Smart cars and smart insurance: analysing the trends

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Abstract *In this article, written as part of a consulting report for the insurance industry, key trends that are likely to impact the motor insurance industry are presented. These trends include: globalization; the rise of the cultural creatives; customization; the rise of the info-tailor; and ageing. From these trends sketches of three scenarios are presented. These are the great divide; smart cars and smart insurance; and from cars for all to mobility for all.*

This article focuses on the motor insurance industry and aims to:

- provide an initial assessment of the key trends creating the future;
- outline the drivers creating the future; and,
- analyse the trends and drivers, using causal layered analysis.

A futures approach asks: what in one's core business (product or competency) is likely to change and what is likely to remain the same in the time span that is under focus, in this case ten years? This, a futures approach, seeks to understand what are:

- the probable futures (given current likely trends);
- the preferred futures (the aspirations of the industry); and,
- the possible futures (outliers, divergent futures based on emerging issues).

Generally this is accomplished by using scenarios. Scenarios have a range of purposes. These include:

- Contingency plan – what might go wrong.
- Distancing from the present – make the present remarkable – change today.
- Contour the unknown – bind the future.
- Manage complexity – pictures of the future.
- Find new opportunities – growth, better service to employees, the public.
- Understand and manage uncertainties – what to do when we don't really know.
- Help clarify alternatives to make better decisions today.
- Think the unknown – open up spaces.
- Develop organizational capacity – thinking, learning organization.

While scenarios provide breadth, causal layered analysis attempts to provide depth (Inayatullah, 2001). It provides a map of the future at four layers – the litany, most visible and immediate; the social, political, economic and technological, the policy research dimension; the worldview – generally invisible to many, this is the big picture and of long-term orientation; and, finally, the myth/metaphor, or the story. This last part is the longest-term, the most subjective, and the least visible.

For example, when we begin to think of the futures of car and car insurance, the most visible is the discussion on

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smart cars/general positioning systems (GPS). In this future, the key is high-technology adoption. By making the car smarter, there are likely to be fewer accidents, fewer insurance claims. This is essentially about: making the experience safer, less tiresome and smarter. Of course, there are privacy issues.

Carlson (2001) writes:

> Civil libertarians would also like to do away with the Sniffer, a $600 flashlight that illuminates the inside of a car and the blood-alcohol level of the person in it quicker than a weaving driver can say that he has had only two beers. A man's car is his castle after all.

However, with 42,000 Americans dying from road deaths a year, there may be other factors here, that is life and safety. Moreover, recent Supreme Court Rulings have not afforded privacy protection to the car[1].

The question is: will car-driving behaviour change, as smartness takes over? Will drivers feel safer knowing that the drunk are being electronically monitored and disabled? Most likely, more people will drive longer. Already, the total distance travelled by vehicles in Australia in 2000 was 181 billion km (the average distance per vehicle was 14,800km). At a social policy level, the issue is not just smart cars, but rather the interface between cars and transport systems – institutional innovation that keeps up with technological sophistication[2]. There is a range of positions. First is the car-discourse – that cars represent freedom and thus smart cars, while exciting, invade privacy. Second is the public safety, structural view that, given the high casualty rate from cars, driving is not a personal but a public concern. Third is not related to cars at all but to the issue that driving is essentially about communicating. As tele-presence increases (video plus e-mail plus smell plus voice), then the need for car travel will dramatically decrease (the number of e-mails sent each day is 10 billion). Also, as tele-tourism and the virtual society continue to develop exponentially, cars as modes of transportation to reach specific spaces will also become more important. Why drive when being there virtually is just as good? There is a fourth myth/metaphor level that asks what is the underlying story here: space as distance versus the compression of space and time; time becoming far more important than space, perhaps?

Causal layered analysis thus seeks to open up spaces for alternative futures. Below we unpack the futures of smart cars:

(1) At the litany level the discussion is focused on smart cars (and smart houses) essentially through GPS.
(2) The social, political, technological, economy level raises issues of privacy, and also of massive saving, as, for example, with the Orchid System[3].
(3) At the worldview level, the issues are: smart cities and smart communities with cars that do not move and highways that do; rethinking the community, creating slower time, and ending the domination of the car; rethinking the vision of a car for all to mobility for all as well as communication for all.
(4) The myths underlying this are:
    - The smart high-tech frictionless surveillance city.
    - The organic communities, far less city, and far more communication with public transport.

Key trends

What then are the key trends?

Globalization

Globalization essentially means a global division of labour, outsourcing for most corporations and movement of capital wherever it seeks to go. This is the first phase and subsequent phases are likely to see movement of labour, ideas as well as increased global protocols on pretty much everything – global warming, rights of robots, international refugees, new viruses, international standards on every possible item – The European Commission writ large.

In Australia, this means many Australias. A globalized high flying international sector and consumer; an out-suburb far poorer, and a dramatic increase of single, poor, alone and female households. In 1996, the lowest 20 per cent shared 5.3 per cent of the total income compared with the wealthiest 20 per cent who shared 46.1 per cent of Australia's total income[4].

As globalization breaks down communities, we also see transformations in the family. Professor Rob Moodie, the CEO of VicHealth, argues that the long-term trend is social isolation (Moodie, 2000):

> Information put together by the Australian Bureau of Statistics suggests that, although we are interacting with a wider range of people, more of us will live alone in the future. It is estimated that by 2030, one in 7 Australians will be alone at home compared to one in 12 in 1996. Approximately one quarter of these will be 75 years or older, and of these three quarters will be women. Families are changing. With rising divorce rates and an increasing number of children living with one parent, almost one third (31%) of 0-4 year olds are projected to be living with one parent by 2021. Household size is projected to decrease from 2.6 per household to 2.2 in 2030, reflecting an increase in those who live alone, in couple-only families, and in one-parent families. In addition to people being more likely to live alone, current trends indicate that we will spend more time by ourselves. In only 5 years from 1992 to 1997 the proportion of our waking time spent alone increased by 14% to 3 hours a day, with more marked increases among those that live alone, the elderly, men, and people with disabilities.
>
> Time spent alone may not, in itself, be an indicator of social isolation. However, it produces very interesting results if combined with the measure of time use, that is, the extent to which people report that they always or often have spare time. It is young people aged between 15-24 years old that are the most likely to report always or often having spare time. Followed closely by the elderly with disabilities.
>
> The figures are telling us that the number of socially isolated individuals in Australian society is growing. Repeated observation of the impact of social isolation is telling us that the consequences are dire. We know that those who are socially isolated die at two to three times the rate of those with good social networks. On the other hand we know that adolescents who have someone to depend on, someone to trust, someone they can talk to and someone who knows them well are much less likely to report depressive symptoms than those who don't report good support networks.

The rise of the cultural creatives

However, along with the trend towards isolation is a trend towards social connection, at individual, cultural and spiritual levels. In the USA, they are 50 million strong (26 per cent of all adults) – a population the size of France, and growing. Ray and Anderson have labeled them "cultural creatives". Here is a list of 18 characteristics; if you have ten or more of them, you are probably a cultural creative:

(1) love nature and are deeply concerned about its destruction;
(2) are strongly aware of the problems of the whole planet and want to see action to curb them, such as limiting economic growth;
(3) would pay more taxes or higher prices, if you knew that the money would go to clean up the environment and stop global warming;
(4) give a lot of importance to developing and maintaining relationships;
(5) place great importance on helping other people;
(6) volunteer for one or more good causes;
(7) care intensely about psychological or spiritual development;
(8) see spirituality and religion as important in your own life but are also concerned about the role of the religious right in politics;
(9) want more equality for women at work and want more women leaders in business and politics;
(10) are concerned about violence and the abuse of women and children everywhere on earth;
(11) want politics and government to emphasize children's education and wellbeing, the rebuilding of neighbourhoods and communities, and creation of an ecologically sustainable future;
(12) are unhappy with both left and right in politics and want a new way that is not the mushy middle;
(13) tend to be optimistic about the future and distrust the cynical and pessimistic view offered by the media;
(14) want to be involved in creating a new and better way of life in our country;
(15) are concerned about what big corporations are doing in the name of profit: exploiting poor countries, harming the environment, downsizing;
(16) have your finances and spending under control and are not concerned about overspending;
(17) dislike the modern emphasis on success, on "making it", on wealth and luxury goods;
(18) like people and places that are exotic and foreign, and enjoy experiencing and learning about other ways of life.

What this means is that customers are likely to be willing to pay more for insurance to a company that is committed to reducing CO_2 levels, that wishes to play an active part in reducing environmental degradation.

Cultural-creative customers are likely to desire their insurance company to be:

- a good global citizen;
- work for the environment;
- be reliable, that is pay up easily when there is a claim;
- be gender-friendly, partnership-oriented; and
- understand that customers have busy lives and desire seamless (Star Alliance) type products.

Customization

Customization becomes possible through two main transformations. First is that of genomics, or the search for genetic factors that cause behaviour. It is the search for drugs that can target various disease dispositions. This is pharmaco-genomics. Second is the rise of the Net, and technologies that are individual-specific. Generally, these are health bots or eco bots. They are crucial in that they are:

- *Learning-based* (the product transforms as it learns about you).
- *Interactive* (it learns through interaction).
- *Individualized* (based on your needs or your group needs).
- *Immediate*. One gets information on particular behaviour instantly. While developments have focused on health bots (letting you know about caloric count, or when you need immunization). These are health coaches or a health professional on a wrist.

In Australia, in banking this has recently been expressed as tailoring. For car insurance, Progressive Insurance allows lower insurance costs, if you allow them to track your driving behaviour. "If the car is used less often, and at quieter times of the day, the monthly insurance bill can be lower"[5].

It is also tailored by being there at the time of need, right at the crash, acting as guardian angel (directly phoning emergency service providers, police, the insurer, as need be) and as claims processor. By using wireless and e-mail, all integrated and seamless, the individual's needs are met in a timely and efficient manner (Sinpes, 2001).

The key here is that genomics and the Net challenge the standardization paradigm of the industrial era. Post-scarcity/third-wave economies are about creating products for individuals and batches of individuals (or like-minded communities).

A scenario written by a high school youngster for the Creating Preferred Futures School Project says it like this (Khatim *et al.*, n.d.):

> I smiled and stared at the car. It had amazing styling and aerodynamics. I reminisced about my parents' car. It was an old car that had no style and no class. It was bulky and had no appeal. Automakers soon discovered that they could not market the cars they were selling to my parents' generation to my generation. Soon automakers were recruiting young artists to draw concept cars to market to our generation. By the time I was old enough to buy a car, there were hundreds of choices for cool cars, all at extremely low prices.

What is being asked for is, at one level, market segmentation – youth versus old – but, at another level, it is endless choice, as one might get over the Net.

For the insurance industry, this is about developing products that are individually specific. Says one user of progressive products, "My insurance costs are almost half the price of what I was paying before" (Krueger, 2000). Says one enthusiastic customer: "I pay for my utilities by usage – why not my insurance?" (Goch, 2001).

While a simplistic reading is that this is merely market segmentation, that is so, only if we see it within current GPS technology[6]. As the technology develops, and becomes more interactive/individualized and intelligent, it allows consumers to increasingly rank products and services. This ranking can be on an entire range of issues, from triple bottom line, to reliability, to ability to pay. A car-bot/house-bot or insurance-bot can thus help both customer and provider.

The rise of the info-tailor

However, as a prior step there will be the info-tailor. This is the transformation of the middleman to knowledge navigator. If the middleman does not do this, i.e. rise up to the challenge of disintermediation, he will find himself jobless and moneyless. However, as the Web becomes more intelligent and creates what Michael Kull calls Guardian Angel Software, these agents will "track your medical history for life, alert you when your car needs maintenance, or provide data to marketers, who will only try to sell you things you want to buy" (Kull, 2001). The middleman is likely to reinvent himself as an info-tailor, a knowledge navigator, providing customized information and services (either working with your bots or as a step before bots are cheap enough for all). For example, "Today's insurance broker is basically a pedlar. Tomorrow's will be an info-tailor, who will mix, blend and adjust insurance for minute segments of the market in ways the current broker couldn't dream of" (Kull, 2001).

This then continues the four-step process:

(1) *Using the Web to provide information* – companies use the Net to provide static information to customers.
(2) *Exchanging information* – companies use the Net to set up dialogues with customers.
(3) *Sharing process* – companies use the Net to integrate their businesses (back-room offices – alliances with other companies).
(4) *Interactive processes* – learning from customers and developing products (first dumb and then intelligent) that they need, desire, and co-create[7].

Demographic shifts and ageing

As we age, moving from a society of a median age of 20 to a median age of 40 and, indeed, with some claiming that life extension will extend our lives even further, current values and social structures are likely to be challenged. Essentially this will mean a rethinking of mobility. While the car is about transport, it is also about freedom, about the American dream of endless mobility, of being able to colonize the universe, go where no man has gone before. With ageing, this becomes problematic.

Roger Coleman offers one solution. Instead of focusing on a car for all, he asks why not mobility for all? This is because, as we age, our driving habits (reduced hearing and vision) may make us potential dangers. Yet, older people do not want to lose their independence, their mobility. Moreover, with car pollution being an increasing factor, the earth factor, what are some other ways to rethink the future of cars (and thus car insurance)?

He writes:

> For example: what if Ford ... were to consider offering "Mobility for Life" rather than a new car every three or four years? What difference would that make to brand loyalty? And what sort of vehicle would it give rise to? Suppose I could order a taxi whenever I wanted it, or a car, or a bus or coach, depending on the sort of journey I was taking, and all from the company from which I once bought cars. Suppose that a visit to the supermarket involved ordering a pick-up via teletext, and a convivial trip on a small bus, which would deliver me and my purchases back to my front door, with a friendly driver to carry the bags? Or imagine a trip to visit my grandchildren in Italy beginning with a courier collecting me from home and delivering me "fast track" to my plane, with someone else to meet me at the other end and put me on a train to the station, where my son and daughter-in-law would collect me? The fact is, a clever mixture of information technology, imaginative service concepts and specialised vehicles facilitating this concept of "Mobility for All" could reduce environmental demand, increase accessibility, improve the quality of life of older and disabled people (and "normal" people too) and offer new commercial opportunities to the very companies threatened by a reduction in traffic volume.

Emerging issues

While these are the short- to medium-term trends, are there any divergent trends of which we need to be aware? These three promise to transform how we see insurance futures:

(1) Genetics and the creation, in the long term, of smarter drivers.
(2) Post-oil futures. Will cars change what fuel they need, or will we enter a post-car world?
(3) Nano-technology and car and home design. Nano-technology promises to dramatically change the nature of the world, making a post-scarcity world for all. Insurance will have to undergo a dramatic shift, as scarcity is rethought.

Organizational change

What will the trends mean for organizations? In a brilliant article Robert Laubacher, Thomas Malone and the MIT Scenario Working Group argue for two scenarios for the future organization (Laubacher *et al.*, 2001).

One is the dramatically networked, high-tech, just-in-time, smart, globalized, small-is-beautiful organization with fluid teams, meeting and disappearing. Instead of the dinosaur era of GM, Microsoft and Sony, it is the tiny mammals that create value. In this, new organizations step up to meet the need for life maintenance requirements – the need for health insurance, protection against unemployment, professional development, community belonging. These are done by a range of organizations, including civil society.

The second is the virtual corporations that define our reality, our movement, our identity, our passwords and passports. These are large, vertically and horizontally integrated firms, pervasive role of firms in employees' lives, employee ownership of firms and employee selection of firm management. It is size, integration plus some level of economic democracy. The firm manages all levels of insurance.

Both challenge the current state of insurance delivery.

Scenarios

What then are the plausible pictures of the future? We provide these sketches from which fully-fledged scenarios can be developed:

- *Great divide* – GPS for the rich, nothing for the poor, and resultant social problems which that will cause. This leads to family, class and gender differentiation. At heart this scenario is about exacerbating differences.
- *Smart futures* – smart cars, drivers, transport systems, houses and cities. This scenario is less concerned about differences, since the individual in his/her virtual and seamless worlds is king.
- *Car for all to mobility for all* – integrated communication and transport systems. Life-time buy-in via large corporations. In this scenario, transport is dramatically rethought.

Questions: What are other scenarios? In each scenario, what are the points of uncertainty (for example, ownership versus use?). What will be the market size for insurance in each scenario? Which is the likely future?

And finally what new products can emerge from the alternative futures posited?

Conclusion

These trends point to the need for insurance companies to rethink how they insure. While the future may be quite similar to the present, the trends developed above point to quite dramatic changes. This is especially so for the emerging issues. However, given the uncertain nature of the future, scenarios of cars and insurance are the best possible way forward. Yet, scenarios should not be constructed using flat methodology. Instead, as argued above, layers of analysis are needed, moving the discussion from smart cars to rethinking community and mobility.

Notes

1 The USA Supreme Court protected a house from a high-tech surveillance device capable of detecting a marijuana lamp from afar, but extended no such protection to a car (Carlson, 2001).

2 This is about using technology to improve traffic management. Improved traffic management can ease congestion. "Most major cities have mission-control-style traffic management and coordination centres, that, for example, could use Blue Tooth communications to adjust everything from the timing on traffic-lights to the throttle speeds of vehicles moving along a heavily travelled freeway on automatic pilot. Blue Tooth is a low-frequency, radio-like communications band that transmits over a limited area. It could be used by cars on one stretch of highway to communicate with one another and stay out of one another's way."

3 Orchid uses satellite-based technology to enable vehicle fleet operators to monitor the activities of their entire flight. These services include: vehicle and equipment load tracking, real-time traffic information, emergency services support, vehicle violation alarms, out-of-hours monitoring, in-cab messaging services, verification of driver overtime claims, and construction of route plans. Global Telematics to help cut fleet insurance costs by 50 per cent. M2 presswire. M2 Communications.

4 Australian Bureau of Statistics.

5 www.overmorgen.com/2000/8 (accessed 4 September 2001).

6 This is essentially about forewarning:

(1) To provide warning of hazards at relatively low cost because of advances in chip technology.

(2) Also, calling for help after the accident.

(3) Advanced driver monitoring – technology that may use a combination of biological sensors, eye-tracking devices, and vehicle-steering information to provide information that could, for example, trigger an audible warning device, if the driver falls asleep.

(4) Inclement weather indicator – a feature included in the vehicle's integrated communication system that monitors local weather roadcasts and provides the driver with updated advisories on potentially hazardous weather.

(5) Road surface condition monitor – a sensing system that could reliably indicate to the driver whether the roadway ahead is wet, dry, icy, or rough.

7 Web Services and the Insurance Business. www.webservicesarchitect.com/content/articles/macrosander01.asp (accessed 9 June 2001) ■

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