What becomes a car?

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Introduction

At the 2013 Automotive News World Congress, IBM said that “their experience from decades of working with auto manufacturers shows that those who are able to quickly transform to an innovative, customer-centric approach are those best positioned to succeed.”

We chose this quote from IBM because it illustrated that the future direction of the global automobile industry may be determined as much by technology companies such as IBM, Google or Apple, as by automotive companies such as Ford, Volkswagen or Toyota.

We consider the main forces now ‘driving’ the global automotive industry, including the changing nature of manufacturing and marketing, and the evolving impacts of digital technologies. Our main interest is in the changing nature of capabilities that will be required if automobile companies are to ensure their corporate renewal, as opposed to succumbing to what Schumpeter termed their likely ‘creative destruction’ (1942). In the process, we examine the apparent ‘convergence’ of products and services and ICTs that is now taking place, and what Karmarkar (2010) terms the emergence of ‘information services’. Out of this arise a number of questions, for example: In this service industrialization world, what is a connected car? And what firms/industries are likely to be involved - or possibly successful - in this process of cars being connected as ‘nodes’ in a network? We then consider the implications of the constantly connected customer in terms of their car buying and car usage, and what this might mean for what Google know as ‘context-driven marketing’. We conclude by proposing three possible research avenues for the workshop to consider.

1. Viewing Manufacturing and the Global Car Industry Through a Theoretical Lens of Strategy, Innovation and Corporate Reinvention

We begin by considering theories to do with strategy, innovation and corporate reinvention as it applies to manufacturing industries in general, and the car industry in particular. We believe theories are important building blocks for executives as they scan their environments for signals of change. We will also explore how theories of corporate renewal are important to the auto industry.

Two decades ago Normann and Ramirez (1993) said: “Strategy is the art of creating value. It provides the intellectual frameworks, conceptual models, and governing ideas that allow a company’s managers to identify opportunities for bringing value to customers and for delivering that value at a profit... Increasingly, successful companies do not just add value, they reinvent it.”
The Austrian economist, Joseph Schumpeter, predicted (1942) continuous cycles of business disequilibrium, and the likely eclipsing of established businesses and organisations that were unable to sustain corporate renewal in the face of these cycles. He termed this ‘creative destruction’, and argued: “This process of Creative Destruction is the essential fact about capitalism. It is what capitalism consists in and what every capitalist concern has got to live in.”

Huyett and Viquerie agree. In a 2005 McKinsey Quarterly report they say: “The ‘topple rate’, at which companies lose their leadership position, doubled in the 20 years to the mid-1990s. New technologies eclipsed long-established industry champions, and nimbler competitors with sharper value propositions and lower costs emerged, seemingly from nowhere, to take their place... In many ways, however, the 1990s were just the start of a massive reshaping of the global economy that will continue for the next 10 or 20 years.”

In its June 2010 edition, the Harvard Business Review ran a series of articles dealing with strategies for a changing world. They introduced the section with the challenge: “The new normal means constant change. Companies need to reinvent themselves if they want to survive.”

Christensen and Overdorf (2000) argue, the problem with corporate reinvention is that “Successful companies, no matter what the source of their capabilities, are pretty good at responding to evolutionary changes in their markets... Where they run into trouble is in handling or initiating revolutionary changes in their markets, or dealing with disruptive innovation.”

Our journey of investigation into the drivers of corporate reinvention first led us to consider two converging perspectives in general: the changing nature of global manufacturing and marketing, and the evolving impacts of digital technologies. From this we then considered their implications for the global automotive industry.

If the sources we considered for this paper are accurate in their assessments, many current incumbents in the automotive industry are now in the early stages of reinventing themselves. The automobile industry and its expanding network of stakeholders is not alone in this process of transformation. As we discuss throughout the paper, their transformation is being driven in a large part by the inexorable spread of information and
communications technologies (ICTs).

For example, in a general study in 2005 McKinsey Quarterly report Huyett and Viguerie argue that three “supply-side forces”, in particular, had combined “to unleash innovation and to expand productivity and GDP on a scale never seen before”:

1. **Globalization** (especially the big low-cost economies);
2. **New Technologies** (including new networking and communication infrastructures created in the 1990s as a result of the convergence of digital technologies); and
3. **Economic Liberalization**.

In their study of digital megatrends to 2015, *Oxford Economics* (2011) explain the characteristics of what they term the ‘**New Normal Market**’:

1. Sluggish growth in advanced economies;
2. A shift in economic power to emerging markets;
3. More value-driven consumers;
4. An era of heightened risk and uncertainty; and
5. A ‘Third Wave’ in capitalism’s foundations of business: Globalisation combined with the new digital technologies.

*Oxford Economics* (2011) say that: “The shift to the new normal economy alone would be enough to trigger a major transformation of global business trends and strategies. But it has coincided with a wave of new digital technologies that will themselves be equally transformative.”

*Oxford Economics* add that digital technologies are now forming “the operational foundation for virtually every market, and they are crucial to create the flexibility and speed required for success in this new environment.”

They argue that the four new digital megatrends reshaping businesses are:

1. Mobile devices reaching ubiquity;
2. Cloud computing coming of age;
3. The rising of on-demand business intelligence; and
4. Social media and collaboration becoming the norm.

A 2012 KPMG Global Automotive Executive Survey found eight MACRO-FORCES affecting the automotive industry:

1. Ubiquitous connectivity is changing customer behavior;
2. Electromobility remains challenging;
3. Innovative urban mobility concepts getting popular;
4. Retail: service-orientation & financing e-components;
5. Overcapacity & excess production are unresolved issues;
6. OEMs on top of realigning value chain;
7. Joint ventures & alliances best solution to cut through complexity; and
8. Growing strength/priorities of the emerging markets;

A related issue that is common to these studies has to do with the new corporate capabilities that might now be required.

2. Manufactures Look for New Capabilities

KPMG (2012) ask: “What does it take to succeed in the new automobile landscape?”

At a general manufacturing level, McKinsey (2012) sum up the situation with an argument for agility: “The new era of manufacturing will be marked by highly agile, networked enterprises that use information and analytics as skillfully as they employ talent and machinery to deliver products and services to diverse global markets…”

“Agility in operations goes far beyond simply ensuring business continuity in the face of risk; it is also about exploiting opportunity, raising the clock rate, and building resilience to daily shocks...

New information technologies and new methods (such as big data and analytics) will require new tools, talent, and mindsets. To respond quickly to changes in market requirements and meet the demand for faster product cycles, companies will need to build integrated ecosystems of suppliers, researchers, and partners.”
This echoes an earlier McKinsey report (Bughin and Chui, 2011) on business technology in which building networks was also stressed:

“The imperative for business leaders is clear: falling behind in creating internal and external networks could be a critical mistake. Executives need to push their organizations toward becoming fully networked enterprises.”

Advocates for new capabilities in the automobile industry make similar recommendations, and these include issues that range from understanding how digital-savvy consumers make preferences to incorporating unfamiliar ICTs into ‘autonomous’ vehicles. For example, in a 2010 Booz & Company report, Corwin et. al. say:

“To earn sustainable profits in this rapidly altering landscape, automakers must differentiate themselves by developing distinctive capabilities. Specifically, they must more nimbly and creatively address customer preferences, vehicle innovation, smarter and increasingly autonomous vehicles, revenue optimization, and even more rapid product life cycles...

“Automakers need to develop differentiated capabilities in these areas: responding to customer needs; new powertrain and component technology for greener automobiles; electronic controls and software for smart and information-rich autos; and maximizing vehicle life-cycle profitability in both the short term (pricing and promotions) and long term (platform investment economics).”

At the 2013 Automotive News World Congress, IBM say that “their experience from decades of working with auto manufacturers shows that those who are able to quickly transform to an innovative, customer-centric approach are those best positioned to succeed.”

For car makers, the general arguments appear to be for greater adaptability and agility in rapidly launching increasingly complex, sustainable vehicles and e-mobility services; creating new business models with intelligent, connected vehicles; and transforming retail and improving customer experiences. All this suggests another issue facing auto
manufacturers has to do with identifying drivers of change that might now be transforming the nature and meaning of a car itself.

3. The Convergence of Products and Services and ICTs, and the Emergence of ‘Information Services’

Karmarkar (2010) argues that we are witnessing the long-term development of two trends: the move to a service economy and the evolution to an information economy. He concludes: “Information Services is where these two trends come together… More and more value will continue to accrue to services, to the information sector and to their intersection: information services.”

Karmarkar adds, perhaps ominously for all auto companies that: “It looks as though Apple and Google may also play a significant role in this area in the future.” It may not only be Apple and Google. As we will show, other companies such Amazon, IBM, Intel, and Microsoft are also actively considering the strategic advantages of integrating ICTs into automobiles.

Two issues pertinent to our interest are raised in the McKinsey (2012) report. The first issue has to do with how and why it is now becoming difficult to distinguish manufacturing from services, as many manufacturing activities now blur with service activities: “The sector (global manufacturing) is also evolving in ways that make the traditional view – that manufacturing and services are completely separate and fundamentally different sectors – outdated.”

The idea that the product is becoming a service is not new, and this idea has been well explored in the academic marketing literature, especially the “Service Dominant Logic” body of thought promulgated by Vargo and Lush (2004; 2006). We will not explore that specific argument here, for our emphasis is on the drivers of service industrialization, as discussed by Karmarkar (2010).

The second issue has to do with the ubiquitous spread of information and communication technologies (ICTs), and their implications for all industries. This idea is also not new. For example, in a 1991 Harvard Business Review article Brown forecast that:
“At the foundation of our new approach to research is a particular vision of technology. As the cost of computing power continues to plummet, two things become possible. First, more and more electronic technology will be incorporated into everyday office devices. Second, increased computing power will allow users to tailor the technology to meet their specific needs... Both these trends lead to a paradoxical result. When information technology is everywhere and can be customised to match more closely the work to be done, the technology itself will become invisible. The next great breakthrough of the information age will be the disappearance of the discrete information-technology products. Technology is finally becoming powerful enough to get out of the way.”


In another 1991 Harvard Business Review article McKenna predicts:

“Marketing’s transformation is driven by the enormous power and ubiquitous spread of technology... Technology has moved into products, the workplace, and the marketplace with astonishing speed and thoroughness... The result is the transformation of both technology and the product and the reshaping of both the customer and the company.”

In a 1995 Harvard Business Review article McKenna added that:

“For brand rebuilding or for spotting new opportunities, marketing professionals must gain a far better understanding of how technology is changing their customers and their business. Marketing professionals must stand with one foot in the market, observing the opportunities, and one foot in the technology, applying the tools for better time to acceptance.”

In 2008 The Economist argues: “With each step, from mainframes to minicomputers to personal computers to smartphones and hand-held devices... Computing power will become more and more disembodied and will be consumed where and when it is needed... It will undoubtedly transform the information technology industry...”

Our argument is that these two changes, the growing ‘servicization’ of products and the ubiquitous spread of ICTs, are now transforming the automotive industry. This idea is also not new. For example, in 2000 IBM and Motorola announced a deal to speed up
technology that would deliver internet access, navigation, e-mail and emergency assistance to drivers in their vehicles. Said IBM’s director of ‘automotive solutions’ at the time: “This is a very large opportunity because we believe that the vehicle is no longer an island of isolation from the outside world”.

In 2005 Vasek reported that “BMW is working on wireless networks for cars that will automatically set up connections among vehicles in order to exchange critical sensor information - such as accidents or traffic jams…The goal is to create networks of intercommunicating cars that could someday form a sort of automotive internet.”

This idea is perhaps nearing a tipping point. Buss (2013) argues that the International Consumer Electronics Show (CES), held annually in Las Vegas, “is emerging as a strong rival to any traditional auto show – such as the North American International Auto Show in Detroit that follows CES – as a platform for presenting the technological innovations that will shape the near- and long-term future of an industry that has quickly evolved to the frontier of electronics.”

The ‘chief futurist’ of Ford, agrees, saying to brandchannel that: “You have to watch not only your competitors but innovators in general and what space they decide to move in as devices take on multifunctional features.”

In this era of new information and communications technologies, big data, and globally integrated ecosystems of auto manufacturers, suppliers, researchers, and other partners and stakeholders, it is becoming difficult to distinguish manufacturing from services, and services from products. If everything is becoming an information service, we might therefore ask: “Then what is a car?” This echoes a fundamental product question posed several decades ago by Theodore Levitt (1980): “What’s a product?”

4. In an ICT-driven Service Industrialization World, What Becomes a Connected Car?

As noted earlier, a key advocate of this shift in thinking is IBM. At the 2013 Automotive News World Congress, IBM say that their “experience from decades of working with auto manufacturers shows that those who are able to quickly transform to an innovative, customer-centric approach are those best positioned to succeed”. IBM also say innovative manufacturers are able to do three things, and they all involve information and
communication technologies: (1) Rapidly launch increasingly complex, sustainable vehicles and e-mobility services; (2) Transform retail environments and improve the customer experiences; and (3) Create new business models with intelligent, connected vehicles.

IBM (2013) argue: “The future lies in connected vehicles – a vehicle capable of seamless integration with multiple systems, connecting consumers to their digital world... It is imperative that smart automotive enterprises develop an interdependent ecosystem of suppliers and partners to help them deliver innovative services to their customers.”

An analyst at Gartner agrees, saying to Boudette and Wakabayashi in The Wall Street Journal (2013), which was also covering upcoming 2014 CES: “The car is becoming the ultimate mobile device… Apple and Google see that and are trying to line up allies to bring their technology into the vehicle."

This raises some major issues for car companies. The concept of the car platform is well established in manufacturing in general and automotive manufacturing in particular. Cusumano and Nobeoka (1998) say that a major issue is that car companies need to satisfy diverse customers with clearly differentiated models, and replace models at an increasing rate. An increasingly popular - and effective - means of doing this is through the management of ‘product families' based on a multi-project management, through what is termed a ‘platform strategy'.

Cusumano and Nobeoka (1998) argue that “By coordinating chronologically overlapping projects a firm can transfer a design from from a base project to a new one and facilitate task sharing among engineering.” Mahmoud-Jouini and Lenfle (2010) say that a major challenge of a platform strategy “is to balance commonality and product differentiation.”

KPMG (2012) say that the auto companies in their survey tended to agree that Volkswagen was the one company that was most likely to gain global market share over the next five years. A reason for this was its recognized success in managing a complex product platform strategy. Bryant (2013) says that Volkswagen has the goal of being the world’s largest auto manufacturer by sales, and that “Modular production allows carmakers such as VW to produce vehicles of a differing length, width and wheelbase on the same platform and different models from different brands at one plant.” Gibbs (2013) says that
“VW Group plans to build more than 40 new vehicles across its volume brands on its front-wheel drive modular transverse matrix (MQB) architecture”, and cited the VW Golf, Audi A3, Skoda Octavia, and Seat Leon as four models currently using this approach.

The idea that the car may become one more platform ‘in the hands of the customer’ is a new issue issue for auto makers to consider. In the automobile situation the nature of the platform may be somewhat different. At its simplest, Minor (2013) says “Platforms are market structures that bring together complementary partners. Think eBay which pairs buyers and sellers online…”

Eisenmann, Parker, and Van Alstyne (2006) term this “strategies for two-sided markets”, and say that “Products and services that bring together groups of users in two-sided networks are platforms… Companies in industries such as banking, software, and media make money by linking markets from different sides of their customer networks – audiences and advertisers, for example. The distinct character of these businesses demands a new approach to strategy.”

Auto companies are new to this approach, whereas a few leading companies such as Apple and Microsoft have been practicing it for decades.

As a result, with respect to the emerging ‘connected vehicle’ phenomenon, auto companies are increasingly faced with the challenge of either establishing a bespoke platform for their cars, or partnering with an established platform developer, such as Apple, Google, or Microsoft.

Writing in Automotive News (2013), Bond and Rubenfire say: “That’s going to be an interesting balancing act in the automotive industry – to attract partners like Apple, but at the same time still hang onto that overall customer experience. If that’s being given away to somebody like Apple, then it won’t be much left for the automotive industry to succeed in the connected-vehicle space.”

Another issue is to determine to what extent should their system be customized to suit an individual driver or passenger. The risk is that if each auto company, such as Ford, produces its own system, it may not be as easy to use and offer as many options or applications as their direct competitors, such as Hyundai or Toyota, let alone their potential
indirect competitors such as Apple or Google. And, given that auto companies work to several year NPD cycles, they need to determine quickly their in-dash systems can be upgraded. This last issue is crucial in that, in the mobile-device industry, product upgrades might be measured in months, not years, and consumer repurchasing might occur every few years, not every several years.

Regardless of these issues, auto companies are rapidly moving toward the connected car concept. In this sometimes called ‘telematics business’, they are offering a range of services and devices, either on their own or in collaboration with others. For example, BMW has established a new venture capital unit in New York, called iVentures “to invest in providers of location-based and other ‘premium mobility’ services”, such as parking solutions, navigation systems with local information, and route planning.

In 2012, Daimler AG announced that it was participating in a ‘Safe Intelligent Mobility’ field test of a communication system that would enable the test vehicles to communicate with one another and with a networked traffic infrastructure.

Ford is working to develop a system for integrating in-car functions called MyFord Touch, and in collaboration with Microsoft, is developing a voice-activated command system.

The Ford example illustrates another major issue facing car companies. How is the driver or car passenger to interact with the increasing number of applications being offered? For example, by manipulating controls on the steering wheel, by touching a display screen, by pressing switches, or by voice instructions?

Vella (2013) presented a schematic of a car dash in which there are six ‘screens’ where information services are present: (1) Video-calling facility; (2) Configurable instruments; (3) Energy use indicators; (4) Apps display; (5) Vehicle diagnostics indicators; (6) ‘Smart’ interfaces capabilities; (7) Heads-up display capabilities; and (8) Huge displays for larger graphics, such as maps. One might ask what is a car becoming when its dash starts to resemble the cockpit of an airplane? In this era of ‘smart cars’, how usable will this kind of dash be? How easy will it be to use? Is it ‘attractive’? And will it be ‘liked’ on Facebook, as customers compare their buying and using experiences?
In discussing CES 2014, Chen (2014) quotes the chief executive of the Consumer Electronics Associated as saying that “automakers have a growing interest in the tech industry because consumers have demanded a stronger interaction between their mobile devices and their cars.” Chen could also have phrased that the other way round, that is, that electronics companies have a growing interest in the automobile industry for the same reason: “That in a nutshell, is what CES (2014) is all about this week: the battle to be in the next generation of computing, whether it is in your car, on your TV, or on your wrist.”

As we started to explain earlier, the car’s dash is becoming what is known as a ‘platform’. In recent years, many high-tech industries, such as ‘smart’ phones, have become platform battlegrounds. For example, Google’s open-source Android and Apple’s closed-shop iOS operating systems are now central to the battle between Google and Apple for dominance of mobile devices.

To high-tech companies such as Apple and Google, the car may be seen as another potential mobile device for them to offer in their respective platform battles. The reasons are understandable, say Gawer and Cusumano (2008): “If a platform leader emerges and works with companies supplying complementary products and services, they can together form an ‘ecosystem’ of innovation that can greatly increase the value of their innovations, as more users adopt the platform and its complements.” However, Gawer and Cusumano also caution that “Companies often fail to turn their products into industry platforms.”

In many respects, companies such as Google and Apple potentially pose the greatest challenges to car companies succeeding with their own proprietary platforms, bearing in mind they may be pursuing opposing strategies. Cusumano (2011) says that the likes of Microsoft, Intel, and Google have all followed a similar ‘open’ route to platform leadership: relatively inexpensive or even free products; relatively open interfaces; and the cultivation of an extensive network of partners. On the other hand, Apple’s ‘closed’ system strategy has also led to platform leadership results: “Design breakthrough products that set new standards for form, function, and aesthetics; market them creatively and aggressively, with some modest reductions in price over time; open them up gradually as industrywide platforms, and let the chips fall where they may.”

For example, in the keynote presentation at the 2012 Worldwide Developers Conference, in San Francisco, Apple’s new CEO, Tim Cook, announced (Pogue, 2012) that “a dozen”
car firms had agreed to add a Siri button, Eyes Free, to their cars’ steering wheels. Siri is what Apple calls “a voice-controlled virtual assistant”. While Siri had mixed reviews initially, Apple are betting that when it is connected to a car’s dash, it will change one’s experience of driving: “It’s (just) another way Siri helps you get things done, even when you’re behind the wheel.”

Apple’s may be counting on - and will likely be encouraging, when the time is ‘right’ - for Apple customers who regularly uses Siri on their iPhone to also want to use Siri in their car. As Steve Jobs said many times over his life (Isaacson, 2011), “Apple is a company that takes complex technology and makes it easy to use.” In other words, if a car driver who owns an iPhone wants to get or send information, listen to music, obtain travel instructions, etc., they are also likely to want to do it seamlessly with other Apple applications in their car, not through proprietary ones developed by the car company.

The current situation may not be clear, but this may already be happening. Singer (2014) reports on an interview with the director of user experience at Intel Labs, who tells her that she is unimpressed by “idealized visions of technology”, such as the one that “cars are no longer transportation devices, but mobile entertainment systems.” Rather in an worldwide anthropological study of new car users, and how they used every object in their cars, her research team found that “What became clear was a couple of things: how much technology people bring to cars, how much they were ignoring the technology that was built in, and how much that technology was failing them.”

This is an issue some auto firms are beginning to encounter. For example, recently both Ford and General Motors invited outside software developers to create applications for their respective vehicles. The two companies accept that the applications are likely to be more creative, functional and easy to use if done by independent developers. In essence, they are faced with the issue of how much all these new apps will enhance, or interfere with, the overall driving experience? And could the likes of Apple or Google provide an superior information service, as raised by Karmarkar (2010) earlier in this paper?

And if that is not a big enough challenge for incumbent, Google has already developed, and is testing, a hands-free car that drives itself.
While we consider the impacts of ICTs on the car driving experience, and whether or not the car is becoming another mobile device, we also need to consider the impacts of ICT developments on how the new car buyer goes about their process of purchasing. As we show below, these developments may be as transformative on the new car buying experiences as they are on the driving experiences.

5. In This Digital World, What Also Becomes a Constantly Connected Customer?

The impacts of ICTs can also be considered in terms of how they affect consumer behaviour, specifically their new car buying. As noted earlier, when IBM presented at the 2013 Automotive News World Congress in Detroit, they said: “The biggest driver of change in the automotive industry today is the customer – empowered by technology, transparency and an abundance of information – dictating their terms for how and when to engage car makers.”

For example, Nielsen Australia (Ingrey, 2013) reported that: “Online sources are unquestionably important in the car buying decision-making process, and their influence is growing... It is clear that consumers are looking to varied sources of information.”

From this Nielsen study it appears that, while visiting the dealer is still the number one activity for new car buyers, the other traditional sources of information (print publications, talking to people, and Television viewing), while still important, have been superceded by online sources and the use of personal digital devices. While it may be premature to argue these Australian results will be mirrored in other countries, we argue they are likely to be indicative of a potential fundamental shift in car buying behavior.

Lisa Gevelber, VP of Americas Marketing at Google, explains the fundamental shift in the use of personal technologies means that marketers now have the challenge of shifting to what she terms “context-driven marketing”: “Constant connectivity has exploded the number of moments in which marketers can connect with people… each moment gives you the chance to speak to people in real-life situations with better, more useful information… There will only be more screens in the future, more interoperability between them, and new consumer signals to respond to. That means there’s only going to be more and more opportunities for brands to be present and relevant.”
Given their ability to continuously track and monitor their digital device owners, new car buying behaviour patterns such as this may already be known by companies such as Apple, Amazon and Google. This gives them enormous advantages to practice ‘context-driven marketing’, including brand building and relationship marketing. In other words, even if a car is branded a Ford or a Toyota or a BMY, when it is also thought of as another digital platform, it may becomes as much an Apple or Google customer as it is a Ford or Volkswagen customer. It may even become more an Apple or Google customer if their context-driven marketing is successful.

As noted earlier, KPMG (2012) ask: “What does it take to succeed in the new automobile landscape?”

To answer questions like ‘What is an automobile now?’ and ‘What’s an automobile company need to do in an uncertain future?’, we first need to consider the kinds of competencies that will give them a strategic competitive advantage in an uncertain future. The issue of competencies is likely to be currently vexing many expert minds that are directly or indirectly currently involved in the automotive industry. And there is no shortage of advice. What is perhaps most apparent is that auto companies are being asked to move into competency areas that they may not be familiar with, and which their applicability is still uncertain.

At a general manufacturing level, Reeves and Daimler (2011) argued the need for greater adaptability and what they termed ‘second-order’ organizational capabilities:

“Sustainable competitive advantage no longer arises exclusively from position, scale, and first-order capabilities in producing or delivering an offering... those are essentially static. Increasingly, managers are finding it stems from the ‘second-order’ organizational capabilities that foster rapid adaptation. Instead of being really good at doing some particular thing, companies must be really good at learning how to do new things.”

Some of these new things may involve new ways of considering several areas of management, operations and marketing. For BIT 2014 we pose three potentially fruitful research areas for discussion.

6. Research Areas for Discussion:
1. In the early part of this paper we considered several studies into manufacturing in general, and automotive manufacturing in particular. Two streams of current applied research were considered: the changing nature of manufacturing, and the evolving impacts of digital technologies. Both of these areas require further applied and conceptual research, for McKenna’s argument (1991) that “Marketing’s transformation is driven by the enormous power and ubiquitous spread of technology” is still valid, we feel. It is also contextual, as argued late in this paper by Gevelber, VP of Americas Marketing at Google, and the context of marketing in the automotive industry might be a fruitful area to explore. The issue of what new competencies will be required, also needs to be determined, if auto companies are to undertake corporate renewal in the face of these fundamental shifts. Whether they will – or need to be - the same companies that existed a decade or so ago, is another research question that is worthy of exploration.

2. In the mid part of this paper we considered the idea that as the notions of a product and service are converging, we may be witnessing the emergence of “information services… where these two trends come together”, as argued by Karmarkar (2010). Given that the marketing discipline seems preoccupied with the concept of the service-dominant logic as viewed through the lens held by Vargo and Lusch, what is meant by ‘information services’ may be an attractive and useful perspective to consider. For example, what is a Ford car brand if it becomes an information service? And what is it when it has the ‘Google (or Apple) Inside’ branding attached… or not?

3. Later in this paper we considered the issue of the constantly connected customer, from both the perspective of the customer as buyer and the customer as user. Underlying, but not explicitly stated in this paper, is the notion of what technology adoption models might provide us with useful and meaningful guidance in our studies? As suggested by Gevelber, VP of Americas Marketing at Google, many of the current notions we hold, and frameworks we use, to tell us about the connected customer may not stack up against the more innovative research approaches that will be required of us, but are considered ‘outside’ the mainstream market research realm. We suggest that the conventional notion and framework of the buyer behavior model may have run its course, and this possibility needs to be explored.
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