 20.
[728] Groupe Speciale Mobile Association estimate that by 2020 over 60% of the world population will be connected through mobile technology, up from just over 50% in 2015. Groupe Speciale Mobile Association, 'GSMA Global Mobile Economy Report, 2015'.
[729] 2011 Speech to the People's University. Roy, *Capitalism: A Ghost Story,* loc. 1083.
[730] Dussel & Mendieta, *Beyond Philosophy: Ethics, History, Marxism, and Liberation Theology,* p. 207.
[731] Mason, *Postcapitalism,* loc. 73.
[732] Piketty & Goldhammer, *Capital in the Twenty-First Century*, p. 244.

displaced humanity"[733]. So severe is this emerging disruption, the contention is increasingly being made that:

> [A] guaranteed income would be a legitimate government policy designed to provide income against adversity and that the need for this type of safety net is the direct result of the transition to a more open and mobile society where individuals can no longer rely on traditional support mechanisms[734].

Consistent with Rifkin's theorisation, inequity is therefore amplifying inequity, and in global dialogues there seems little interest by both those who benefit from the system, and those who are fixated on benchmarks of national growth, to explore such concerns at a systemic level. In order for a global inclusion in this emerging dialogue, it needs to exist outside of frameworks that privilege modernity, where most global power resides.

The scale and scope of systemic issues is therefore of such magnitude that "if Capitalism is to survive, it needs to do what its own internal logic (and this is precisely Rifkin's point) says it does not have to do"[735]. It needs to: find a way to limit the system to a scale that the planet can accommodate; set aside rapidly increasing sovereign and private debt; focus on the development of processes that reduce rather than create inequity (which means a transfer of wealth from the very wealthy and limits to the process of accumulation); and accept that little or no growth is a likely future condition. While this is treated as unlikely and utopian, the system will continue to perpetuate itself unless there is a viable alternative; one that not only addresses these system issues, but offers something more. This alternative is generally known as post capitalism.

The Post Capitalist Option

As Rifkin's articulation of his current (evolutionary) understanding of post capitalism architecture has been detailed earlier in this thesis, what remains unresolved is the support that it has. Two issues in particular serve as useful points of reference for considering this support: changes in the dynamics of economic and power relationships, and a repurposing of markets from accumulation to exchange.

---

[733] Dussel & Mendieta, *Beyond Philosophy,* p. 69.
[734] Ford, *Rise of the Robots,* loc. 4171.
[735] Thurow, *The Future of Capitalism,* p. 16.

Rifkin contends that a reconstitution of the relationships between the actors is central to the post capitalist proposition of how value is created and captured. In post capitalist literature there is explicit support for the proposition that in the current market accumulation model the emphasis is hierarchical, one of control of labour and capital, whereas in the post capitalist system the emphasis is on participation and sharing. This is what Rifkin terms privileging of collaboration over competition. Kostakis and Bauwens describe it as "a model where the relations of production will not be in contradiction with the evolution of the mode of production"[736]. This is now possible because network technologies enable socio-technological arrangements that are not only able to compete (and often outperform), in terms of transaction costs with hierarchical entities, but by design they create a framework for social as well as personal benefit.

The explicit rejection of the mechanistic model permits the development of relationship webs that are unconstrained by previous modes of control as "there is a structural connection between the key defining properties of commons-based peer production and the possibility of engagement in creative, autonomous, benevolent and public spirited undertakings"[737,738]. The viability of such networks also provides for the development of alternatives for those Dussel describes as *they who are not*. It allows:

> ...an internal exodus by which the autonomous production of social life is made increasingly possible (with non cooperation with the dominant capitalist model) and an outer movement that can muster resistance and strike at the heart of power[739].

This different arrangement also reconfigures the investor-producer-consumer relationship; what Rifkin terms *prosumers*. These are either citizens or consumers who have an active role in more than one aspect of the value creation process (hence *pro*sumer) whereas typically, involvement has been only at the point of purchase. Depending on the nature of the value creation process this relationship may focus on how work is done (as exemplified

[736] Kostakis & Bauwens, *Network Society and Future Scenarios for a Collaborative Economy,* loc. 565.
[737] The recent launch of a project to extract honey from hives without disturbing the bees (*Flow Hive)* is a prime example of this nexus between the value offering and the relations of production. Source: http://www.wired.com/2015/02/flow-hive/.
[738] H. Nissenbaum & Y. Benkler, 'Commons-Based Peer Production and Virtue', *The Journal of Political Philosophy,* vol. 14 no. 4, 2006, pp. 394-419 p. 409.
[739] J. Ramos, 'Deep Democracy, Peer to Peer Production and Our Common Futures', *Futura*, vol. 31, Finalnd, 2012, p. 9.

in 3D printing[740]), where and how consumers can give as well as receive (evident in smart grid power production[741]), or in decision making (e.g. by investing and then buying particular types of music they like). It is also encouraging a radical rethink in how services like health are delivered[742]. "The consequence is a new decentralisation of organisation whose base will, in chosen and spontaneous groups, fulfil certain functions and whose membership will be overlapping and not exclusive"[743]. The attractiveness of the 'prosumer' archetype is near-zero information sharing costs; little fixed cost prior to production; the ability to customise rather than prototype; no waste, 'just in time' production; and the development of relationships that encourage innovation. In essence it is a disruptive logic that redefines value creation in ways that privilege economies of one over scale[744]; can be conceptualised as a 'space of flows' across a multitude of public good and private interactions; and distributes control among the actors in a manner that encourages collaboration rather than advantage. Finally, the significance of this technology-relationship congruence in a post capitalist model is that it provides a platform, consistent with Rifkin's theorising, through which critical environmental, social and economic issues might be addressed.

One of the dearly held mythologies of the capitalist model is that the market is a neutral, non-value driven 'invisible hand.' Proponents of markets for exchange, not accumulation, differ. They argue current markets are capricious, ownership-centric and exhibit all the system tensions described above. Instead they propose new models of cooperation (microfinance, co-operative infrastructure, decentralised energy[745]) that operate in pseudomorphic-like arrangements within the existing system as prototypes of market commons. These Commons, manifestations of lateral power, are potentially spaces that "provide opportunities for virtuous behaviour, ones that are more relevant to virtuous individuals and (therefore) the practice of effective virtuous behaviour may lead to more

[740] I. Petrick & T. Simpson, 'Point of View: 3d Printing Disrupts Manufacturing: How Economies of One Create New Rules of Competition', *Research-Technology Management,* vol. 56 no. 6, 2013, pp. 12-16.
[741] S. Karnouska, G. Da Silva & D. Ilic, 'A Survey Towards Understanding Residential Prosumers in Smart Grid Neighbourhoods', 2012, Proceedings, Innovative Smart Grid tecnologies Conference, Third IEEE PES International Conference, Oct. 2012, available at http://ieeexplore.ieee.org/. (accessed 22/09/2015).
[742] Tapscott & Williams, *Macrowikinomics,* p. 180.
[743] K. Gajewska, 'Peer Production and Prosumerism as a Model for the Future Organization of General Interest Services Provision in Developed Countries: Examples of Food Services Collectives', *World Future Review,* vol. 6, no. 1, 2014, pp. 29-39, p. 32.
[744] Petrick & Simpson, 'Point of View: 3d Printing Disrupts Manufacturing', p. 13.
[745] Kostakis & Bauwens, *Network Society and Future Scenarios for a Collaborative Economy*, loc. 1114.

people adopting these virtues as their own"[746]. These are, as Wallenstein suggests, one of the alternatives for a world in a period of structural chaos[747]. They point to a future where the rights of the group, as well as those of the individual, are a permanent feature of society. This evolution of post capitalism is not simply the adaptive evolution of capitalism as propounded by Kaletsky[748], Picketty[749] and Bryjolfsson[750], and one that Rifkin in earlier works termed distributed capitalism. Rather, it represents a systemic break, an acceptance that the model has little adaptive capacity left. It makes available through access models what previously could only be owned, be that physical property or knowledge. What emerges, Mason describes as "new forms of society that (through networks) prefigure what comes next"[751], and Rifkin characterises as ' zero marginal cost society' that can take the human race from an economy of scarcity to an economy of abundance over the course of the first half of the twenty-first century"[752].

Social Morphology and the Third Industrial Revolution

The shift *from markets of accumulation to markets of exchange* changes the form and shape (social morphology) of economic activity and provides the platforms that may enable the realisation of post capitalist economies. It is one of a number that assist in understanding both the nature and effect of a Third Industrial Revolution, for as Oswald Spengler opines, "all modes of comprehending the world may in the last analysis be described as morphology"[753]. In Rifkin's cosmology he asserts that as energy infrastructures and communications technologies disrupt established norms, they force a change in human consciousness and the social arrangements that reflect those particular conceptions of time and space[754]. It therefore follows that a Third Industrial Revolution by definition will do the same thing and that the morphology apparent in either the process of revolution (pseudo-morhposis), or as a consequence of the transition the revolution defines, will be systemically different from the conceptions that preceded it. Furthermore, as has already been established, to be successful, two system conditions of this future

[746] Benkler, 'Commons-Based Peer Production and Virtue', p. 394.
[747] Tapscott & Williams, *Macrowikinomics,* p. 180.
[748] Kaletsky, *Capitalism 4.0.*
[749] Piketty & Goldhammer, *Capital in the Twenty-First Century*.
[750] Brynjolfsson & McAfee, *'The Second Machine Age'.*
[751] Mason, *Postcapitalism: A Guide to Our Future*, p. xix.
[752] Rifkin, *The Zero Marginal Cost Society,* p. 297.
[753] Spengler, *The Decline of the West*, p. 79.
[754] Rifkin, *The Empathic Civilization,* p. 379.

morphology are necessary. The first is that it must be consistent with living within the constraints of planetary conditions for human existence. The second is that in its scaffolding it must overcome the inclusion/exclusion divide inherent in the nature of modernism, which seeks to exploit rather than accept the constraints of planetary conditions.

Central to the morphology of the Third Industrial Revolution are two relational arrangements that manifest themselves in a range of particular applications (see Figure 5.8). These are the privileging of collaboration over competition and the shift in the power-relationship dynamics from a vertical to a lateral orientation. As has been considered earlier, they are influencing the system conditions for economy, the design of twenty first century infrastructure and the way that societal communication is organised. However they are also changing the social morphology of societies. This includes how humans act together in groups (organisation), the capacity to influence (amplification) and how understandings of reality are constituted (spatially augmented reality). Finally they are also undermining the cultural value of 'ownership' through more attractive access-of use models. Each is a cultural rather than structural manifestation of social morphology[755], for as the futurist Polak points out:

> [T]he relationship between society and culture is not only a structural one but above all it is a dynamic relationship of cultures interacting. Social and cultural patterns grow and develop and change as they mutually influence each other[756].

While this does not suggest that structural manifestations do not affect shape, it does propose that cultural manifestations, deeply embedded in worldviews and mythologies, 'pattern' the process of decision-making when structural issues are being considered.

Collaboration not competition

Perhaps more than anything else the morphology of Collaboration defines the difference with a Modernist worldview, dependent on a mythology of competitiveness. In turn it informs a series of systemic relationship models based on that mythology. As Rifkin observes:

[755] A number of structural manifestations, for instance the Internet of Things have already been canvassed. Others including the emerging Collaborative Commons will be canvassed later in this Chapter (5.9).
[756] Polak, *The Image of the Future*, p. 286.

> [F]or over two centuries, Adam Smith's observation that nature inclines each individual to pursue his or her own individual self interest in the marketplace, seemed the undisputable last word on the nature of human nature[757],

a conception reinforced by Western 'Enlightenment' values and the scientific influence of Darwinism. However, this is now being challenged by alternate mythology, one that argues humans are first and foremost collaborative and co-operative; they are neurologically and socially wired to empathise[758]. Not only that, but there are now the means to realise social, knowledge and market needs (Collaborative Commons) which outperform the competitive model.

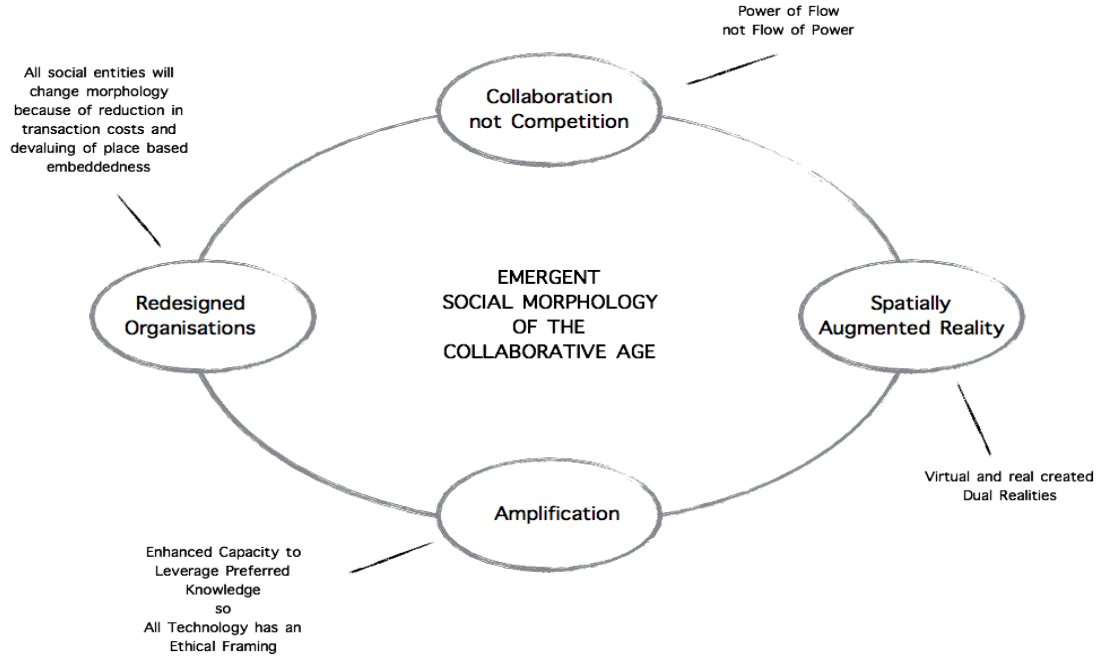


Figure 5.8 Key elements of a Collaborative Age morphology

This new form of relational behaviour marks a turning point in the human journey; one as disruptive to the modern era as the changes from feudalism to the market economy were in the late medieval era[759]. Although they can be subverted, in general, network technologies can only operate where there is more interest in the power of flows than the flow of power[760]. Thus, " at a deeper level the material foundations of society, space and time are

[757] Rifkin, *The Empathic Civilization,* p. 17.
[758] ibid., pp. 87-88.
[759] Rifkin, *The Zero Marginal Cost Society,* p. 24.
[760] Castells, *The Rise of the Network Society*, loc. 11705.

being transformed, organized around the space of flows and timeless time"[761]. This reorganisation creates technological-socio-economic feasibility spaces for co-operative practices that are both viable and distinctly different from industrial models that privilege profit, power and control. This is not socialism as it is currently understood, for socialism has, or had, with the exception of how wealth was distributed, the same morphology as industrial capitalism. Rather, these collaborative commons constitute a "new value model of contributory communities consisting of both paid and unpaid labour, which are creating common pools of knowledge, code and design"[762]. Moreover, a morphology which rewards radical openness (transparency, co-creation and sharing/commons)[763] builds a metabolism and a level of innovation that out-competes industrial competitiveness models, even within the framing of modernity that they privilege.

Organisation Morphology

The morphology of organisations is determined in two ways. Firstly, how they arrange or bundle a particular set of *transaction costs* that determine their coherence. Secondly, the extent to which they have a social licence to operate. The premise is that where this is a number of relationships then entities have *embeddedness* within the communities they relate to. In Transaction Theory, the contention is made that the modern organisation is the size and shape that it is because that is the most efficient way to bundle any given set of transactions. As the Nobel Prize winning economist Coase observed:

> [A] firm will tend to expand until the costs of organising an extra transaction within the firm become equal to the costs of carrying out the same transaction by means of exchange in the open market or the costs of organising in another firm.[764]

But if transaction costs go to almost zero then the rationale for any kind of organisation shape based on such current conceptions of transaction costs offers no advantage. Others[765] have made the point that, while the first wave of transaction cost reduction was used to increase opportunities for growth (the history of the late 20th – early 21st century), in an almost zero future there is at least the possibility of "improvements in productivity while lightening the load on the planet"[766]. While this reconceptionalisation of transaction costs

[761] Castells, *The Rise of the Network Society*, loc. 11851.
[762] Kostakis & Bauwens, *Network Society and Future Scenarios for a Collaborative Economy*, loc. 970.
[763] A. Williams & D. Tapscott, 'Radical Openess', New York, TED Books, 2013.
[764] Coase, 'The Nature of the Firm', p. 395.
[765] The Natural Edge Project, as cited by Taylor. Taylor, *Evolution's Edge,* p. 133.
[766] ibid.

will play an important role in addressing how societies can transition to a more sustainable future while reducing entropic debt, this 'no protection' future will drive a rapid revolution in the morhology of current organisations and an equally rapid emergence of new pretenders.

In recent literature, Transaction Theory has been challenged by what is known as Embeddedness Theory. This maintains that the continued existence and vaibility of an organisation needs to be seen in part through "the contextualization of [their] economic activity within on-going patterns of social relations"[767]. This embeddedness may have cultural shape, a sense of reciprocity and a social capital that through "ways of shared understandings and meaning can give form to an organisation's activity situations, structures and processes"[768]. Under this reading, organisations exist because they have a social licence to do so. It therefore follows that the way an organisation acts is seen as environmentally unsustainable (Masters of nature in action), or only for the benefit of the few (shareholders) to the disadvantage of the rest. It is then possible to argue that in a "new age of networked intelligence (that makes motivation and performance visible) conventional approaches to value creation are rendered insufficient and in some cases completely inappropriate"[769]. However, consistent with the approach to understanding used throughout this thesis, it is suggested that these two theories and their manifestations do not need to be seen in binary opposition. Each has contributed to the morphology of the mechanistic model and each, in turn, defines inflexion points that must be considered by organisations if the *Transform or Collapse* scenario is to be avoided.

The amplification of connectedness

The way information is transmitted and communications are organised is at the core of morphology, because in the networked world, and central to the reframing of societal patterns, are technologies that are characteristically "exponential, digi-mobile and combinatorial"[770]. While the digital and combinatorial aspects are self evident, there are

[767] M. Ventresca, M. Dacin & B. Beal, 'The Embeddedness of Organizations: Dialogue and Directions', *Journal of Management,* vol. 25, no. 3, 1999, p. 319.
[768] ibid., p. 328.
[769] Tapscott & Williams, *Macrowikinomics,* p. 26.
[770] Brynjolfsson & McAfee, *The Second Machine Age,* p. 37.

some implications for morphology in its exponential characteristics. Firstly, Rifkin contends:

> [T]he exponential curve (since 1990) in the capacity to create, disseminate, search for and store information has fundamentally altered the way we live. Much of the human race is connecting with each other on the Internet and sharing information, entertainment, news and knowledge for nearly free[771].

The scale and pervasiveness of this connection was graphically illustrated in recent photos, beamed around the world, of Syrian refuges taking 'selfies' on the shore of Europe, no doubt to let their families know that they had succeeded where others hadn't.[772] Secondly, exponential connectedness has the capacity to *amplify* anything and everything. Toyma in *Geek Heresy* argues that the capacity or process to amplify is at the design heart of new information and communication technologies. He suggests that technology in itself is not a solution (a point made elsewhere in this thesis); it is merely a method that amplifies what already exists. So keen learners through technology have more learning opportunities, self-promoters have more places to promote and avid socialisers have more possibilities to socialise (or ostracise). While amplification can be used for purposes both good and bad, how we choose to use it is ultimately up to individuals and societies. Social change is about rearranged relationship dynamics, not the technology that enables them. However, "even when it is evenly distributed—it isn't a bridge [for all to access] but a jack [for the few to use for leverage]. It widens existing disparities"[773]. The challenge, though, with the pervasiveness of the technology is to change who has access to the lever (jack). Anyone who is interested can be informed about the nature of disparity even at a granular or personal level if they wish. There are two important implications of this amplification. The first is that there is now *amplification of the knowledge of difference and disparity,* and it is unlikely that reactions to the consequences of that wider knowledge sharing can be ignored any longer. The second and consequential implication is that the construction of all morphologies, especially communication and information technologies has, as always, an ethical framing, "even when (that technology) is anti-ethical or refuses to assume some sort of ethical position in the name of some sort of scientific (or technological) objectivity"[774].

---

[771] Rifkin, *The Zero Marginal Cost Society,* p. 80.
[772] CNN photo of refugees from Kabani, Syria on arrival in Greece. Source: http://i2.cdn.turner.com/cnnnext/dam/assets/150825135943-13-selfies-0826-restricted-super-169.jpeg
[773] K. Toyama, *Geek Heresy: Rescuing Social Change from the Cult of Technology,* New York, Public Affairs, 2015, p. 49.
[774] Dussel & Mendieta, *Beyond Philosophy,* p. 15.

Spatially Augmented Reality

Another consequences of powerful and ubiquitous technology is an increasing merging of virtual and physical worlds to create spatially augmented realities, where the distinction between the physical and the virtual either disappears, or is obscured. As Rifkin notes, such realities are now commonplace in medicine (haptics), design (3-D Cam architecture), education, meetings of many kinds (making geography irrelevant), and will soon be part of some retail experiences (virtual blurs with real).[775] Thus far, there has been little theorising of the field, even by Rifkin, beyond the technology challenges this convergence poses. However, as was noted earlier, increasingly our machines are becoming us; an extension of how we see ourselves; an *Appartgeist* that was never intended when the technologies were created[776]. This techno-human identity means that what is understood as real is increasingly defined and influenced by the capacity, interest or otherwise of users to distinguish between physical and virtual worlds on the one hand, and an increasing fascination with transplantation where "the technology is becoming assimilable, a kind of nourishment for the human race through dynamic inserts, implants and so on,"[777] on the other. MIT researchers describe this as a state of *dual reality* where "browsing the real world in a ubiquitous universe, (where) unconstrained by physical boundaries, users through digital omniscience can fluidly explore phenomena at different locations and scales"[778] .

Moreover, this *dual reality* is bi-directional – just as sensed data from the real world can be used to enhance the virtual world, so too can sensed data from the virtual world be used to enrich the real world.[779] While some dismiss this *dual reality* as fanciful, concepts like the Collaborative Commons, crowd sourcing and immersive environments (sometimes known as synthetic ecologies) are exactly that[780]. They represent a shared non-physical construct,

[775] Rifkin, *The Zero Marginal Cost Society.*
[776] Op cit. Katz, 'Mobile Phones as Fashion Statements'.
[777] A. Styhre, 'Knowledge Management and the Vision Machine: Paul Virilio and the Technological Constitution of Knowledge', *Knowledge and Process Management,* vol. 13, no. 2, 2006, p. 85.
[778] J. Paradiso & J. Lifton, 'Dual Reality: Merging the Real and Virtual', *FaVE 2009, First International Conference on Facets of Virtual Environments*, Steigenberger Hotel Berlin, Germany, Springer-Verlag, 2009, p. 1.
[779] ibid., pp. 1-2
[780] "An immersive decision environment refers to the synthetic technological environments that by way of virtual reality immerse an individual (or group) in a synthetic world to aid decision making. The immersive environment can be thought of as a synthetic ecology." B. Pierce, et al., 'Training Robust Decision Making in Immersive Environments', *Journal of Cognitive Engineering and Decison Making,* vol. 3 no. 4, 2009, p. 332.

in conception and nature. There are, though, concerns about this new dualism. Some worry that a new collectivism or hive mentality is developing, one that emphasises the crowds over the individual and is changing what it means to be a person[781]. On the other hand, such worries might concentrate in the mentality of the few who, in their desire to escape the threat of the crowd, simply fail to grasp the scope, promise and imperative that this shift in morphology implies. The challenge in this time of transition is that how the consequences are assessed and framed depends on the vantage point and interests of the interlocutors.

New morphologies inspire new narratives

The morphology of network dynamics, lateral power, access rather than ownership, additive manufacturing, amplifications, spatially augmented realities and collaborative relationships establish different understandings about how time and space is constituted. Practical examples of their successful adoption now form part of the contemporary litany of the future, and all are considered within Rifkin's theorising. In the process, they enable technologies, practices, structures and new systems that not only have the potential to obviate many of the deficiencies in modernism, as it confronts its own systemic insufficiencies, but also frame the journey of alternative mentality creation. As this morphology evolves, it provides a set of explicit images around which transformational narrative can occur. This is turn nurtures both new mentalities (which may include neglected or overlooked existing ones) and mythology, that will form a new kind of sustainable society which, unless there is catastrophic collapse, cannot be stopped[782].

'Postnormal' Philosophy and Revolutionary Shift.

The development of new forms of economy (post capitalism), a reconceived infrastructure and a different social morphology will reframe what we believe (philosophy), and in turn, that will be reflected in the ways societies constitute themselves. This need for a different way of thinking impacts on another of Rifkin's second order arguments; namely that an empathic shift is a necessary condition for, and a likely consequence of, the Third Industrial Revolution and an emerging Collaborative Society. As has already been

[781] Tapscott & Williams, *Macrowikinomics,* p. 361.
[782] Taylor, *Evolution's Edge,* p. 241.

asserted, it is questionable whether the former is sufficient if there is no coherent philosophy or sense of 'presence' to accompany it. It will be argued here that while a 'postnormal' coherence is still evolving, there are important fragments of what might constitute a Collaborative Age philosophy both in Rifkin's works and those of other contemporary theorists. These include: our planetary empathic sense of self and our relationship with the rest of the planet; positionings beyond the ideologies of capitalism and socialism; the conceptualising of global decision-making arrangements that escape the confines of self-interested nation states and modernism; and the architecture of relational sensibilities (values) and behaviours that are a prerequisite for a functioning networked, lateral commons future.

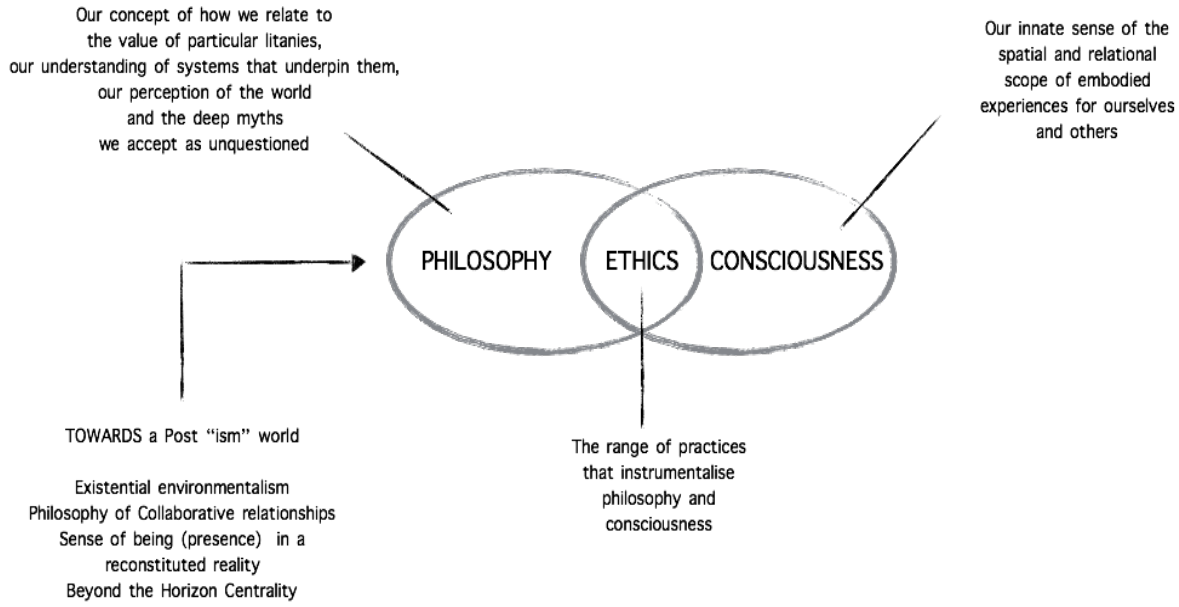


Figure 5.9 Showing the fusion of philosophy, consciousness and ethics and key elements of a postnormal philosophy

While there are numerous opinions and debates about what is meant by 'philosophy' and 'the philosophy of history', the definition used here is a causal layered extension of Runia's concept of *presence*, that is, "being in touch with reality, a concept just as basic as meaning"[783]. In an extended definition, *presence* might be characterised as *'being in touch (in a relational way) with multiple layers of reality that enable a person or community to discern both continuity and discontinuity, in ways that may be formally codified or not.'*

[783] Runia, *Moved by the Past,* loc. 1150.

This 'being in touch', or 'being-ness', is nonsubjective in the sense that it requires consciousness and ethics, and situation to be expressed (subjective). When combined with our consciousness (our comprehension of embodied experiences, codified by our spatial conception of what is important), we then develop "explanations (reality making) of how everything relates together"[784]. This, Rifkin terms 'truth.' But perhaps, more accurately, Rifkin's 'truth' is better characterised as 'ethics' in the way Foucault defines it; "the whole range of practices that constitute, define, organize and instrumentalize the strategies that individuals in their freedom [acting alone or in a collective] can use in dealing with each other"[785]. As Figure 5.9 suggests, the ethics, or the principles of behaviour, that emerge from this fusion of philosophy and consciousness are the only means to guide us out of the postnormal impasse[786].

The philosophy of existential environmentalism

While the sense of self and the nature of the relationship of humans to the planet is nominated by Rifkin as a question of empathic consciousness, it might also be considered as a question of existential philosophy, given the potential scenario of imminent collapse (circa 2050). In confronting 'the planetary entropic abyss' Rifkin argues humanity must eschew the mechanism of the Industrial Age and an associated worldview that asserts the primacy of humans over nature, and replace this with an ecological 'near climax' philosophy; one that promotes an existence that is "self perpetuating and in equilibrium with the physical community. That is, it is not unstable or developmental and its annual 'production and import' is balanced by the annual community consumption and export[787]". This constitution of the self within an existential (*Transform* or *Collapse*) frame is explicitly the contemporary societal model of being-ness[788]; a Foucauldian 'apparatus' that in some way has "the capacity to capture, orient, determine, intercept, model, control or secure the gestures, behaviors, opinions or discourses of living beings[789]". As a philosophical foundation it requires humans to forgo their 'experienced present' and embrace both a pathway (*the becoming*) and a destination (*the become*), for which there are

[784] Rifkin, *The Empathic Civilization,* p. 155.
[785] J Faubion, 'Towards an Anthropology of Ethics; Foucault and the Pedagogies of Autopoiesis', *Representations,* vol. 74, no. 1, 2001, pp. 83-104.
[786] Sardar, 'Welcome to Postnormal Times', p. 442.
[787] Eugene Odum, in Rifkin, *The Empathic Civilization,* p. 495.
[788] Ricoeur, *Time and Narrative*, vol. 1, p. 84.
[789] Agamben, *"What Is an Apparatus?" And Other Essays*, p. 22.

no precedents except at a folk-politics level. It requires a substitution of the language of the machine and the economy of fire, with conceptions of ecology and the metaphors of biology. Above all, it considers reality beyond the external, where the human person, in their uniqueness and totality, can consider "the possibilities of what it means to be authentic and genuine in the face of the great modern drift towards a standardized mass society," a society that dwindles that totality to a shadow and a ghost[790].

Post 'isms' in the Postnormal

This reframing of the relationship with the planet should not be considered as some kind of reconstituted socialism, for it, liberalism, nationalism and many other 'isms' not only have mechanism at their core, but they promise that their 'ism' is best suited to deliver a constituted normal: what is simple, orderly, consistent and certain. However, as Srnicek and Williams point out, socialism has expended whatever legitimacy it might have had to produce any kind of 'normal', as its traditions have crumbled under the onslaught of neoliberalism. In its place, a hollowed out alternative left has emerged "predicated on critiques, verticality, exclusions, and institutionalism"[791]. Nor can this emergent ideological space be thought of as either an arcane extension of postmodernism, where the unmasking of the illusions of ideology is the central plaything, or as a "masking device of a post-ideological age—a screen constructed by a motley collection of different groupings intent on their own vision of hegemony"[792]. While some writers, including Freeden, have maintained that contemporary ideology will remain and evolve, albeit in different ways as a result of cultural decentralisation, a future philosophy cannot, under any conditions, reflect this position, because the constructions of time, form and space integral to these previous ideologies no longer exist, or have been severely eroded. It is increasingly difficult to sustain the fiction of 'normal' as a system condition. In other words it is simply not possible to have a networked and collaborative (postnormal) society coexisting with philosophies of control and centralisation (a normal that no longer exists). Which will prevail in the medium term is entirely dependent on which of the *Transform or Collapse* options global humanity chooses. Thus a 'postnormal' ideology describes a new

[790] W. Barrett, *Irrational Man: A Study in Existential Philosophy*, New York, Anchor Books, 1990, p. 32.
[791] N. Srnicek & A. Williams, *Inventing the Future: Folk Politics and the Struggle for Postcapitalism,* Brooklyn, NY, Verso Books, 2015, loc. 401.
[792] M. Freeden, 'Confronting the Chimera of a 'Post Ideological' Age', *Critical Review of International Social and Political Philosophy,* vol. 8, no. 2, 2005, pp. 247-62.

philosophy (or perhaps (re)discovers an existing one[793]), that endogenously either generates or reflects new political, cultural and economic 'life worlds' that emerge from peer to peer, post capitalist and other collaborative practices"[794]. Philosophically it moves the loci from one of control to one of transition; where the lessons from mistakes are shared and "everything above is disrupted"[795]. As this occurs, new cognitive maps and narratives are required to support complex thinking, where, as Dussel's interpretation of Marx suggests, the value of the labourer, or the oppressed, or the controlled is not controlled or owned by the other[796].

Being-ness or Presence

If modernism is at the heart of the capitalist construct, then a 'postnormal', existential philosophy needs to explore the being-ness space beyond modernism, and its institutional vehicle—the nation state—through which modernism is expressed. Ateljevic characterises this philosophical evolution, articulated by writers including Luyckz, Dussel and Venn, as *Transmodernity*, a philosophical position beyond the deconstruction of the postmodernists. Ateljevic's Transmodernity is defined as a globalised culture of interconnectedness, participation and emancipation, in which cosmopolitanism transcends universality by spreading differences beyond their traditional location, while communicating values that human beings require to make synergistic decisions in all of their activities[797]. Leaving aside the concern that the very term 'transmodern' locates the concept in a particular referential relationship with modernism (hence the preference for postnormal), the ethos it explores is not a global sameness, designed to reflect colonialist Western traditions, rather, it is a new sentiment; a creative mix of the rational and intuitive, divorced of reciprocal expectation and conditional responsibility[798]. In its manifestations it must embrace new information technologies, actualising a move away from vertical to horizontal organisation and above all recognise that human beings are the dominant actors in their own future evolution. Dussel in particular aligns the postnormal with a shift in empathic consciousness. He argues that the nature of the human condition demands a new age with a

[793] Inayatullah and others would argue that many of the central philosophies of a postnormal future have already been expressed in Sarkar's PROUT and other writings.
[794] Ramos, 'Deep Democracy', p. 8.
[795] Mason, *Postcapitalism,* p. 288.
[796] Dussel & Mendieta, *Beyond,* p. 9.
[797] Ateljevic, 'Transmodernity', p. 39.
[798] Luyckx, 'The Transmodern Hypothesis', p. 973.

rational, but mythical narrative, that confronts our consciousness with *the totality of the real* and our interpretation of *ultimate foundations.* This confrontation requires a new inter-philosophical dialogue among the communities of the post-colonial world, where future generations empathise with, and move towards, a transmodern pluriverse[799].

Part of this necessitates a philosophical substitution of the three pillars of the nation state raison d'etre: sovereignty, growth and the protection of the institutional arrangements that privilege market capitalism. These nation states, in Gramscian terms, are the forward trenches behind which stand strong emplacements, including capitalism's ability to grant reforms[800]. But the 'forward trenches' are themselves under systemic threat because, as Wallerstein points out, a variety of collusions (cartels), avoidances and crime, or militaristic entities, operate in ways that either exceed or ignore the "official system of nation states and capitalism"[801]. Resolution of these 'outside of sovereignty' questions can only occur if nations agree to co-operate and standardise in ways that reduce the nature of sovereignty as it is constituted. For instance, for governments to actually benefit from economic activity in their domains there needs to be an agreed method of "globally consolidating profits in a way that cannot be manipulated"[802]. Similar levels of agreement will be required to resolve the emerging demand-constraint dilemma. That is, there is a projected 50% increase in demand for food and energy, and 30% increase in demand for fresh water by 2050, within a set of environmental conditions (soil fertility, available fresh water and changing climate) that cannot sustain even current requirements. This suggests a fundamental reframing of conceptions of growth and the systems for food production across the planet are required[803]. But as Rifkin notes, the success of the Internet of Things and the evolution of the Commons economy lies principally in the development of self-governing norms, which millions of players agree to as a condition for their participation[804]. As this self governance emerges, and in the likely scenario that nation states, especially those at the center of modernism, fail to act in any other way than their own sovereign interests (which they are systemically designed to do), then the willingness

[799] Dussel*, 'A New Age in the History of Philosophy,* p. 514.
[800] Gramsci & Forgacs, *The Gramsci Reader* p. 227.
[801] Wallerstein, *Does Capitalism Have a Future?*, p. 168.
[802] G.Zucman, T. Lavender Fagan, & T. Piketty, *The Hidden Wealth of Nations : The Scourge of Tax Havens*, Chicago, The University of Chicago Press, 2015, loc. 1422.
[803] G.Poppy et al., 'Food Security in a Perfect Storm: Using the Ecosystem Services Framework to Increase Understanding', *Philos Trans R Soc Lond B Biol Sci,* 369/1639 (Apr 5 2014), 20120288 p. 1.
[804] Rifkin, *The Zero Marginal Cost Society,* p. 257.

of populations to philosophically support their perpetuation will continue to erode.

The Philosophy of Network Relationships

Being-ness, therefore, is the relational expression or instrumentalising of emergent ethics, consciousness and philosophy. It is how we (and there are multiple ways to define the 'we') explore and frame what is understood by reality, which in the collaborative context is more likely to be partnership (Eisler's gylany) than domination-centric. At one level it does not matter if that being-ness is ascribed to any one of these three, given that such distinctions are often academic in nature and designed to privilege whatever system of thought is being promoted[805]. With respect to the Third Industrial Revolution and an emerging Collaborative Age, being-ness revolves around the nature of participation in society and economy on the one hand, and instrumentality of mass media on the other. The capacity to create shared awareness through a variety of applications on devices that are agnostic in nature, underscores the conservative dilemma[806]: how to control the processes of message creation and dissemination. Through intrinsic design, new media and devices provide a hegemonic challenge to modernism, for as Dussel notes:

> [T]he machinery of mass media makes it possible for us to receive views instantaneously about other cultures...it will make possible (for those who are not) to transcend the Euro centrism of modernity which impedes creativity and often obscures the discoveries achieved by other great traditions[807].

As the technology, and the content created by that technology, diffuses, the traditional centers of information power (the USA, Europe and more recently China) will rapidly lose both their practical and moral authority and the cultural biases inherent in their technology design[808]. This diffusion provides unconstrained opportunities for collaborative forms of production based on reciprocal benefit, the capacity to create organisation arrangements unconstrained by the preferred structurres of a centralist capitalist model, and, more significantly, relationships outside of the permission of the establishment, which are deeply democratic in ways that representative democracy never could, or never will, be. Philosophically this 'deep democracy' involves participant-defined (shallow, spontaneous, occasional)

---

[805] G. Priest, 'What Is Philosophy?', *Philosophy,* vol. 81 no. 2, 2006, p. 206.
[806] C. Shirky, 'The Political Power of Social Media', *Foreign Affairs,* January/February, 2011, p. 36.
[807] Dussel*, 'A New Age in the History of Philosophy: The World Dialogue between Philosophical Traditions',* p. 500.
[808] M. Castells, 'Communication, Power and Counter-Power in the Networked Society', *International Journal of Communication,* vol. 1, 2007, pp. 238-66.

> ...levels of engagement with peers, in deconstructing and reconstructing the way we live, our behaviors and our social systems at every level, from the political and the cultural to the economic. This is fundamentally about building another possible world with diverse others,[809]

while at the same time affording those same opportunities for participation to those whose values are diametrically opposed to the relational philosophy being promulgated. The Third Industrial Revolution therefore, in the ways that it reconstitutes our sense of time, form and space, is fundamentally a 'philosophy of relationships' revolution, where no particular kind of relationship model can of itself exert power over any other.

Beyond the Horizon Identity

If it is accepted that a particular system is beyond its limits, and that any adaption it contemplates is insufficient for the challenge presented, then the only option beyond the chaos of unending disintegration is to create a different system; an identity that is beyond the horizon of the present system. Rifkin maintains that this is possible with an unswerving commitment, "given historical comparisons and present trajectories"[810]. Further, he asserts, his articulation of a Third Industrial Revolution and his emergent narrative of a Collaborative Age provides the logic for this different system and the reconstitution of identity, at both an individual and a group level. Consequently, this contemporary *asabiya* reflects and merges multiple identities, created from the whole spectrum of embodied experiences: transactions, ties, networks and new groupings[811] that are, within a developing 'super-organism', structural, economic, morphological and philosophical. They are reflected in narratives, some of which are superior in nature, while others instrumentalise necessary action. Three questions are immediately evident which, in their framing, attempt to summarise the theorisation of the Transformists in a holistic or unified way. Firstly, what is it that individuals and groups are being asked to commit to? Secondly, are there any necessary conditions for the creation of a different sense of identity? Thirdly, is Rifkin's narrative and instrumentalisation of action broadly consistent with that of the other Transformists?

---

[809] Ramos, 'Deep Democracy', p. 6.
[810] Rifkin, *The Zero Marginal Cost Society,* p. 297.
[811] Tilly, *Stories, Identities, and Political Change*, loc. 1137.

In Rifkin's cosmology, humanity is now being asked to commit to living within a different context—"an empathic civilization tucked inside humanity"—together with social and personal identities consistent with that context. While *asabiya* is a shared understanding of both in ways that encourage the collective (the emergent super-organism), the first requires a narrative of the future, the second a narrative for self. These narratives of the future frame a shared understanding of the changing context in which identity is constructed. They impose on the past, present and future [one sense of temporality], a particular structure that they in themselves do not have. In this way they mediate our understanding across the three time dimensions, making choices, action and strategy possible[812].

However, as transformational narratives they also reconstitute our shared understandings of other senses of time. Thus, subservience of chronological time gives way to timeless time, tempo changes from space to flow, and the collective awareness of timing is sharpened as humanity determines what duration and level of anthropogenic climate change it is prepared to tolerate. These narratives also go further than consideration of the 'global problematique' to define a number of 'beyond' or 'post' options. These include contentions of: a post-carbon IoT infrastructure, a post capitalist economy, a social morphology of collaboration, beyond modernism governance and institutional arrangements and a philosophy that legitimises them. In sum a different relational model that reorders our collective sense of what it means to be human[813].

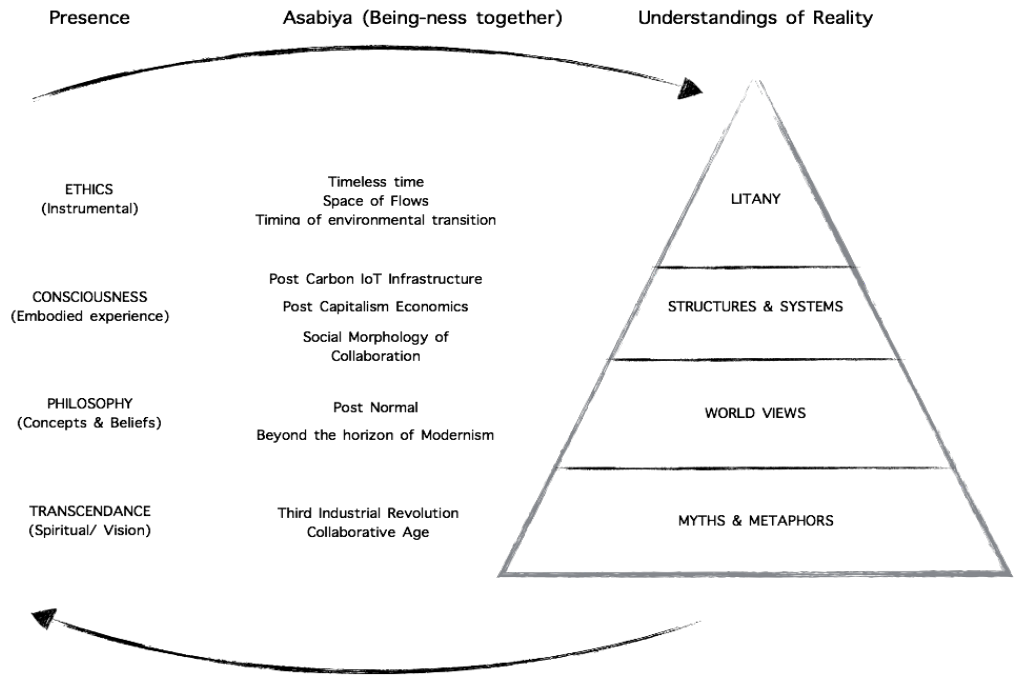
Critical to any consideration of an entirely different context is the emergence of identity that reflects and amplifies an understanding of that context. Hence an agent does not live simply inside themselves, rather they live in a world that is mediated and constructed by the interactions they engage in and the value, or ties, they place on any particular sets of interactions in time and space. Thus *asabiya*, the sinews that bind, is both an explicit and implicit expression, a distillation of both lived and learned expereinces. This *asabiya* is expressed in ethics (how people instrumentalise what they are), empathic consciousness (our embodied experiences framed by our conceptions of time), philosophy/spirituality (what we believe) and the mythologies that both consciously and subconsciously unite all

[812] I. Milojević & S. Inayatullah, 'Narrative Foresight', *Futures,* vol. 73, 2015, pp. 151-62, p. 153.
[813] For Dussel this is *Liberation Theology*, for Sarkar *PROUT*. Both of these have a spiritual basis but for Rifkin it is empathic-centric environmental existentialism. The issue is not one of whose philosophy is ascendant, but how widely dispersed the ideas are.

three. As Inayatullah notes:

> [T]hese deep mythologies provide meaning and vision. They cannot be created simply by intellectuals or somehow just be invented. Rather they come through trauma as we struggle against power – and transcendence as we touch the face of the divine[814].

Set against this interregnum of trauma, where institutionalised vested interests are challenged, the future (see Figure 5.10) is one of postnormal ethics and thinking; a collective, sustainable partnership relationship with the Planet and the Pluriverse; a philosophy of Commons and Collaboration; and a mythology that might be variously titled



The Great Wrong Put Right or *The Third Industrial Revolution*, depending on one's perspective.

Figure 5.10 Showing how a contemporary 'asabiya' is framed within the intersection of Presence and Reality

Contained within these narratives of a changed context and new asabiya are the necessary conditions for the revolution Rifkin espouses. What is not explicit in its future-time orientation, but has been constantly asserted throughout, is that any transformed system cannot be constituted inside the system it is intended to replace. It is therefore post-mechanistic, post-enlightenment, post-colonial modernism, post-fossil fuel energy and post

[814] Inayatullah, *Situating Sarkar,* p. 122.

capitalist. In postulating that "the consciousness of oneself as a being in time is intrinsic to the questioning of oneself as to one's way of being"[815], it requires dialogues that embrace complex thinking, paradoxical reasoning and crowd-sourced creativity, while resisting the temptation to rush to solutions.

Finally, as long as it is accepted that the collective understanding of the Collaborative Age is a work in progress, there is global cross-disciplinary support for Rifkin's central contentions of an unsustainable current system, the revolutionary nature of new energy and communications technologies, and the emergence of transformative and discontinuous social and economic entities. While this consideration of the contemporary discourse has suggested that Rifkin's work is not as explicit as it might be with respect to 'philosophy as a system of beliefs', which underpins this revolution, there is little in his theorising that directly counters it. In many ways one could argue that, despite this objection, Rifkin's entire works are profoundly philosophical. In his final words in the Third Industrial Revolution he opines:

> ...only when we begin to think of ourselves as an extended global family, that not only includes our own species but all of our fellow travellers in the evolutionary sojourn on earth, will we be able to save our common biosphere community and renew the planet for future generations[816].

What is notable is his willingness to evolve and modify his contentions as technologies open up new potential and others contribute to the dialogue. The evolution of his thinking on post capitalism and the integration of his 'five pillars' energy proposition into a wider Internet of Things infrastructure are two cases that illustrate this well.

[815] Venn, 'Altered States', p. 76.
[816] Rifkin, *The Third Industrial Revolution,* p. 270.

CHAPTER 6

INSIGHTS AND EXTENSIONS

> *There is no inevitability to the human sojourn. History is riddled with examples of great societies that collapsed, promising social experiments have withered and visions of the future that never saw the light of day. The possibility of utter extinction is not something the human race ever had to consider before the past half century. The prospect of proliferation of weapons of mass destruction, coupled now with the looming climate crisis, has tipped the odds dangerously in favor of an endgame, not only for civilization as we know it, but for our very species*[817].

As the above quote informs us, in Jeremy Rifkin's worldview, the current human-social experiment is in a race against time. This 'experiment' of consciousness, structure and form either transforms, or it collapses. Within this conditional scenario, Rifkin's normative postulations of a Third Industrial Revolution and an emergent Collaborative Age should be considered as a still evolving, overarching narrative that elaborates and prosecutes a case for transformation. Therefore the central question of this thesis is important for two reasons. Firstly, does Rifkin's narrative have a structural logic that will deliver the transformation he envisages? Secondly, is it an exclusive vision (this or no other), or is it broadly supportive of, and additive to, other normative narratives for contemporary transformation? In exploring these contentions, through macrohistorical and contemporary lenses, a number of insights to Rifkin's narrative (as shown in overview in Figure 6.1) have emerged, together with an understanding of the beginnings of a social morphology of a new Collaborative Age. These understandings have then been used to extend his theory of social revolution.

[817] Rifkin, *The Third Industrial Revolution*, p. 71.

Figure 6.1 Summary diagram of Research Question (Bold) and high level Summary of Understandings

Insights

Consideration of the Third Industrial Revolution and an emergent Collaborative Age has a series of conceptual, contextual and structural characteristics that suggest any given assertion might be as equally valid as its opposite, or both could be true (or not true at the same time, depending on the worldview through which they are interrogated). In navigating this intellectual minefield, the intent of this thesis has been to explore if and how Rifkin's theorisation provides a non-exclusive pathway around what is described as the planetary entropic abyss that confronts contemporary humanity.

Therefore, within the caveat described above, some of the most important insights are as follows:

- The search to understand, rather than 'prove,' reveals layers of meaning that are otherwise unavailable. It suggests a way of framing transformational discourse, be that Rikin's or others. In other words, it voices ways of thinking that are different to those that enabled humanity to arrive at the point where it has now.
- Within Rifkin's advocacy the nature of transformation being considered is civilisation in nature. Thus it needs to be situated within frameworks and theorisation that can contemplate this scope. It is postulated that macrohistory provides such a framework and that its endeavours are by definition holistic, transdisciplinary and speculative[818]. Consequently, this is situated outside of the conventional academic discourse, without denying the validity of that discourse in other circumstances.
- Using macrohistorical frameworks, it is possible to discern seven theories that frame Rifkin's narratives of revolution, a coming Collaborative Age and the nature of transformation (time, form and shape) for contemporary socio-economic arrangements and institutions. The value in identifying Rifkin through a theoretical architecture of this kind is that it makes the discourse of comparison and implication, at multiple levels, both empowering and beneficial. It also democratises the capacity to engage with the process and possibilities the revolution posits.

[818] Although for some, this speculation is informed by the spiritual and is therefore not, in their theorisation, speculative at all.

- What macrohistorians agree on is that every social system (including contemporary society and a proposed Collaborative Age) share design characteristics or patterns that inform how that system constitutes 'reality.' Therefore, exploration of these 'almost nomothetic' patterns (e.g. social systems are finite and time based, and infrastructures frame conceptions of time, form and space) assists in understanding the dynamics of durability (or otherwise) in the present system and the process of revolution (transition) and the nature of transformation as an alternative.
- Rifkin's contentions are consistent with others who write within what can be defined as 'the contemporary transformational narrative.' Further, this group are identifying and developing what might be termed a modern *asabiya*, a sense of being-ness that characterises a future civilisational construct that is different from that which underpins modernism.
- Given that *Transform or Collapse* is a conditional escape it has, associated with it, a number of dependencies. This thesis posits these include: less complex energy regimes; post capitalist socio-economic arrangements that facilitate living within the constraints of the planet; a reconceived and accepted mentality (philosophy and consciousness) that is beyond modernity; and the resolution of tensions between those who are vested in the contemporary condition and those advocating the alternative before overwhelming systemic collapse removes the options (the race between nomotheticism and agency in the 21st. century).
- When these understandings about what constitutes both contemporary and alternative realities are viewed in their unity, they inform a causal layered understanding of social (civilisational) revolution that includes but extends Rifkin's conception of the same.

The search for 'understandings' in the postnormal

It has been maintained throughout this thesis that while there is an underlying unity to all physical and mental reality, the sense of how reality or meaning is constituted is both multilayered and contextual[819]. This has both vertical (layered) and horizontal (different)

[819] The quantum physicist Bohm explores this is some detail in D. Bohm, 'A New Theory of the Realtionship of Mind and Matter', *Philosophical Psychology,* vol. 3, no. 2, 1990, pp. 271-86.
So does Sarkar with his conception of Microvita. Microvita are entities (smaller than electrons) that are mediators of cosmic intelligence, responsible for the creation and evolution of other living beings in the universe. Fitzgerald & Inayatullah, *Transcending Boundaries*, p. 169.

dimensions. Furthermore, multiple senses of reality, including virtual realities[820], can co-exist at the same time, altering our conception of time, form and shape in the process. If this is the case, then the concept of a Third Industrial Revolution and a Collaborative Age need to be explored and defined through such layering, a process Inayatullah has described as Causal Layered Analysis[821]. However, any exploration cannot simply be confined to the content under consideration, it also needs to surface unexamined assumptions of the context in which this content is situated. This includes what is understood by normality, what thought processes or logic models are privileged , and what is meant by 'understanding'.

Considerations of the validity of the Third Industrial Revolution assertion depend upon the framing within which it is considered. If it is contemplated within a discourse that privileges a modernity-centric 'normal' (that aspires for the simple, consistent, orderly and certain, but often in the process creates the complicated) its postulations will be used to improve the existing system On the other hand if they are considered in a 'postnormal' context, which assumes complexity, chaos, contradiction and uncertainity then the prospect of transformation to a completely different system is at the centre of the discourse. It is asserted that the nature of global interconnectedness and the systemic interrelatedness of environmental challenges require a privileging of the latter in considering the Third Industrial Revolution, together with thought patterns consistent with the postnormal framing described above[822]. It is further contended that applied and empirical approaches to understanding the Third Industrial Revolution would confine examination to a 'scientific' model (a prescribed set of 'normal' layers of reality) of understanding that is inappropriate for this purpose, as it presupposes notions of proof and evidence that simply cannot be met, and that such understandings are situated in the 'normal' which arguably no longer exists. Therefore, as asserted earlier, understanding through comparative, translational, framing, phenomenological, postmodern structuralist and 'beyond discourse' approaches have been preferred throughout this thesis. As Figure 6.2 suggests these different kinds of understanding privilege particular types of discourse, all of which are valuable in discerning the contentions and patterns embedded in Rifkin's thesis.

[820] Castells, *The Rise of the Network Society*, loc. 877.
[821] Inayatullah, *Causal Layered Analysis.*
[822] Sardar, 'Welcome to Postnormal Times'.

Approach	Method	What the discourse privileges
Comparative	Comparison across categories	Enables comparison with the rise and fall of large social systems over time. Enables comparison with other kinds of revolution (event-based, technological).
Translational	Translate into alternative traditions	Examines how the Third Industrial Revolution needs to be conceptualised, beyond the horizon of modernity (Sarkar, Dussel, Sardar) and the postnormal.
Framing	See through eyes of various systems/disciplines	Explores revolution through the lens of energy complexity and the paradigmatic shift caused by disruptive infrastructures Frames shift from vertical to lateral power arrangements
Phenomenological	How writers /ideas constitute their world	Assists in defining the social morphology of the Collaborative Age and pseudomorphic statement of identity Considers the nature of post capitalist possibility
Postmodern Structuralist	What world views are privileged and reality constructed	Highlights how senses of time, form and shape frame 'socially accepted' reality. Distinguishes the mechanism of the contemporary from the networked organic in the Collaborative. Provides basis for CLA interpretation of nature of social revolution.
Beyond discourse	Ensures spiritual not reduced to relative	Explores how a future consciousness and philosophy might evolve in a future pluriverse. Provides acceptance of space for the other that extends beyond human-centric thought.

Figure 6.2 Showing types of understanding used and summation of what they privilege in the context of Rifkin's Third Industrial Revolution thesis

As the postnormal becomes the de facto new 'normal' way to interrogate most issues and challenges, it is suggested that consideration be given to exploring which particular ways of understanding, and what frameworks for discourse, will be used, before considering the substance of any particular concern. If this logic mapping is applied to the Third Industrial Revolution, it becomes evident that transdisciplinary and 'interconnected' issues such as

environmental sustainability and future energy infrastructure require complex thinking[823]. Almost paradoxically, this complex thinking is necessary to design outcomes that are less complex than the systems they are designed to replace[824].

It is suggested that this (re)framing of understanding and (postformal) thinking patterns stands in contrast to the Aristotelian logic privileged in contemporary discourse and policy. As society becomes increasingly dependent on artificial or networked intelligence it is worth noting that, they too are binary by design, and are therefore ill-suited to resolving the questions of complexity and paradox that beset contemporary society. There are multiple dilemmas that emerge from this consideration of the postnormal. The first is that most of the knowledge that has been acquired has been constituted within a 'normal' context that no longer exists. Secondly, while the technologies will totally transform society (and currently are doing so), the transformations that make this possible cannot be fully realised through the (same) machine thinking that created contemporary society. In other words both the system itself and the mechanistic philosophy that created the system are at their limits. Finally, if it is accepted that the de facto reality of the 'postnormal' is an essential precondition for both the Third Industrial Revolution and a Collaborative Age, then we are asked to contemplate what this means within framings that few have experienced, and in time frames which require rapid democratisation of the core ideas.

Macrohistory and a Third Industrial (Civilisational) Revolution

It is very clear in Rifkin's narrative that the Third Industrial Revolution as a proposition is civilisational in scale. It is evident in the opening sentence—"our industrial civilization is at a crossroads"—and throughout his later works. It frames a *Transform or Collapse* imperative: "civilizations throughout history have experienced critical moments of reckoning, where they have been forced to change course or face the prospect of demise"[825]. As such, any consideration of his propositions requires an appropriate context within which to consider them. This thesis has argued that the conventional, historical 'event' based, revolutionary model is inappropriate, as the revolutions it contemplates place agency at the center of the revolutionary process[826]. It also postulated that its

[823] Complex thinking involves the capacity to hold multiple perspectives at the same time, search for potential patterns and learn through embracing paradox. Gidley, 'Postformal Priorities for Postnornal Times'.
[824] Tainter, 'Energy, Complexity and Sustainability'.
[825] Rifkin, *The Third Industrial Revolution, p*. 262.
[826] Skopol for example defines revolutions as "rapid transformations of a society's state and class structures" and Goldstone suggests "the processes and outcomes of revolutions are mediated by group identification; networks and

characterisation as a technological revolution of the kind contemplated by Perez[827] is also insufficient, in that the focus of techno-revolution is technological change centric and its disruptive effects are almost always confined to "the rhythm and direction of change in a given technology"[828]. As such, at a macro scale they form part, but not all, of a civilisational revolution.

This need for a framework that considers the rise and fall of civilisations has been the subject of considerable recent academic and popular writing[829]. Because it is multidimensional in scope, it extends beyond a narrative of events and requires consideration of past, present and future perspectives. As Arnason suggests, it must "compare perspectives on [civilizational or cultural] patterns and transformations"[830]. As has been asserted throughout this thesis, 'macrohistorical' thinking provides both the framing and substantive perspectives (through selected macrohistorians) within which to explore multiple understandings of Rifkin's work and to determine if his central contention—that great changes in energy and communications create civilisational shift—is nomothetic in its effect. It argues that, through its scale and ability to embrace complex transdisciplinary thinking, macrohistory provides a foundation for, and has an important contribution to, a contemporary society at the crossroads. In doing so it also challenges a number of conventional 'disciplinary' approaches as they consider issues of the nature and scale suggested by Rifkin.

As outlined earlier in this thesis, Rifkin's work is also rich in metonymy and metaphor, a style of narrative that those who privilege academic conventions of 'critical objectivity' might find disconcerting. This thesis has maintained that not only is this critical objectivity an arguable premise[831], all literary work is essentially narrative[832], and therefore the more accurate question is: what kind of narrative is it? As Tilly suggests, narratives can be

---

coalitions; leadership and competing ideologies; and the interplay among rules, elites, popular groups, and foreign powers in response to ongoing conflicts." Goldstone, 'Towards a Fourth Generation of Revolutionary Theory', p. 140 and 175 respectively.

[827] Perez, 'Technological Revolutions and Techno-Economic Paradigms', p. 186.

[828] Ford's work is a prime example of a 'to be expected' interest in discontinuous technological shift. Ford, *Rise of the Robots*.

[829] Huntington's recent work revived a renewed interest in speculative history as there were few other lenses within which to consider his contentions. This thesis posits the same is true of Rifkin. S. Huntington, '*The Clash of Civilizations'*, New York, Simon and Schuster, 1996.

[830] Àrnason, 'Civilizational Analysis, Social Theory and Comparative History', p. 230.

[831] Dilthey's hermeneutic circle as elaborated in Tappan, 'Interpretive Psychology: Stories, Circles and Understanding Lived Experiences'.

[832] P. Ricoeur, *Time and Narrative*, vol. 2, Chicago, University of Chicago Press, 1985, p. 91.

'standard' (interpretative accounts of selected data), contextual (structural and systemic), or 'superior'[833]. If they are superior (and it is posited that within this definition, Rifkin's are), then they are capable of providing a causal account that can represent the complexity of various layers of reality inherent in the thesis that Rifkin is prosecuting. Critically, Rifkin's narratives make visible, movement through time (including the future) and the senses of temporal existence we have privileged[834], some of which we might have to reject and some we will have yet to adopt.

Conditions for Success

However, using a macrohistorical framing, this thesis has deconstructed Rifkin's narratives into seven theories using CLA as a framework for that deconstruction. It asserts that each of these theories, acting in ways that reinforce the others, provides a logical and coherent, but linear, narrative. It also suggests that these theories (of limits, discontinuous change, stages of history, empathic consciousness, leadership, post capitalism and transformation) explore layers of reality that, while concentrating the gaze on the near future, require consideration of reality that is 'beyond the litany' of that gaze. It is postulated that these considerations reveal a range of challenges and tensions that significantly impact both the transition and transformation Rifkin is proposing.

These include the following:

- The entropic effects (the environmental crisis) of the industrial economy cannot be resolved inside an economic system that privileges 'growth' and 'quantity of life' as prime drivers of society.
- New energy and communication technologies, acting as 'infrastructure', are nomothetic in their nature and influence. As such, they challenge the continuation of mechanism and vertical power, and they privilege post-carbon futures, ecological thinking and collaboration.
- At the core of the (theory of) revolution is a reconception of time, form and space that will have three effects. The first is a contest between competing senses of reality in the short term (mechanism v collaboration). The second is to actualise the design of transformed social, economic and institutional fabric so that it does not recreate the issues that created the 'crisis of limits' in the first

[833] Tilly, *Stories, Identities, and Political Change*, Ch. 3.
[834] Milojević & Inayatullah, 'Narrative Foresight', p. 153.

place. The third will include in that design an accommodation and acceptance of multiple senses of time in a way that no one sense of time is more important than any other, but also in a way that any given sense of time does not imperialise itself at the expense of these others.

- If a shift in the nature of empathic consciousness is fundamental to the success of both transition and transformation—that is, from a psychological (individualistic) sense to a planetary level—then it needs to be complemented by philosophical approaches that are 'beyond the horizon' of modernity: a way of thinking that does not put the Western episteme, nor the role of humans as masters-of-nature, at the center of the discourse. This reconstitution of identity requires a rethinking of 'presence' or being-ness.

Given these challenges, the success of any transition and transformation will consequently be conditional on three dynamics: new kinds of leadership; a different economic model; and the speed of transition. Therefore:

- As a result of the shift from vertical to lateral power, leadership will necessarily become distributed in scope, and both networked and collaborative in nature (a new cosmopolitanism that can be localised). By definition it will privilege partnership over dominator models[835], and because of the nature of partnership, it will have many forms.
- The future will require the development of 'post-capitalist' economic models that replace a contemporary system that cannot either confront the (unsustainable) limits it has created, nor the consequences of zero margins that many technologies now enable. This will see markets of accumulation replaced with 'post-growth' markets of exchange; self-reliant models developing in a revitalised civic sector; and ownership models giving way to 'access and use' models.
- The success, though, of this transition will be conditional on its speed. If it fails to occur in a timely fashion, the entropic effects will rapidly overwhelm whatever progress has been made towards a new Collaborative Age.

[835] Eisler, *The Chalice and the Blade*.

Rifkin's Third Industrial Revolution is therefore conditional. It is an argument that, whilst focused on the near-term future, is binary in its options (*Transform or Collapse*). Consequently, one of the benefits of placing this narrative within the wider macrohistorical discourse has been to identify other possibilities that might be between, or even outside of, the spectrum Rifkin describes.

Patterns in the revolution

Critical to an understanding of possibilities that lie beyond the "in-between period, where very few things seem to make sense" is to search for patterns that frame transformation of the kind Rifkin is proposing. This is what Inayatullah describes as "contouring the parameters of the future possible"[836]. In doing so, there are options to start multiple dialogues in different spaces, and perhaps make heard options that are as yet unseen or overlooked[837]. Of all the (nomothetic) patterns considered through macrohistorical exploration, three in particular help in understanding how modernism constitutes its sense of reality and how alternative (nomothetic) patterns will drive the dynamics of transition and transformation. These relate to systemic limits; how time, form and shape is conceptualised; and the symbiosis between how we think (mentality) and how the ethics informed by that mentality are actualised in economy, infrastructure and other social arrangements integral to human communities.

Macrohistorians through this thesis have considered that social systems are finite, durable and limited. Consistent with this view, Rifkin has maintained that issues of entropic debt, the emergence of almost zero margins as a result of the successful application of technologies in the economic system, and the inability of the system to support never-ending growth all are examples of systemic limits in the contemporary experiment. There is therefore a choice in considering Rifkin's contentions. Either the discourse can begin through interrogating the litany of his postulations, or it can start at a deeper level of analysis, one that explores the nature of social systems as finite entities. If the former is preferred, then there is always the possibility that what is being contended will be managed or adapted within the existing system, or that the focus is only partial, rather than holistic. If that were to occur, 'the present eats the future' in ways that privilege those whose

[836] Inayatullah, 'Macrohistory and Futures Studies', p. 381.
[837] In the course of this thesis, the research has returned time and again (each time with a little more understanding), to the philosophy of P.R. Sarkar whose work has largely been overlooked in the West. However while overlooked, it might be, as Inayatullah has opined, "a lamp that illuminates countless other lamps." Inayatullah, *Situating Sarkar,* p. 131.

interests are served from apparent resolution of those issues, within the present system[838]. If, on the other hand, the latter is preferred, then there is at least the possibility of a supervalence effect: something that can be viewed at a distance. This ability to contemplate at a distance the idea that the system we live in is finite[839], affords an escape from the overwhelming present where the limits are often obscured and in some instances not recognised at all. It provides the opportunity for sense making and alternative system design where both the interests of the present and the process of transition from one system to another are second order questions.

In the capitalist culture of the Second Industrial Revolution, power and privilege is often determined by the value of a person's (or institution's) time: "the time poor are made to wait, while the temporally privileged are waited upon"[840]. In the Third Industrial Revolution, the technologies that will enable it allow the possibility of emancipating chronological time from the power relationship and in the process creating time relationships, forms and shapes (morphologies) that reflect that emancipation. Indeed, it is posited that it is almost systemically impossible to conceptualise a networked and collaborative society unless this reconstitution of time, form and shape occurs. Its actualisation will sharply delineate the difference between modernity and the future. Therefore, given that we define our infrastructure, yet over time it defines us (homo urbanus), a future networked and collaborative society needs to ensure the next infrastructure design is premised on the idea that everyone's time is equally valuable. This is not to assert that time is reduced to the lowest common denominator, nor that years of investment in the development of skills and knowledge should not be reflected in how society values a particular task. Rather, it is to suggest that the exercise of power or wealth to exploit the time of others should be rejected as a conceptual model for infrastructure and also as a determinant of priority in accessing those parts of the civic we all require. In other words the intent should be to balance the power of amplification enjoyed by the privileged[841]. Conceptually, this has profound implications for the dynamics of how a

[838] Contemporary debates about climate change mitigation are illustrative. While nations are committed to reducing the effects of anthropogenic climate change, hopefully to less than 2 degrees, most nations see no contradiction in asserting the need for continuous economic growth at the same time, a process that caused the same effects in the first place.
[839] Fischer, for example, conclusively demonstrates that all known, previous economic growth phases have ended and that the dynamics of growth (phase) in contemporary society have similar sets of characteristics to those in previous societies. D. Fischer, *The Great Wave: Price Revolutions and the Rhythm of History,* New York, Oxford University Press, 1996.
[840] J. Rifkin, *Time Wars: The Primary Conflict in Human History* (1st Touchstone edn.), A Touchstone Book, New York, Simon & Schuster, 1989, p. 226.
[841] The concept that access to technologies amplifies the benefits to those that leverage its potential needs to be replaced by the use of technologies to bridge disparity, as developed in Toyama, *Geek Heresy,* p. 49.

society or culture works: the nature of settlement, work and institutional patterns. It would almost certainly be necessary as a foundational idea for a philosophical view that is not modernism-centric. Further, describing successive revolutions through the way they [re]constitute time, form and space helps distinguish the nature of the Third Industrial (civilisational) Revolution from event, scientific, political or technology revolutions[842].

However, Rifkin contends humanity cannot step beyond the limits of modernity and its accepted senses of time, form and space unless there is also a shift in the mentality (consciousness and philosophy) that privileges those senses. Thus, an alternative future cannot be realised if it is "constrained by hierarchies, boundaries of exclusion, and a concept of human nature that places acquisitiveness, self interest and utility at the center of the human experience"[843]. A future post capitalist (at its limits) economy, the capacity to live within the constraints planetary existence imposes, and the nature of a networked collaborative future must necessarily privilege relationships over contracts, the right for nature to coexist without exploitation or an assertion of mastery, and a rebalancing and distribution of acquisition (ownership and growth) within the global family. This is not socialism as the 20th. Century has constituted it; for that is merely a different method of controlling the processes of acquisition and time. Rather, it is a new cosmopolitan sociality that manifests itself as a complete rethinking of what it means to be human (identity). So different are the ethics of this new sociality that it becomes immediately evident why it cannot be constituted inside late stage modernity. What remains uncertain is whether the vested interests in the present system, acting in partial concert (agency), will delay the inevitable incoming tide of nomothetic effects, perhaps to a point where environmental collapse becomes the inevitable future for us all. Regardless of how these external and immanent system threats are understood, they place the global community at a time when what we have been, what we are and what we need to be "are seen to be correlated in the process, whereby memorization and an anticipatory narrative of the future relate to the interpretation of the present and to the semantics of action"[844].

[842] As has been asserted earlier, this helps in distinguishing between Rifkin's Third Industrial Revolution and a Fourth Industrial Revolution proposed by the World Economic Forum in 2015. In this latter instance, the technological revolution envisaged is being pursued as the next growth phase in the current system. It exists within the same mentality and philosophy. Therefore the revolutions being considered are different at systemic, worldview and metaphorical levels. Schwarb, *The Fourth Industrial Revolution.*
[843] Rifkin, *The Empathic Civilization,* p. 533.
[844] Venn, 'Altered States', p. 77.

Contemporary transformation is a philosophical issue

As has previously been asserted, there is a significant body of cross-disciplinary academic literature that supports Rifkin's contentions about environmental and economic limits in contemporary systems, in both the particular and the general, and the transformative effects of a reconceptualised infrastructure, now generically termed the Internet of Things. While not all then advocate a complete system transformation, there are some (Transformists) who do. Central to the Transformist discourse are arguments for reconstitution of the nature of relationships; the emergence of fragments of an alternative economic system (the Post Capitalist Option) that awkwardly coexists with the existing system; and the development of a network-technology enabled social morphology that supports a different way of comprehending the world. Collectively, these reconceptualisations are shaping a distinctive mentality and a belief—a modern *asabiya* (the sinew that binds)—that offers a viable alternative to a contemporary society under siege from entropic effects, disruptive technologies and the aspirations of the oppressed and marginalised, who are increasingly emboldened by their new-found interconnectedness.

While it has been argued that it is the reconstitution of worldviews that is the essence of civilisational revolution, it is also accepted that recent network and energy technologies have driven the discontinuity inherent in this proposition. This, though, does not mean that the technologies are the revolution. Rather what they enable in the emerging Collaborative Age worldview are metaphors of a different sense of reality; ones that describe the creation of an interconnected superorganism that is ecological in design[845]. In contrast, those of the Western Enlightenment and modernism center on the primacy of the machine, a relationship that Spengler suggested could only be considered as Faustian[846]. If the metaphors are ecological, then the expression and emphasis is on the primacy of relationship not the agreement or contract as the basis for interaction. Consequently, focus and attention moves from an interest in efficiency and vertical control to rapid, collaborative advances through continual iteration and laterally created, distributed, 'crowdsourced' capacity; in the process moving the locus of power from them (those few) to us. More importantly, the radical reduction in the information transaction costs inherent, perhaps even nomothetic, in collaborative network models, render the incumbent machine-

[845] Both Heylighen and Taylor provide examples of a premised shift to the language of ecology. Heylighen, 'The Global Superorganism', Taylor, *Evolution's Edge*.
[846] Spengler, *The Decline of the West*.

age alternatives both uncompetitive and undesirable. Finally, new relationship models privilege the 'space of flows' and places unbounded by the geography of place. In doing so they reduce the influence of those who have institutionalised the 'space of place' as the basis of power[847]. These 'flows' provide the capacity for a different kind of awareness in an interconnected world; one where there is a growing intolerance from those outside modernity to accept the relationships that modernity defines them, and the logics that inform such relationships. Rifkin's revolutions, therefore, might be considered as '*revolutions in the philosophy of relationships'* as much as about anything else.

Explorations of a post capitalist option, in Rifkin's *The Zero Marginal Cost Society*[848] and in the broader transformational discourse, suggest how these different kinds of relationships are instrumental in the repurposing of economy, from an almost obsessive desire to accumulate, to a rediscovery of the sociality and ethics of exchange[849]. The emergence of the prosumer (those who define and invest in the production process and then consume what is produced) by design, fosters dynamics of exchange, and frequently, 'social enterprise' organisations who are often at the core of the same process. Collectively, these prosumer entities are creating market and energy 'commons for exchange', where opportunities for 'cosmo-localisation' are possibile[850]. Again, as cited and as an increasing number of case studies illustrate, this can occur in ways that are both quantitatively and qualitatively competitive with many of the existing options. The consequence is that, as the system begins to change, new organisational and institutional forms (identities) begin to emerge that at first glance seem to be part of the current system (pseudomorphosis - hiding in plain sight), but are, in reality, the building blocks of a new morphology. Furthermore, they are the explicit expression of *a new philosophy of (post capitalist) economy.*

It is in the morphology that new ethics are instrumentalised. At the center of the morphology is the premise that within the dynamics of any given set of relationships will be mutually accepted technological governance systems that require few, if any, externally imposed regulations, outside of the (self defined) times when transactions occur between

[847] Castells, *The Rise of the Network Society*.
[848] Rifkin, *The Zero Marginal Cost Society*.
[849] The destructive nature of what is termed 'neoliberalism,' even by its own terms, has been well canvassed by writers like Sandel and Piketty and these have been cited earlier in this thesis.
[850] J. Ramos, 'Cosmo-Localization', *Local Lives - Global Matters Conference*, Castlemaine, ActionForesight, 2015.

those relationships. The interaction (relationship) will govern itself. As the network theorist Vinay Gupta has opined, this is a revolution in the nature and role of the bureaucratic function[851]. It is integral to the design of the rapidly developing Internet of Things and is indicative of the potentiality of a collaborative ethos, that differs from a competitive morphology, which almost by definition, except in situations of unbridled power, requires external regulation to function. It points to a future where all organisations, whatever their nature and aspirations, will be reframed because the nature of transaction cost changes make current entities inappropriate in their current form, and where spatially augmented realities will redefine the meaning of experience (the context-identity interaction). It presages a future where incumbency and the illusion of 'owning knowledge' provide few advantages. As Rifkin has tried to illustrate, we are in the middle of epic change, where humanity has the tools to rapidly amplify, at multiple levels, the forms and shapes *(morphology)* that represent the philosophy of *a distinctly different future,* should it chose to take that path.

Notwithstanding concerns about limits and the promises of particular disruptive technologies, what emerges in the dialogue of the contemporary Transformists is a viewpoint that the success or otherwise of transition is essentially existential; how humanity wishes to constitute relationships among themselves and with the planet. If 'historical transformations are transmitted by culture"[852], then the acquired characteristics or ethics of a particular culture will emerge from the consciousness (embodied experiences), philosophies and spirituality that inform those ethics. Given, as Mason suggests, "we lie at a moment of possibility, of controlled transition"[853], and as Taylor opines, "all over the world pieces of the puzzle are appearing"[854], there are two, perhaps three options available: humanity could chaotically evolve into a Collaborative Age; it could confront the future, through a deep, global, crowd-sourced dialogue around the necessary conditions for being-ness, and therefore begin to consciously design the future; or it could act in a way where neither of the first two are realised. While acceptance of the first and rejection of the third can occur through Rifkin's biosphere consciousness, the second requires the articulation and development of a philosophical view (non-exclusive

[851] V. Gupta, *Transparent Society: Crowdfunding on Blockchains: Ethereum*, 2015, Wales Digital, available at https://www.youtube.com/watch?v=6gVri8wVGPc, (accessed 23 September, 2015).
[852] Ernest Gellner as cited in Runia, *Moved by the Past,* loc. 3629.
[853] Mason, *Postcapitalism,* p. 289.
[854] Taylor, *Evolution's Edge.*

necessary conditions for future being-ness), which can be widely shared and understood. However, the current state of that future 'beyond the horizon of modernity' philosophy is both fragmentary and implicit, rather than explicit, within the Transformist discourse. This is not to say that the core philosophical ideas do not exist, in fact the reverse is almost certainly true, but it is posited they are only heard by the few, because advocacy of a widely shared future philosophy has not been seen as an express condition of transformation. Thus Rifkin's Third Industrial Revolution is also both *a revolution of consciousness and a revolution of philosophy.*

Towards a Theory of Civilisational Revolution

In Rifkin's normative narrative of the near future, energy and communication technologies, acting as an indivisible technology infrastructure, will drive a Third Industrial Revolution, providing there is an extension of empathic consciousness to a biosphere level. Although this contention is broadly supported within both macrohistorical and contemporary transformational discourse, exploration of the layers of reality that inform this contention suggest a more nuanced and extended understanding of the social (civilisational) revolution he postulates.

This elaboration of the theory of civilisational or cultural[855] *revolution might develop in this way:*

If significant discontinuity in both energy and communication is the litany of social revolution, then changing conceptions of time, form and shape are the structural edifice (scaffold) on which the actualisation of those discontinuous technologies rest. For example, the use of steam in the 19th century revolutionised not just Braudel's 'floating through the landscape' of intercity rail connection, but with dedicated passenger ships, it redefined intercontinental connection and migration as well. This shift had profound impacts, particularly in the Americas, where migration before this time was almost exclusively focused on slavery and indentured labour, mainly in the center and south of the Americas[856]. For some though, these same changes in time, form and shape represented a

[855] The choice of civilisation or culture depends on preferred units of analysis.
[856] K. Sokoloff & S. Engerman, 'History Lessons: Institutions, Factors Endowments, and Paths of Development in the New World', *The Journal of Economic Perspectives*, vol. 14, 2000, pp. 217-32, available at http://www.jstor.org/stable/2646928, (accessed 17 April, 2015).

whole range of opportunities (e.g. the development of print media) that were just beginning to be understood. Almost always they were outside of purview (or perhaps interest) of the dominant power structures of that time.

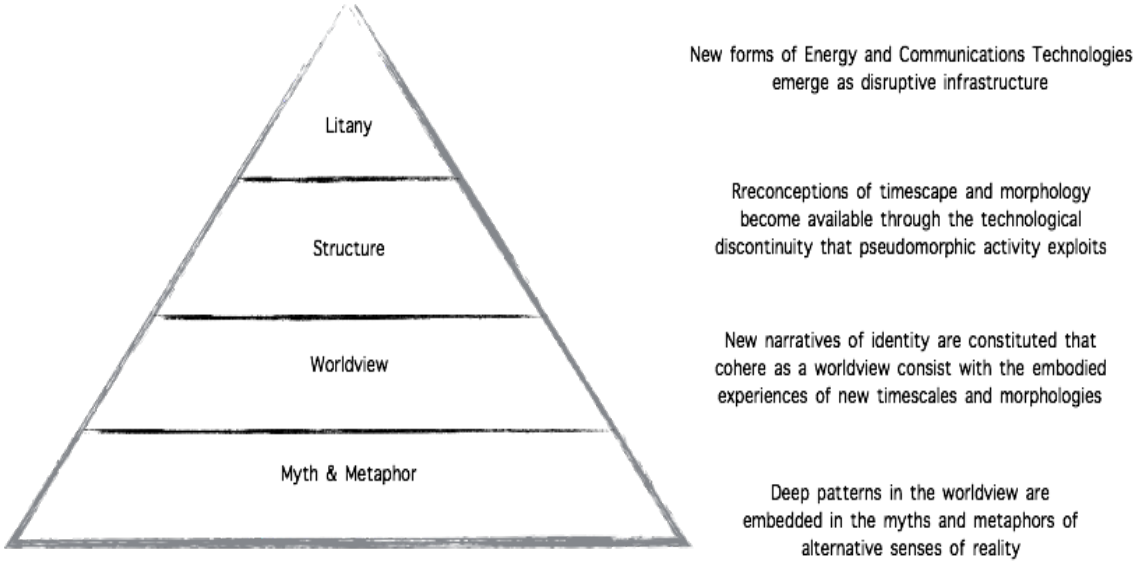


Figure 6.3 Logic model showing how social (civilisational) revolution constitutes itself through layers of reality.

If this theorisation is accepted it is possible to reconstitute the narrative of the Third Industrial Revolution in the following manner:

The development of an Internet of Things, based on a renewable energy infrastructure, a networked communications infrastructure and a new logistics infrastructure, will reframe, in a discontinuous fashion, the senses of time, form and shape upon which contemporary infrastructure depends. It will shift the control of energy creation and management from point source supply models to close-to-the-source-of-consumption prosumer networks. It facilitates a variety of arrangements of 'flow' not 'place' that encourage the development of cosmo-localised social ecologies, in which the time of every person is more equally valued, and the control over an individual's labour remains with them in a collaborative commons, where knowledge is widely shared. Inherent in their design and the technologies these ecologies privilege are extremely low transaction costs (when compared to conventional organisations), and so they often produce more value for less effort in all those processes which are transaction dependent. As these disruptive business models emerge in almost every sphere of economy and social service, their value increases as their

network grows. The creation of a radically open identity, based on transparency, co-creation, sharing and abundance thinking (rather than scarcity) is therefore core to this process[857]. While to date some of these new enterprises have in their (transparent) aspirations capitalist acquisition, the technological, economic and knowledge feasibility spaces (Commons) that these new ecologies facilitate privilege social products (access not ownership) and non-exclusivity[858].

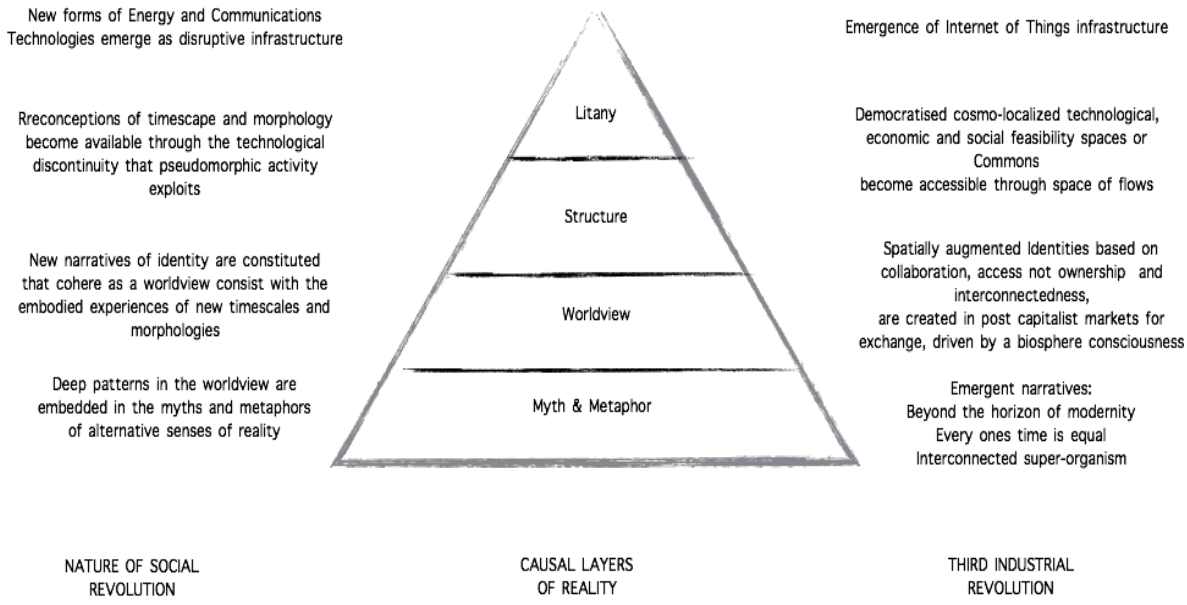


Figure 6.4 Descriptor of the Third Industrial Revolution through the extended schema of social revolution

Furthermore, the development of these Commons and the worldviews that underpin them, in a globally interconnected world, dissolve many of the boundaries that modernity has erected to protect itself. They provide a platform for a new kind of philosophical dialogue, and are framing an alternative, sustainable civilisation narrative that is not just different from the industrial model; it is almost diametrically opposed to it, without creating in that opposition an exclusion of those who have yet to understand its benefits. What has yet to emerge is the widespread adoption of a Collaborative Age 'counter hegemonic, escape from the planetary abyss,' narrative that will require those from the Second Industrial Age to do to themselves what now confronts us all: *Transform* or *Collapse*. When this occurs a new mythology will be created.

[857] D. Tapscott, *'Radical Openess',* loc. 701.
[858] Kostakis & Bauwens, *Network Society and Future Scenarios for a Collaborative Economy,* loc. 794.

Pseudomorphisis and a Collaborative Age Relationship Model

One of the ways to consider the pseudomorphic or emergent nature of a Collaborative Age (*what is becoming*) is through the fundamental reconstitution of social and economic relationships at a global scale, which will occur as a result of the revolutionary transition that has already begun. While understandings of many of the elements of this reconstitution have been detailed throughout this thesis, it is through and because of their interrelationships that coherence, and then potentially narrative and mythology, develops. Again, the intention is not to be prescriptive in this analysis, but rather to suggest possibility as an alternative relationship construct. It is contended that it will grow and evolve in the same way that water moves across a parched landscape; at first looking for ways around and through, filling the fissures and then, with time, creating a seamlessness, which always reflects the contours of what it has intended to cover with ripples and disturbances.

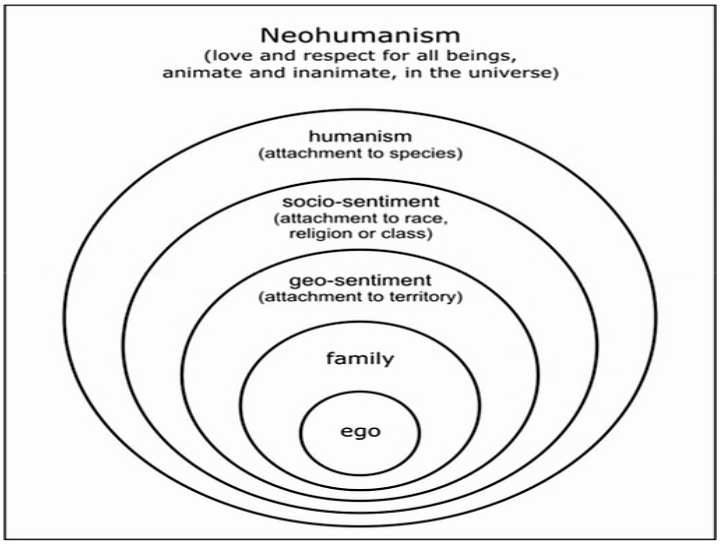


Figure 6.5 Sarkar's Rings of Sentiment[859]

In attempting to describe the framing (design) of this relational model, three concepts are influential. The first is Sarkar's **Theory of Neohumanism,** a relational model that starts from the premise of love and respect for all beings, animate and inanimate, in the universe (including the microvita that form them), and then the nestling inside that of humanism

[859] Inayatullah, *Understanding Sarkar,* p. 9.

(species sentiment), socio-sentiment (attachment to race, religion), geo-sentiment (territory), family, and finally, self[860]. "This differs from the egocentric models of gross individualism to an expansive and cosmic relationship with nature and divinity"[861].

The second is Deleuze's **Theory of Assemblage.** This proposes a rhizomic model, where relational arrangements are comprised of components; systems assembled and integrated together as a mix of material factors; dynamics; identities; and narratives. This assemblage differs from the linear and the binary, as it operates on multiple planes with "lines of articulation, segmentation, stratification and territorialization. There are also lines of flight, movement, deterritorialization and destratification"[862]. In paraphrasing and contextualisng this emergent (pseudomorphical) Collaborative Age assemblage, the Mexican philosopher De Landa might suggest these are

> ...interpersonal networks and institutional organisations in which common interests crystallize through their access to resources, some playing a material, some an expressive role, together with a distinctive identity and life style composed of both material and expressive elements[863].

As Figure 6.6 suggests, in many respects the architecture of the Internet or a virus share these characteristics with biological rhizomes.

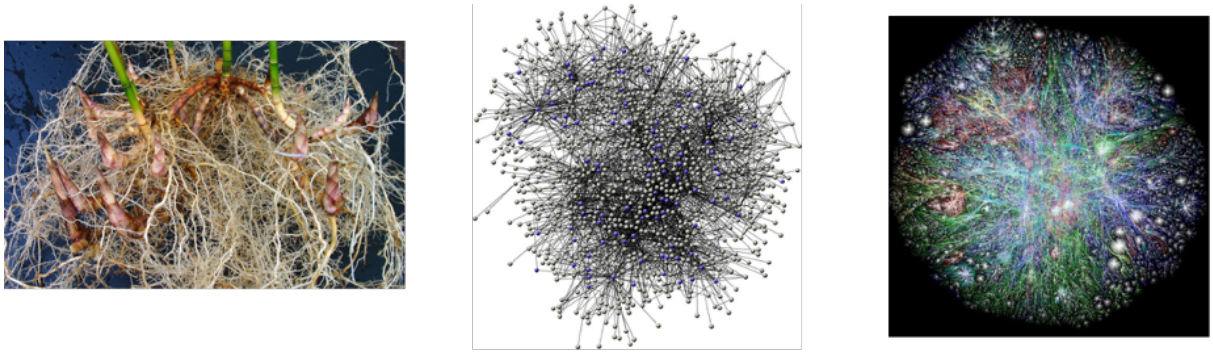


Figure 6.6 Rhizome, Virus and Internet Compared as Relational Models[864]

[860] Inayatullah, *Understanding Sarkar,* p. 9.
[861] M. Bussey, '*Where Next for Pedagogy. Critical Agency in Educational Futures',* PhD thesis, University of the Sunshine Coast, 2008, p. 117.
[862] Deleuze & Guattari, *A Thousand Plateaus,* p. 4.
[863] M. De Landa, *A New Philosophy of Society: Assemblage Theory and Social Complexity*, London, Continuum, 2006, p. 86.
[864] Illustrative images (accessed from:
1. Rhizome -https://viralcontagion.files.wordpress.com/2012 October untitled-1-copy.jpg.
2. Virus - https://artofcompost.wordpress.com/2015 October 15/poetics-of-the-rhizome/.
3. Internet - haptein.ch)

The third important concept is **the change in the nature of relationships that emerges from the postnormal mentality.** It accepts that complexity, chaos, contradiction and uncertainty are the expected consequence of both interconnectedness and the systemic effects of a modernistic worldview at its limits; one that fabricated a fictional mentality of efficiency and uncertainty in order to sustain the dominance of the mechanistic mindset on which mechanistic progress relies.

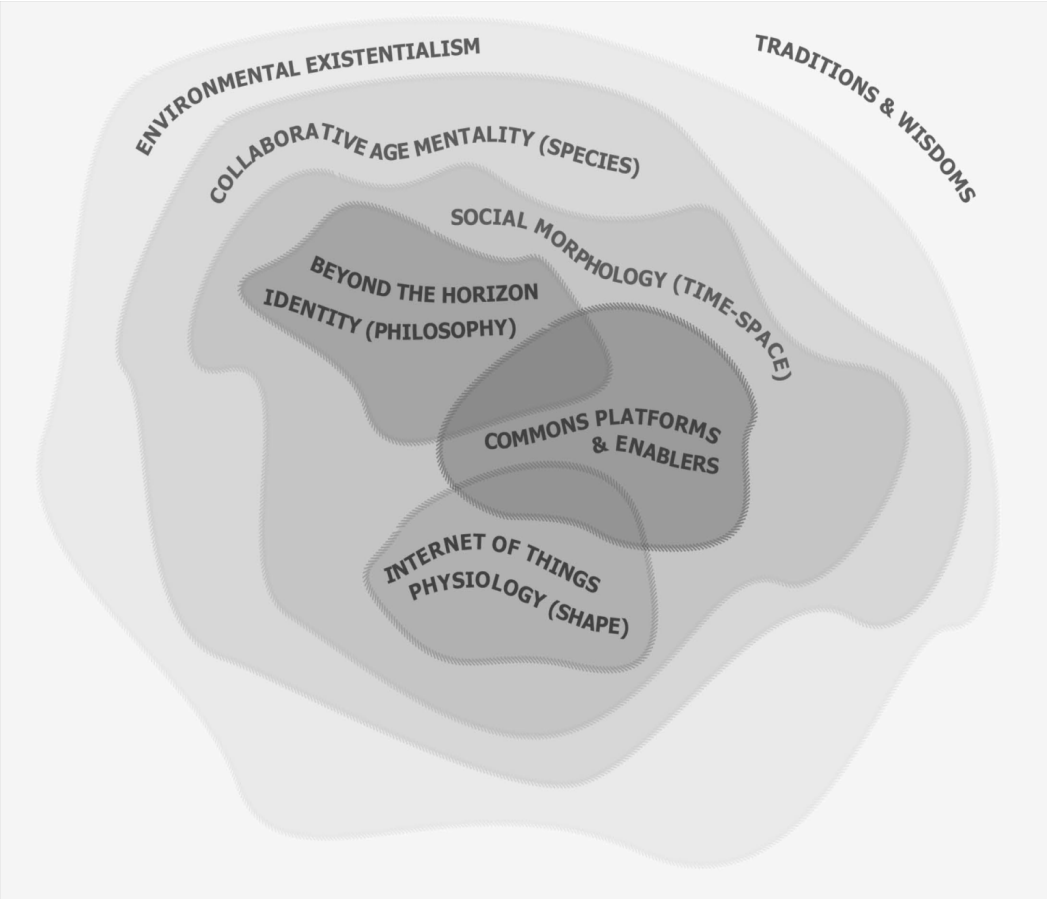


Figure 6.7 Possible emergent relational assemblage of the Collaborative Age

As does the postnormal, this thesis has argued the telos of a Collaborative Age through its assemblage must be conceptually discontinuous in its relational models with the systems it is replacing. In order to represent that difference, a graphical view (Figure 6.7) has been developed that is deliberately non–linear and non-concentric in its depiction. It is intended to convey the beginnings of a new 'beyond the horizon' sense of form-shape relationships (perhaps contrary to Spengler's expectations the time of great (civilisational) mathematics is not past[865]). Thus, while embracing complexity and chaos, it may still produce patterns

[865] Spengler, *The Decline of the West*, p. 69.

from which meaning can be derived, together with relational arrangements that can facilitates options which allow beneficial co-existence, within the constraints of the planet.

Within this framing and consistent with Rifkin's theorising, the first relational dimension posits that there is a need to *'rediscover what it means to be human'* by drawing on those elements of all traditions and wisdoms that both respect 'beyond discourse' senses of meaning, and which privilege constructive diversity and synergistic action, rather than destructive action and difference. This does not suggest some kind of secular centrality, nor does it diminish those who constitute their sense of the cosmos from that point of view. Rather it is the relational foundation that coheres from a non-modernity-centric dialogue with the Other. Central to that ethics of sociality will be a non-negotiable and shared view of environmental existentialism, whereby humanity as part of (and a partner in) planetary ecology develops the means to live within the constraints the planet imposes, but commits itself on an intergenerational basis to restorative action that facilitates the re-emergence of abundance and the rediscovery of forgotten experiences such as 'the dawn chorus'.

Within this shared sense of what it means to be human and to be part of ecology, *a new ethics of sociality*—a networked rather than a mechanistic mentality—is required. As Venn contends this is where

> [T]he question of becoming must be seen to be inseparable from standpoint of the (non-totalizable) historicity of being, in the sense that the three extases of time- the having been, the making of the present, the coming towards – are seen to be correlated in the process whereby memorization and an anticipatory narrative of futurity relate to the interpretation of the present and the semantics of action.[866]

In its expression it will not only be an explicit rejection of modernism and postmodernism as it is generally considered, but it will also embrace preferred (and different) senses of reality (power of flow, abundance thinking, planetary empathy, non-acceptance of action that creates the Other, access not ownership) that will seem as natural to humans as the celebration of mechanism was in the early 20th century. This new ethics will both be framed by, and frame a new, less complex, social morphology; a revolution in how relationships are constituted with respect to time and shape[867], that will be reflected in

[866] Venn, 'Altered States', p. 77.
[867] As has been asserted earlier, Collaborative Age conceptions go beyond, and can be freed from, the power dynamics of chronological time.

completely different, networked, organisation and institutional arrangements, capacities that both leverage and amplify knowledge, collaborative (v competitive) relational models and spatially augmented realties that enable the planet to cope with the over-population issues that confront us. Inside this new morphology, enabling relationships of infrastructure will develop in ways that encourage and facilitate both the new mentalities and the platforms of exchange, transactions and sharing necessary to sustain cohesive functioning societies. Finally, the experiences of an altered state will frame the [re]constitution of identity and senses of self that are consistent with this new context.

Reflections on Transformation or Collapse

Throughout Rifkin's collected works (and those of other Transformists and macrohistorians) is a lingering concern that the monolith of modernism, and those few who benefit from its continuation, will act in ways that will delay the advent of a Collaborative Age, long enough to ensure environmental collapse becomes the most likely scenario. While this can only happen as long as the global populace permits it, the sheer scale of system shifts that need to occur seems also overwhelming; despite the evidence that they can be addressed and that there are nomothetic forces at play. This thesis has posited that these shifts must reflect: less complex energy regimes; post capitalist socio-economic arrangements that facilitate living within the constraints of the planet; a reconceived and accepted mentality (philosophy and consciousness) that is beyond modernity and globally supported; new institutional frameworks that are beyond the nation state; and the resolution of tensions between those who are vested in the contemporary condition and those advocating the alternative within the next few decades. 'Time as speed' has therefore become a determining element of humanity's collective future, although this constitution of 'time as speed' is different in its nature than Virilio's characterisation of the same.

However, *Transform or Collapse* should not be seen as some kind of binary conversation. There is no singular future. Each might come about across a spectrum of possibilities that radiate out from the contemporary condition. Alternatively, either could occur through the experience of chaos and confusion that is likely to be a part of the transition process. The former might emerge as events, actors and technologies, freed from the shackles of modernism collide, to innovate and rapidly scale; or the latter might come about as chaos and entropic effects undermine the capacity for the alternative voice to be heard, let alone

considered. Yet other interpretations are possible. Collapse might not be dystopic. Rather, it might be a necessary condition to resolve the power tensions between the proponents of the contemporary system (including governments) and the leaders of the new possible. "In short far from being a catastrophe, the end of oil and the collapse of the capitalist system might very well be a great blessing, not only to Mother Earth but to all of us"[868].

What is concerning is that contemporary societies seem far from talking about, let alone beginning, the journeys that systemic shifts demand, and this lack of progress haunts both the writer and many whose works have informed this thesis. Notwithstanding the pseudomorphic evidence available, there is, therefore, a tension between our ideographic and nomothetic futures, which, it is posited, will only be resolved if individuals and communities take back ownership of time from those who have always understood the power such ownership has. While this requires (as has been asserted) that every person's time is valued in a way that recognises the investments that people have made with that time, the value of that investment to the emerging network society and the relationships that will sustain it, it also suggests that a new sense of temporality (time as speed to change) is at the core of (Rifkin's) biosphere empathic consciousness. Barbara Adam describes these as timescapes; how humanity relates to (and the state of) the environmental systems and renewable resources it requires for continued existence on the planet in large numbers, outside of the self-serving narratives of modernity[869]. It might be argued that these two reconstitutions of time define a super-rhythm that will swing humanity from modernity to a Collaborative Age. If that were to occur then the haunting would recede and attention would turn to what's next; for there is nothing to suggest that a further evolution beyond the Third Industrial Revolution is not possible.

[868] Dator, *Unholy Trinity Plus One*, p. 42
[869] This extended definition of temporality is explored in some detail in B. Adam, *'Timescapes of Modernity'*, London, Routledge, 1998.

REFERENCES

Adam B. *Time and Social Theory,* Oxford, Polity Press, 1990.

--- (1995) *Timewatch: The Social Analysis of Time,* Cambridge, Polity Press.

--- (1998), *Timescapes of Modernity*, London, Routledge, 1998.

--- (2004), *Time,* Oxford, Polity Press.

Adams S., et. al World Bank. 2013. *Turn Down the Heat: Climate Extremes, Regional Impacts, and the Case for Resilience,* Washington DC, World Bank, available at http://documents.worldbank.org/ (accessed 18/1/2014).

Agamben, G., *"What Is an Apparatus?" And Other Essays*, Stanford, California Stanford University Press, 2009, p. 53.

Árnason, J., 'Civilizations in Dispute : Historical Questions and Theoretical Traditions', *International Comparative Social Studies,* Leiden, Boston, Brill, 2003, p. xi.

--- (2006), 'Civilizational Analysis, Social Theory and Comparative History', *Handbook of Contemporary European Social Theory*, Routledge, pp. 230-42.

Ateljevic, I. 'Transmodernity: Integrating Perspectives on Societal Evolution', *Futures,* vol. 47, 2013, pp.38-48.

Ayres, R., *The Economic Growth Engine: How Energy and Work Drive Material Prosperity*, Northampton, MA, Edward Elgar, 2009.

Babaioff M., Dobzinski S., et al. (2011), 'On Bitcoins and Red Balloons', *arXiv:1111.2626 [cs.GT]*.

Barrett, W., *Irrational Man: A Study in Existential Philosophy*, New York, Anchor Books, 1990.

Benkler Y, Nissenbaum H., 'Commons- based Peer Production and Virtue', *The Journal of Political Philosophy,* vol. 14, no. 4, 2006, pp. 394-419.

Bennett, A., *The Great Western Railway and the Celebration of Englishness*, University of York, 2000.

Berlant, L. and J. Cooke, 'Transformations and Challenges in Politics, Teaching, Art and Writing: An interview with Lauren Berlant', *Textual Practice,* vol. 27, no. 6, 2013, pp. 961-70.

Bohm, D., 'A New Theory of the Realtionship of Mind and Matter', *Philosophical Psychology,* vol. 3, no. 2, 1990, pp. 271-86.

Braudel, F., *A History of Civilizations*, New York, N.Y., A. Lane, 1994.

Braudel, F., 'Histoire Et Sciences Sociales: La Longue Durée', *Annales. Histoire, Sciences Sociales,* 13e Année, no. 4, 1958, pp. 725-53.

Brown, L., *Plan B 4.0: Mobilizing to Save Civilization*, (1st edn.), New York, W.W. Norton, 2009.

Brynjolfsson, E. and A. McAfee, *The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies*, (First Edition. edn.), New York, W. W. Norton & Company, 2014.

Burgess, M., 'Spacetime with Semantics. Notes on Theory and Formalism', 2014, available at http://arxiv.org/abs/1411.5563, (accessed 25 June, 2015).

Burgess, M. and J. Bergstra, *Promise Theory: Principles and Applications,* Oslo, Norway, XtAxis Press, 2014.

Bussey, M., '*Where Next for Pedagogy. Critical Agency in Educational Futures',* PhD thesis, University of the Sunshine Coast, 2008.

--- (2014), 'CLA as Process: Mapping the Theoretical Practice of the Multiple', *Journal of Future Studies*, vol. 18, pp. 45-58.

--- (2009), 'Six Shamanic Concepts: Charting the between in Futures Work', *Foresight,* vol. 11, no. 2, 2009, pp. 29-42.

Carson, R., *Silent Spring*, (1st Fawcett Crest edn.), New York, Fawcett Crest, 1964.

Castells, M., 'Communication, Power and Counter-Power in the Networked Society', *International Journal of Communication,* vol. 1, 2007, pp. 238-66.

---(2010), *The Rise of the Network Society* (2nd edn.), (The Information Age: Economy, Society, and Culture), Chichester, West Sussex, Malden, MA, Wiley-Blackwell.

Castells, M., & Cardoso, G. (ed.), *The Network Society From Knowledge to Policy*, 2005.

Chivian, E. and A. Bernstein (eds.). *Sustaining life: How human health depends on biodiversity*. Center for Health and the Global Environment. Oxford University Press, New York. 2008

Christian, D., 'World History in Context ', *Journal of World History,* vol. 4, 2003, pp. 437-58.

Coase, R., 'The Nature of the Firm', *Economica,* vol. 4, 1937, pp. 386-405.

Dator, J., 'Alternative Futures for K Waves', *NATO Security through Science Series* vol. 5, pp. 311-17.

--- (2009), 'The Unholy Trinity plus One', *Journal of Future Studies,* Vol.13, No.3, pp. 33-48.

--- (2014) '"New beginnings" within a new normal for the four futures', *Foresight,* Vol. 16 (6), pp. 496-511.

De Landa, M., *A New Philosophy of Society: Assemblage Theory and Social Complexity*, London, Continuum, 2006.

Deleuze, G., & F. Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia,* Minneapolis: University of Minnesota Press, 1987.

Diamond, J., *Collapse: How Societies Choose to Fail or Succeed*, New York, Penguin Books, 2011.

Dobbs, R., J. Manyika, & J. Woetzel, *No Ordinary Disruption*, Public Affairs, 2015, loc. 807.

Dussel, E., 'The Four Drafts of Capital: Toward a New Interpretation of the Dialectical Thought of Marx', *Rethinking Marxism*, vol. 13, no. 1, 2001, pp. 10-26.

Dussel, E., 'A New Age in the History of Philosophy: The World Dialogue between Philosophical Traditions', *Philosophy & Social Criticism*, vol. 35, 2009, pp. 499-516.

Dussel, E. & E. Mendieta, 2003, *Beyond philosophy: ethics, history, Marxism, and liberation theology* (New critical theory), Lanham, MD: Rowman & Littlefield Publishers.

Edwards, P., 'Inftrastructure and Modernity: Force, Time and Social Organization in the History of Socio-Technical Sysytems', *Technology and Modernity: the Empirical Turn,* 2002.

Ehrlich, P. & A. Ehrlich, 'Can a Collapse of Global Civilization Be Avoided?', *Proc Biol Sci*, no. 280, 2013, available at <http://www.ncbi.nlm.nih.gov/pubmed/23303549%3E>, (accessed September 23, 2015).

Eisenstadt, S., 'Multiple Modernities', *Daedalus,* vol. 129, 2000, pp.1-28.

Eisler, R., *The Chalice and the Blade: Our History, Our Future* (1st edn.); Cambridge MA, Harper & Row, 1987.

EU Parliament 'Declaration on Energy and the European Economy', available at http://www.ueapme.com/IMG/pdf/EU_PARLIAMENT_DECLARATION_ON_ENERGY_AND_THE_ECONOMY_final.pdf, (accessed 25 June, 2014).

Faubion, J., 'Towards an Anthropology of Ethics; Foucault and the Pedagogies of Autopoiesis', *Representations,* vol. 74, no. 1, 2001, pp. 83-104.

Fischer, D., *The Great Wave: Price Revolutions and the Rhythm of History,* New York, Oxford University Press, 1996.

Fitzgerald, J. & S. Inayatullah, *Transcending Boundaries: Prabhat Rainjan Sarkar's Theories of Individual and Social Transformation,* Maleny, Qld., Gurukula Press, 1999.

Floyd, J., 'Energy, Complexity and Interior Development of Civilisational Renewal', *On the Horizon,* vol. 21, no. 3, 2013, pp. 218-29.

Ford, Martin, *Rise of the Robots: Technology and the Threat of a Jobless Future*, New York, Basic Books, member, Pereus Books Group, 2015.

Interview with Michel Foucault concerning 'Discipline and Punish; the Birth of the Prison System.' (1983).

Foucault, M., 1984, 'What is Enlightenment?', in Rabinow P. (ed.), *The Foucault Reader,* New York, Pantheon Books, 1984, pp. 32-50.

Freeden, M., 'Confronting the Chimera of a 'Post Ideological' Age', *Critical Review of International Social and Political Philosophy,* vol. 8, no. 2*,* 2005, pp. 247-62.

Frow, J., 'The Last Things before the Last: Notes on White Noise', *Sth Atlantic Quarterly,* vol. 89, no. 2, 1990, pp. 413-30.

Fuller, R. *Operating Manual for Spaceship Earth*, Carbondale, Southern Illinois University Press, 1969.

Gajewska, K. 'Peer Production and Prosumerism as a Model for the Future Organization of General Interest Services Provision in Developed Countries: Examples of Food Services Collectives', *World Future Review,* vol. 6, no.1, 2014, pp. 29-39.

Galtung, J., 'Social Cosmology and the Concept of Peace', *Journal of Peace Research,* vol. 18, no.2, 1981, pp.183-99.

Galtung, J. & S. Inayatullah, (1997) *Macrohistory and Macrohistorians: Perspectives on Individual, Social, and Civilizational Change* [online text], Praeger , 1997.

Galtung, J. & Tschudi F., 'Crafting Peace: On the Psychology of the Transcend Approach', *Peace, Conflict, and Violence: Peace Psychology for the 21st Century,* 2007.

Gardels, N. 'China's New Five-Year Plan Embraces the Third Industrial Revolution', Huffington Post [website], 2015, http://www.huffingtonpost.com/nathan-gardels/china-third-industrial-revolution_b_8478954.html?ir=Australia , (accessed 23 November, 2015).

Garnaut, R., 'Garnaut Climate Change Review', 2011, available at http://www.garnautreview.org.au, (accessed 7 September, 2015).

--- (2013) *Dog days: Australia after the Boom*, Carlton, Victoria, Black Inc, 2013.

Geyl, P., 'Toynbee the Prophet', *Journal of the History of Ideas,* vol. 16, no.2, 1955, pp. 260-74.

Gidley, J., 'Postformal Priorities for Postnornal Times - a Playful Paradox', *Futures: The Journal of Policy, Planning and Future Studies,* Vol. 42, No. 6, 2010, pp. 625-32.

Gierer, A.,'Ibn Khaldun on Solidarity ("Asabiyah") - Modern Science on Cooperativeness and Empathy: A Comparison', *Philosophia Naturalis,* Vol. 38, 2001, pp. 91-104.

Gilding, P., *The Great Disruption: Why the Climate Crisis Will Bring on the End of Shopping and the Birth of a New World,* (1st U.S. edn.), New York, Bloomsbury Press, 2011.

Gill, A. & S. Foss, 'Michel Foucault's Theory of Rhetoric or Epsiteme', *The Western Journal of Speech Communication,* vol. 51, Fall, 1987, pp. 384-401.

Goertzel, B., *The Hidden Pattern: A Patternist Philosophy of Mind,* Boca Raton FL, BrownWalker Press, 2006.

Goldstone, J., 'Towards a Fourth Generation of Revolutionary Theory', *Annual review of Political Science,* vol. 4, 2001, pp.139-87.

Gramsci, A. & D. Forgacs, *The Gramsci Reader : Selected Writings, 1916-1935*, New York, New York University Press, 2000.

Groupe Speciale Mobile Association, 'GSMA Global Mobile Economy Report, 2015' London, 2015

Gupta V., *Transparent Society: Crowdfunding on Blockchains: Ethereum*, Wales Digital, 2015, available at https://www.youtube.com/watch?v=6gVri8wVGPc, (accessed 23 September, 2015).

Hames, R., *The Five Literacies of Global Leadership: What Authentic Leaders Know and You Need to Find Out,* Chichester, England; Hoboken, NJ, Jossey-Bass, 2007.

Hanauer, H. & Beinhocker, E., 'Capitalism Redefined', [online document] available at *Democracyjournal.org* 2014, pp. 30-44, (accessed September 28, 2015).

Hawken, P., A. Lovins, & L. Lovins, *Natural Capitalism: Creating the Next Industrial Revolution* (1st edn.), Boston, Little, Brown and Co., 1999.

Hegel, G., *Elements of the Philosophy of the Right*, [1820], Allen W. Wood (ed.), Cambridge University Press, 1991, [online text] International Relations and Security Network . www.isn.ethz.ch, (accessed 28 October, 2014).

Heinonen, S., J. Karjalainen & J. Ruotsalainen (2015) *Towards the Third Industrial Revolution: NeoCarbon Futures Clinque 1* [online text], FFRC available at http://www.utu.fi/fi/yksikot/ffrc/julkaisut/e-tutu/Documents/FFRC-eBook-6-2015.pdf, (accessed 10 October 2015).

Henderson, H., *Building a Win-Win World : Life Beyond Global Economic Warfare*, San Francisco, Berrett-Koehler Publishers, 1996.

Herkenrath, M., 'Convergence and Divergence in the Contemporary World System: An Introduction', *International Journal of Comparative Sociology,* vol. 46, no. 5-6, 2005, pp. 363-82.

Heylighen, F., 'The Global Superorganism: An Evolutionary-Cybernetic Model of the Emerging Network Society', *Social Evolution & History,* vol. 6, no.1, 2007, pp. 57-117.

Hobsbawm, E. and A. Polito, *On the Edge of the New Century*, New York, New Press, 2000, p. 28.

Hobsbawm, E., 'Marx and History', *Diogenes,* vol. 32, 1984, pp.103-14. http://dio.sagepub.com.ezproxy.usc.edu.au:2048/content/32/125/103, (accessed July 2, 2015).

Holmgren, D. *Permaculture: Principles & Pathways Beyond Sustainability* (1st UK edn.) East Meon, Permanent Publications, 2010.

Hopkins, R., *The Transition Handbook: From Oil Dependency to Local Resilience*, Totnes, Devon, Green Books, 2008.

Huntington, S., '*The Clash of Civilizations'*, New York, Simon and Schuster, 1996.

Ibn Khaldun, *The Muqaddimah; an Introduction to History*, Franz Rosenthal (ed.), Vol.1 (of 3). (Bollingen Series), New York, Pantheon Books, 1958, p. 6.

Inayatullah, S., 'Macrohistory and Futures Studies', *Future Studies*, vol. 30, no. 5, 1998.

--- (1999), *Situating Sarkar: Tantra, Macrohistory and Alternative Futures*, Maleny, Qld., Gurukula Press.

--- (2002), *Understanding Sarkar: The Indian Episteme, Macrohistory, and Transformative Knowledge* (International Comparative Social Studies), Boston, Brill.

--- (2005/07), 'Causal Layered Analysis - Deepening the Future', *Questioning the Future: Methods and Tools for Organizational and Societal Transformation'*, Taiwan, Tamkang University Press, 2014.

Inayatullah. S. & I. Milojević, (ed.), *C.L.A. 2.0. Transformations in Theory and Practice*, Tamkang University Press, 2015.

International Energy Agency, *2012 World Energy Outlook* [Executive Summary], 2012. http://www.worldenergyoutlook.org/publications/, (accessed 24 February, 2013).

IPCC, 5th Intergovernmental Panel on Climate Change; Summary for Policy makers, [online] http://www.climatechange2013.org/images/report/WG1AR5_SPM_FINAL.pdf , (accessed 5 Feb, 2014).

James, I., 'Phenomenology in Diaspora', *French Cultural Studies,* Vol. 17, No. 3, 2006, pp. 319-33.

Jefferies, V., 'Pitirim A Sorokin's Integralism and Public Sociology', *The American Sociologist,* vol. 36, no. 3/4 2005, pp. 66-87.

Kaletsky, A., *Capitalism 4.0: The Birth of a New Economy in the Aftermath of Crisis*, (1st edn.), New York, NY, PublicAffairs, 2010.

Karnouska, S., G. Da Silva & D. Ilic, 'A Survey Towards Understanding Residential Prosumers in Smart Grid Neighbourhoods', (2012).

Kaplan, J., *Humans Need Not Apply*, New Haven, CT, Yale University Press, 2015

Karjalainen J., S. Heinonen, & J. Ruotsalainen, *Towards the Third Industrial Revolution: Neocarbon Futures Clinque 1*, 2015, (Finland Futures Research Centre: FFRC, 2015) at loc. 959.

Katz, J. 'Mobile Phones as Fashion Statements: Evidence from Student Surveys in the Us and Japan', *New Media & Society,* vol. 8, 2006, pp. 321-37.

Keen, A., *The Internet Is Not the Answer : Why the Internet Has Been an Economic, Political and Cultural Disaster - and How It Can Be Transformed,* London, Atlantic Books, 2015, loc. 1142.

Kelly, K. & G. Hayes, *Leading in Turbulent Times*, (1st edn.), Harlow, England, New York, Pearson Financial Times/Prentice Hall, 2010.

Klein, N., *This Changes Everything: Capitalism Vs. The Climate,* New York: Simon & Schuster, 2014.

Kostakis, V. & M. Bauwens, *Network Society and Future Scenarios for a Collaborative Economy*, Palgrave Pivot, Basingstoke, Palgrave Macmillan, 2014, loc. 226.

Kuhn, T., *The Structure of Scientifc Revolutions* (Inernational Encyclopaedia of Unified Science 2), Chicago, University of Chicago Press, 1970.

Kurzweil, R., 'The Law of Accelerating Returns | KurzweilAI'. [online], 2001, available at http://www.kurzweilai.net/the-law-of-accelerating-returns%3E (accessed December 5, 2015).

Lovelock, J., *The Ages of Gaia: A Biography of Our Living Earth*, 1st edn., The Commonwealth Fund Book Program, New York, Norton, 1988.

--- (2006), *The Revenge of Gaia : Earth's Climate in Crisis and the Fate of Humanity*, New York, Basic Books.

Luyckx, M. 'The Transmodern Hypothesis: Towards a Dialogue of Cultures', *Futures,* vol. 31, no. 9-10, 1999.

Mckay, R., (ed.), 'Speculative Realism', *Collapse III*, Falmouth, Urbanomic, 2007.

Markely, O. 'Rethinking the Leagacy of Columbus: A Vision of Business - University Collaboration between North and South', *Futures,* vol. 26, no. 7, 1994, pp. 771-80.

Martens H., 'Utrecht Roadmap to a Third Industrial Revolution' [slideshow online], 2010, available at http://www.slideshare.net/HansMertens/100913-ne-utrecht-master-plan-and-recommendations, (accessed 23 November, 2015).

Martin, J., *The Meaning of the 21st Century: A Vital Blueprint for Ensuring Our Future*, New York, Riverhead Books, 2006.

Mason, P., *Postcapitalism: A Guide to Our Future*, London, Penguin, 2015.

Mathews, J., 'The Renewable Energies Technology Surge: A New Techno-Economic Paradigm in the Making?', *Futures,* vol. 46, 2013, pp. 10-22.

Meadows, D. & Club of Rome, *The Limits to Growth; a Report for the Club of Rome's Project on the Predicament of Mankind,* New York, Universe Books, 1972.

Miller R. & S. Sorrell, (eds)., 'The future of oil supply', *Philosophical Transactions of the Royal Society,* vol. 372, no. 2006, 2014.

Milojević, I. & S. Inayatullah, 'Narrative Foresight', *Futures,* vol. 73, 2015, pp. 151-62.

Nandi, A., *Traditions, Tyranny and Utopias*, New Delhi, Oxford University Press, vol. 187, p.2.

Navari, C., 2000, 'Arnold Toynbee (1889–1975): Prophecy and Civilization', *Review of international studies,* Vol. 26, No. 02. pp. 289-301.

Nissenbaum, H. & Y. Benkler, 'Commons- Based Peer Production and Virtue', *The Journal of Political Philosophy,* vol. 14, no. 4, 2006, pp. 394-419.

Office of Jeremy Rifkin, *About Jeremy Rifkin*, [online], 2005, http://foet.org/JeremyRifkin.htm, (accessed 2 September, 2014).

Oreskes, N. & E. Conway, *The Collapse of Western Civilization: A View from the Future*, New York, Columbia University Press, 2014.

Paradiso, J. & J. Lifton, 'Dual Reality: Merging the Real and Virtual', *FaVE 2009, First International Conference on Facets of Virtual Environments*, Steigenberger Hotel Berlin, Germany, Springer-Verlag, 2009.

Pearson, P. & T. Foxon, 'A Low Carbon Industrial Revolution? Insights and Challenges from Past Technological and Economic Transformations', *Energy Policy*, vol. 50, 2012, pp.117-27.

Pearson, T., *The End of Jobs. Money Meaning and Freedom without the 9-5,* Lioncrest Publishing, 2015.

Perez, C. 'Technological Revolutions and Techno-Economic Paradigms', *Cambridge Journal of Economics*, vol. 34, 2009, pp.185-202.

Petrick, I., & T. Simpson, 'Point of View: 3d Printing Disrupts Manufacturing: How Economies of One Create New Rules of Competition', *Research-Technology Management,* vol. 56 no. 6, 2013, pp. 12-16.

Pierce, B. et al., 'Training Robust Decision Making in Immersive Environments', *Journal of Cognitive Engineering and Decison Making,* vol. 3 no. 4, 2009, pp. 331-61.

Piketty, T. & Goldhammer, A., [translator], *Capital in the twenty-first century*, Cambridge, MA, 2014.

Polak, F. & E. Boulding [translator], *The Image of the Future*, Amsterdam, New York, Elsevier Scientific Pub. Co., 1973

Poppy, G., et al. 2014), 'Food security in a perfect storm: using the ecosystem services framework to increase understanding', *Philosphical Transactions of the Royal Society London, B Biol Sci,* vol. 369, no. 1639 (accessed April 5, 2014), available at 20120288, p. 1.

Porritt, J., *Capitalism as If the World Matters*, (rev. pbk edn.), London, Sterling, VA, Earthscan, 2007.

Priest, G., 'What Is Philosophy?', *Philosophy,* vol. 81 no. 2, 2006, pp. 189-207.

Putnam, H., 'Meaning and Reference', *The Journal of Philosophy*, vol. 70, 1973, pp. 699-711.

Ramos, J., 'Deep Democracy, Peer to Peer Production and Our Common Futures', *Futura*, vol. 31, Finland, 2012.

Ramos, J., 'Cosmo-Localization', *Local Lives - Global Matters Conference*, Castlemaine, ActionForesight, 2015.

Ravetz, J. & S. Funtowicz, 'Uncertainty, Complexity and Post Normal Science', *Environmental Toxicology and Chemistry,* vol. 13, no. 12, 1994, 1881-85.

Raskin, P., 'A Great Transition? Where We Stand', *Biennial conference of the International Society for Ecological Economics (ISEE),* [conference paper], Reykjavik, Iceland, 2014.

Ricoeur, P., *Time and Narrative*, vol. 1, Chicago, University of Chicago Press, 1984.

--- (1985), *Time and Narrative*, vol. 2, Chicago, University of Chicago Press.

--- (1988), *Time and Narrative*, vol. 3, [online text] Chicago, University of Chicago Press, Amazon (accessed 7 September 2014).

Rifkin, J., *Time Wars: The Primary Conflict in Human History* (1st Touchstone edn.), A Touchstone Book, New York, Simon & Schuster, 1989.

--- (2002), *The Hydrogen Economy: The Creation of the Worldwide Energy Web and the Redistribution of Power on Earth*, New York, J.P. Tarcher/Putnam.

--- (2004) *The European Dream : How Europe's Vision of the Future is Quietly Eclipsing the American Dream* [online text], J.P. Tarcher/Penguin, available at <Contributor biographical information http://www.loc.gov/catdir/enhancements/fy0720/2004047935-b.html, (accessed 23 September, 2015).

--- (2009), *The Empathic Civilization: The Race to Global Consciousness in a World in Crisis,* New York, J.P. Tarcher/Penguin.

--- (2011), *The Third Industrial Revolution: How Lateral Power is Transforming Energy, the Economy, and the World*, New York, Palgrave Macmillan.

--- (2014), *The Zero Marginal Cost Society: The Internet of Things, The Collaborative Commons, and The Eclipse of Capitalism*, New York, Palgrave Macmillan.

Rifkin, J. & T. Howard, *Entropy: Into the Greenhouse World* (Rev. edn.), New York, Bantam Books, 1989

Roy, A., *Capitalism: A Ghost Story*, London, Verso, 2014.

Runia, E., *Moved by the Past: Discontinuity and Historical Mutation,* European Perspectives; New York: Columbia University Press, 2014.

Sandel, M., 'What Money Can't Buy: The Moral Limits of Markets', *The Tanner Lecture on Human Values,* Oxford, Brasenose College, 1998.

Sanderson, S., & A. Alderson, *World Societies: The Evolution of Human Social Life*, Boston, Pearson, 2005.

Sardar, Z., *Postmodernism and the other: the new imperialism of Western culture,* London, Pluto Press, 1998.

--- (2010), 'Welcome to postnormal times', *Futures,* vol. 42, no. 5, pp. 435-44.

Schwab, K., *The Fourth Industrial Revolution* [online text], World Economic Forum, 2016, available at www.wefoum.org (accessed 25 September, 2015).

Schwartz, P., *The Art of the Long View [Planning for the Future in an Uncertain World],* New York, Bantam Doubleday, 1995.

Shirky, C. *Here Comes Everybody: The Power of Organizing without Organizations*, New York, Penguin Press, 2008.

--- (2011), 'The Political Power of Social Media', *Foreign Affairs,* vol. January/February, 2011, pp. 29-41.

Slaughter, R., *The Biggest Wake up Call in History*, Foresight International, 2010.

--- (2012) *To See with Fresh Eyes: Integral Futures and the Global Emergency,* Indooroopilly, Qld., Foresight International, 2012.

Smith, A., 'Wealth of Nations', [online text], Pennsylvania State University, 2005, available at http://www.rrojasdatabank.info/adamsmith/wealthp1.pdf. (accessed 28 October, 2014).

Sokoloff, K. & Engerman, S., 'History Lessons: Institutions, Factors Endowments, and Paths of Development in the New World', *The Journal of Economic Perspectives*, vol. 14, 2000, pp. 217-32, available at http://www.jstor.org/stable/2646928, (accessed 17 April, 2015).

Sorokin, P., *Social & Cultural Dynamics: A Study of Change in Major Systems of Art, Truth, Ethics, Law and Social Relationships*, Boston, Massachusetts, Porter Sargent, 1957.

Spengler, O., *The Decline of the West*, H. Werner (ed.), Abridged edn., New York, Vintage Books, 2006.

Srnicek, N. & A. Williams, *Inventing the Future: Folk Politics and the Struggle for Postcapitalism,* Brooklyn, NY, Verso Books, 2015.

Stanwick J. et al., 'How Young People are Facing the Transition From School to Work', National Council for Vocational Education, Australia, 2015.

Steinberg, L., J. Kincheloe, & R. Shirley, 'A Tentative Description of Post-Formal Thinking: The Critical Confrontation with Cognitive Theory', *Harvard Education Review,* vol.63, no.3, 1993, pp. 296-320.

Sterling, B., *Design Fiction*, [e-book], 2012, available at *http://interactions.acm.org/content/?p=1244*. (accessed 24 March, 2014).

Stokols, D 'Towards a Science of Transdiscipliary Action Research', *Am J Community Psychology,* vol. 38, 2006, pp. 63-77.

Strauss, W. & N. Howe, *The Fourth Turning: An American Prophecy* (1st edn.), New York, Broadway Books, 1997.

Styhre, A. 'Knowledge Management and the Vision Machine: Paul Virilio and the Technological Constitution of Knowledge', *Knowledge and Process Management,* vol. 13, no. 2, 2006, pp. 83-92.

Tainter, J., 'Sustainability of Complex Societies', *Futures,* vol. 27, no. 4, 1995, pp. 397-407.

--- (1998), *The collapse of complex societies* (New studies in archaeology), Cambridge, Cambridgeshire, New York, Cambridge University Press, 1988.

--- (2011), 'Energy, complexity and sustainability: A historical perspective', *Energy Innovation and Societal Transitions,* vol. 1, pp.89-95.

Tappan, M., 'Interpretive Psychology: Stories, Circles and Understanding Lived Experiences', *Journal of Social Sciences*, vol. 53, 1997, pp. 645-56.

Tapscott, D. & A. Williams, *Macrowikinomics: Rebooting Business and the World*, New York, Portfolio/Penguin, 2010.

--- (2015), *Radical Openess: Four Unexpected Principles for Success*, [online], New York, TED Conferences LLC, 2015, loc. 701.

Taylor, G., *Evolution's Edge: The Coming Collapse and Transformation of Our World*, Gabriola Island, B.C., New Society Publishers, 2008.

Thurow, L., *The Future of Capitalism : How Today's Economic Forces Shape Tomorrow's World* (1st edn.), New York, W. Morrow, 1996.

Tilly, C., *Stories, identities, and political change*, Lanham, MD: Rowman & Littlefield, 2002.

--- (1979) 'As Sociology Meets History', *CSIRO Working paper No 193*, Michigan, University of Michigan.

Toffler, A. *Future Shock*, Random House, 1970.

Toyama, K. *Geek Heresy: Rescuing Social Change from the Cult of Technology,* New York, Public Affairs, 2015.

Toynbee, A., *A Study of History*, Sommerville D.C. (ed.), (2 vols.), (First American edn.), New York, Oxford University Press, 1947.

--- (1956), *The industrial revolution*, Beacon paperbacks, Boston, Beacon Press.

--- (1961), 'Reconsiderations', *A Study of History, vol.12,* Oxford University Press.

Venn, C., 'Altered States: Post-Enlightenment Cosmopolitanism and Transmodern Socialities', *Theory, Culture & Society*, vol. 19, 2002, pp. 65-80.

Ventresca M, M. Dacin & B. Beal, 'The Embeddedness of Organizations: Dialogue and Directions', *Journal of Management,* vol. 25, no. 3, 1999, pp. 317-56.

Virilio, P., 'Dromoscopy and the Ecstasy of Enormity', *Wide Angle,* vol. 20, no. 3, 1998, pp. 11-22.

--- (2000), *The Information Bomb*, Radical Thinkers, London, Verson.

Wagner, P., 'Modernity History of the Concept.', *International Encycolpaedia of Behavioural Sciences,* 2001, pp. 9948-54, p. 9949.

Wajcman, J., *Pressed for Time: the Acceleration of Life in Digital Capitalism,* Chicago, The University of Chicago Press, 2015.

Wallerstein, I., *World-Systems Analysis: An Introduction*, Durham, Duke University Press, 2004.

---(2013) *Does Capitalism Have a Future?*, New York: Oxford University Press, USA.

Wheatley, M., *Leadership and the New Science : Discovering Order in a Chaotic World* (3rd edn.), San Francisco, CA, Berrett-Koehler, 2006.

Williams, A. & D. Tapscott 'Radical Openess', New York, TED Books, 2013.

Yakovets, Y., *The Kondratieff's Waves and Cyclic. Dynamics of the Economy and Wars: Theory and Prospects*, IOS Press, 2006.

Zucman, G., T. Lavender Fagan, & T. Piketty, *The Hidden Wealth of Nations: The Scourge of Tax Havens*, Chicago, The University of Chicago Press, 2015