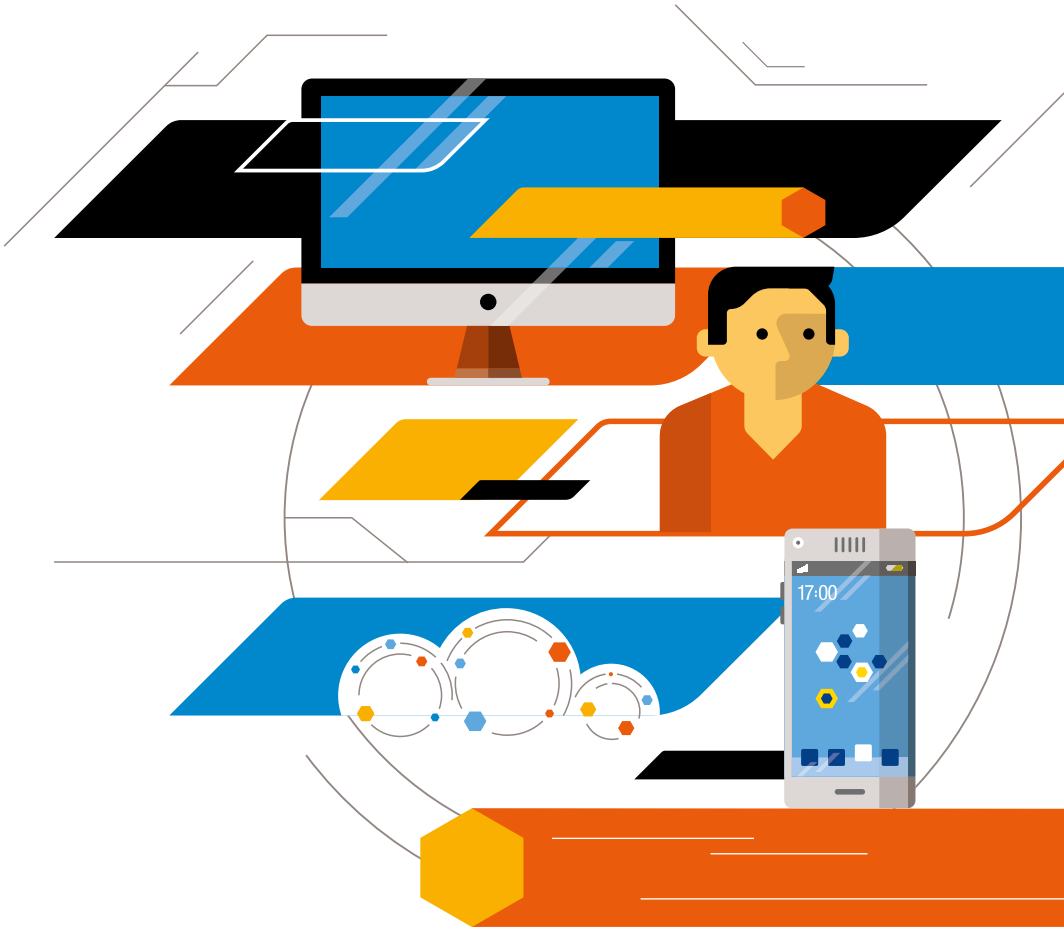
TECH TRENDS 2014



INTRODUCTION

A NUMBER OF FACTORS WILL INFLUENCE THE DEVELOPMENT OF THE TECHNOLOGICAL ENVIRONMENT IN 2014.

EMERGING NEW MARKETS AND HEIGHTENED CONSUMER EXPECTATIONS WILL CONTINUE TO DRIVE DEVELOPMENTS IN SOFTWARE INTELLIGENCE AND HARDWARE, WITH GROWING INTEREST IN WEARABLE COMPUTING.

CAN BIG DATA AND PRIVACY CO-EXIST? BIG DATA REMAINS A VALUABLE RESOURCE TO BRANDS BUT BRUISED CONSUMER TRUST IN FAIR USE OF PERSONAL DATA WILL CREATE NEW CHALLENGES.

AS THE BOND BETWEEN TECHNOLOGY AND THE USER BECOMES MORE TRANSPARENT, HOW IS OUR RELATIONSHIP WITH TECHNOLOGY EVOLVING? AND HOW CAN BUSINESS LEADERS CAPITALIZE ON THIS?

HERE WE PRESENT FOUR TRENDS FOR 2014 OUTLINING TECHNOLOGICAL CHANGES AHEAD THAT WILL REQUIRE BUSINESSES AND INNOVATORS TO THINK IN NEW WAYS TO MAINTAIN MARKET POSITION.

CONTENTS

01 THE EVOLUTION OF SOFTWARE: INTELLIGENT AND SOCIAL USER EXPERIENCES

In 2011, the American entrepreneur and software engineer Marc Andreessen, declared that software was 'eating the world,' and little has proved him wrong since.

Software has long been integral to our interaction with technology, with each new paradigm in user interface creating new opportunities for products and services. As it's grown in complexity, software has also become easier and more intuitive to control, empowering consumers and creating value for brands.

PAST

Historically, software has been designed as a tool. From command line prompts to graphical user interfaces, to more recent innovations around touch interfaces, software provides an environment in which users can achieve particular goals; a platform enabling them to perform jobs. While the earliest versions were built around numerical tasks (we might, slightly unfairly, picture them as giant calculators), the variety and scope of activities enabled by software has grown massively in the years since.

If one long-term trend in the history of software is the increasing number of jobs for which we employ it, another is the intelligence with which it carries the jobs out. At the most basic level, using a computer is like using any other tool; there are a finite number of commands, and we use different commands depending on what we want to achieve. Computers can prove very efficient in executing commands, but they are still completely reliant on the user to tell them what to do in the first place.

However, the distribution of this responsibility between technology and the user is changing. Whether or not 'true' artificial intelligence is possible, technology is quickly progressing in the intelligence of its interaction with us. While technology is already efficient at completing tasks, in 2014 it now also seeks to understand what it should be doing.

PRESENT

In the short term, one of the key trends shaping new user experiences is the growth of anticipatory computing. Services like Google Now seek to use contextual data (where you are now, the journey you normally take at this time on a Wednesday, what the traffic is like on that road) to second-guess what information will be most useful to you (the fact that you can get away with another 15 minutes in bed) and are starting to find a mass-market audience.

The effectiveness of these anticipatory services will be partly dependent on the quality of the contextual data they have to work with. A perfect algorithm with insufficient data to draw on will be no more effective than an imperfect algorithm that knows everything. So if we assume that the mainstream appeal of anticipatory services is partly dependent on their utility, it is therefore also dependent on how easily data flows from one service to the next. It's the increasingly digital nature of our lives (everything from the emerging wearables market to using the calendar on your phone) that will provide the catalyst for these more sophisticated, intelligent software interactions.

There are a number of implications, many extending beyond the traditional boundaries of the technology industry; ▸

35% OF GLOBAL CONSUMERS AGREE THEY ARE "... PREPARED TO PAY MORE FOR PRODUCTS THAT MAKE MY LIFE EASIER"*

indicating the value opportunity for brands. Anticipatory services change the nature of search. Where we might previously have used a search engine to find a particular product or service, the nature of anticipatory services allows them to jump ahead of these conscious actions. Rather than having to search for a restaurant with a free table on a Friday night, our smartphone could have located suitable restaurants the moment our friends emailed us about it. Responding and/or anticipating 'intent', and serving up intelligent options based on one's personal data, is a step closer to the Intention Economy discussed. The implications for marketing strategy are huge; as there is no use being optimized for search engines if your potential customer never has to use one.

The growing intelligence of user experiences is also evident in recommendation and discovery. Across most types of media and content, there is a long-term trend of increasing accessibility. Whether through video on demand, music-streaming services, or the falling prices associated with digital content generally, we have access to a wider range of content than ever before. While theoretically beneficial to consumers, from a practical standpoint it's generating new problems; how can we sort through all this content to find what's best suited to us? If a bookshop contained every book ever written, how would you decide which ones to buy?

Brands are attempting to service this need better. For example, most of the key players in the video on demand and music-streaming industries feature their own algorithmic recommendation engines; "people similar to you really liked this, maybe you will as well?" Indeed, sometimes the entire service is built around generating more effective discovery. Evidently there is a segment of the market for which the unknown will always be more interesting than the known.

However, for all their algorithmic complexity, these recommendations often lack the emotional weight of more traditional channels for discovery. It's no surprise that

PERSONAL RECOMMENDATIONS FROM FAMILY AND FRIENDS REMAIN THE MOST TRUSTED SOURCE OF INFORMATION GLOBALLY.*

Consider whether you'd be more likely to follow up a book recommendation from an online retailer or a close friend. The online retailer might know more about the sort of books you've enjoyed recently, making for more accurate recommendations, but many of us would still ignore them in favor of the one our friend was talking about. The most effective recommendation might be grounded in data, but it still needs to be delivered in an emotionally compelling way.

One key trend to watch in the shorter term is social platforms leveraging their potential for exactly this sort of discovery. Our interactions with technology are increasingly directed through such platforms; from stripped-back messaging tools to sophisticated networking

services, much of our smartphone usage now takes place within social apps. This has already impacted on how brands interact with their customers, but is also starting to change how we discover new products and services.

By enabling much richer content to be embedded within messages, even the more stripped-back services are building platforms for sharing. This content is being passed around by us, consumed, and is growing increasingly powerful in driving exposure and acquisition; as with anticipatory computing, new user experiences are disrupting traditional purchase journeys.

It's unlikely that a single platform will own this space, with a range of socially-orientated services being adopted by consumers and used in different ways for different purposes (and in different regions, with geographic network effects key to customer acquisition). Marketing strategies seeking to capitalize on their potential for discovery and recommendation will need to be highly flexible, and quick to adapt to the changing terrain.

FUTURE

As a layer between technology and the user, software has become progressively more transparent. In comparing modern software on a touchscreen device, and the graphic and command line interfaces that predate it, the more recent software can seem qualitatively more organic. The more that software borrows from our world through its gestures and metaphors, the more it seems part of it, fully integrated rather than intruding.

The growth of anticipatory computing and the increasing importance of digital social channels are waypoints in this longer trend. The ease of operating software will continue to increase, creating new markets where technology hasn't yet penetrated (both in terms of those using it, and the jobs they're hiring technology to accomplish). Meanwhile, its sophistication will also increase, becoming more complex and nuanced in the outcomes it can generate.

THE PARADOX IS THAT THE MORE IMPORTANT SOFTWARE BECOMES, THE LESS LIKELY WE ARE TO PAY ATTENTION TO IT.

The future of software is one where it will barely be noticed.

BUSINESS IMPLICATIONS

The traditional purchase journey was disrupted by the growth of connected devices. As the nature of our interaction with these devices changes, purchase journeys will change again. The rise of social channels in particular constitutes a change in consumer expectations for brand interactions. From static web properties to more fluid information streams, the expectations for information provision regarding products and services (both for current, and potential customers) are shifting. Increasingly, consumers demand context-specific and personalized communications; relevant information served to them when they need it.

Brands need to reassess their objectives for different consumer touchpoints with a view to ensuring that information is being shared in the most favorable way. Sometimes this will be in real time, at the point at which it's relevant, but not if it means flooding consumers with more information than they need.

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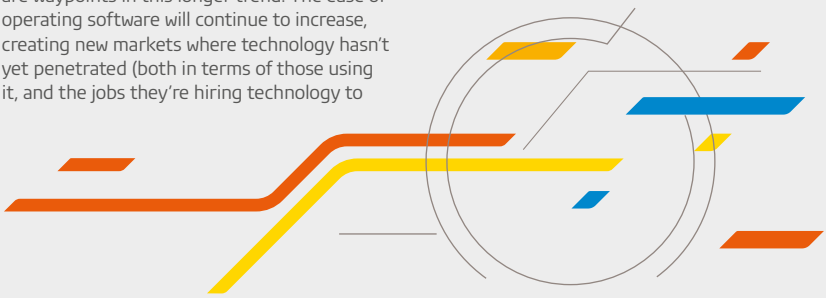

02 THE DATA AGENDA: CAN BIG DATA AND PRIVACY CO-EXIST?

Back in 2011, the World Economic Forum (WEF) compared personal data to oil, as an asset class of extraordinary economic value. Oil was central to the development of the industrial revolution. Without it, much of the infrastructure we take for granted today (transport, energy, etc.) would not have been realized. Presently, personal data is the lifeblood of the information age and central to everyone's day-to-day connected digital experience.Moving further into 2014, how will we implement fair use of personal data?

PAST

The exchange of knowledge and the sharing of ideas have been central to our progress throughout history. Over the course of time, we have moved from verbal communication, to the printing press, to a networked world of information and data. Much has been written about the parallels between the Gutenberg printing press and the internet. Both have radically changed the way we communicate and distribute knowledge and both have had a substantial impact on the cost of circulation and accessibility.

In the 1970s and 1980s, the early pioneers of the internet were driven by the desire to link and share data. The introduction of the web in the early 1990s harnessed the power of the internet and opened it up to everyone – not just to academics and government agencies. If you measure the growth of the web by the number of available websites, it has grown from one website in 1990, to around 6.5 million in 1999, to close to 600 million in 2012. All of these websites collect data and, over the past decade, much of our lives from shopping to socializing are carried out on the web. We have therefore moved from having no data in the 15th century (pre-Gutenberg), to having some data up to the late 20th century (pre-web) to having too much data in the early 21st century.

PRESENT

Since the WEF defined digital personal data as an asset class on its own in 2011, the interest in Big Data has grown substantially. Personal data, those data items relating to an individual, make up a huge part of the Big Data ecosystem. Of course, companies whose business models are built on the internet – such as Google, Apple, Amazon, Facebook and Twitter – led the way in Big Data, much earlier than 2011. Indeed, most businesses born online are typically monetizing their users' data through advertising, helping advertisers to refine the targeting of their marketing campaigns through the utilization of personal data.

In recent years there has been a growing concern about who owns personal data and what privacy rights users should expect from the vendors who collect it. As more and more big corporates transform their IT strategy to capitalize on the Big Data opportunity, we are arriving at a point where internet users are worried about the security, control and privacy of their personal data. There is a growing concern among consumers that people share too much personal information on social networking sites. According to GfK Global Trends, this has risen from 23% who 'strongly agree' in 2010 to 39% who 'strongly agree' in 2013.*

Consequently, the progress of Big Data is likely to hit a data privacy 'crunch' where the flow of data ceases due to the fear and risk of interacting online and sharing data. Throughout 2013, the beginning of this crunch really gathered momentum with

much disagreement between legislators and business leaders on the way forward and, of course, the big story of the year: the Snowden revelations. As a result, trust among consumers is at an all-time low.* In order to progress in a productive way, where both the organization and the end user benefits, the terms of business need re-balancing.

FUTURE

The two main visions for the future are: a world without privacy or one where privacy is an integral part of the design of all internet services.

One of the early pioneers of the Arpanet and now Chief Internet Evangelist at Google, Vint Cerf, told the Federal Trade Commission (FTC) that "...privacy may actually be an anomaly". In the context of Cerf's overall comments, he was not arguing that personal privacy is not important but that greater transparency "...is something we're gonna have to live through". There are benefits to this vision: the greater use and transparency of data will facilitate much smarter technology. Products and services will be deeply personalized, and the ability to live a seamless lifestyle (beyond media devices and towards an Internet of Things) will be greatly enhanced. Living in a world without privacy requires a significant shift in everyone's mindset. This will face huge opposition from pressure groups and people around the world.

However, as our research shows, the alternative future is driven by consumer sentiment: a future that respects privacy ideals.

ACCORDING TO GFK GLOBAL TRENDS, CONSUMERS NOW RANK "PERSONAL INFORMATION GETTING INTO THE WRONG HANDS" AS THEIR #12 CONCERN,

having increased in priority from 2009 when it was ranked #15.* The big challenge however, is balancing the need for privacy and security with the commercial realities of business in the information age. It is the solution to this very question that will take shape and gather momentum in 2014.

The book, The Intention Economy written by Doc Searls in 2011, describes a future where consumers are empowered to make smart purchase decisions and to control which vendors they have relationships with. The idea is that we will eventually move from an 'attention economy', where advertisers fight for brand preference by pushing out adverts, to an 'intention economy', where customers will be empowered to signal their intent to purchase and invite offers from different vendors. There is a lot of work needed to create the infrastructure and protocols to make this happen, but these are starting to come to fruition.

The UK's Midata initiative is piloting new ways of empowering individuals to make smarter decisions by aggregating and using their personal data. Northern and Eastern European markets have made great strides in digital identity programs. In the US, the Respect Network published a paper entitled, Big Privacy: Bridging Big Data and the Personal Data Ecosystem Through Privacy by Design, which maps out a future path where Big Data and privacy can co-exist. The report contends:

> SO IF PRIVACY INFRINGEMENT IS THE NEGATIVE EXTERNALITY THAT BIG DATA FREQUENTLY IGNORES, THE PDE [PERSONAL DATA ECOSYSTEM] IS THE EMERGING POSITIVE EXTERNALITY THAT CAN TURN THE COMBINATION INTO A POSITIVE-SUM OUTCOME WHERE BOTH DATA SUBJECTS AND BIG DATA USERS BENEFIT

The vision painted by this report is an important step forward. One that is likely to restore trust which is crucial to the flow of data and thus the growth of commerce in the information age. Without it, technology business leaders could fall victim to the Economist's 2014 prediction of a 'Tech-lash' similar to the backlash against bankers and politicians in recent years.

BUSINESS IMPLICATIONS

Businesses should be aware that their customers are becoming increasingly aware of the value of their personal data. Respecting their privacy is essential to maintaining and building strong and lasting relationships. To avoid a data crunch, where neither the business nor the individual gains any value from the data, business leaders should aim to give their customers control of their personal data. Through empowering people with their own personal data, businesses can expect a deeper level of trust and engagement with their customer base. In the long run, this will open up new opportunities to generate revenue and will evolve existing product and business strategies. Noddle, Fiat Eco Drive and Nike Fuel are all great examples of empowering customers and generating new value that has real impact on business performance.

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03 THE ERA OF THE NETWORK: EVOLVING RELATIONSHIPS IN THE DIGITAL AGE

The mass adoption of digital networked technology is transformative, but we are still only scratching the surface of what is possible. The behaviors that the network enables – like sharing, communicating, collaborating and learning – come naturally to people. The organization which operates closed, scarcity-based business models has found, or will find, the open and abundant nature of the network disruptive. With the networked world we live in still in its infancy, what challenges and opportunities will brand leaders face with its development and how will this impact on businesses?

THE PAST

When Henry Ford put automobiles into mass production, he had not only reimagined a new method of transport that was far superior to the horse and carriage, he had also pioneered a disruptive new way to operate a business on a large scale and with huge revenue and profit. This method has changed and evolved over time but it is the model that most businesses follow. There are two important elements to this shift into the era of mass industrialization.

Firstly, the products are based on finite materials which have a unit cost. Operating on a large scale creates cost efficiencies which allow for healthy price competition. The manufacturing process has been optimized over the years and, in most cases, the production and material costs have continually declined. The final product – however cost efficient – is finite and thus straightforward to monetize.

Secondly, the organization has developed structures and hierarchies that employ and provide an income to the large majority of the population. This has fuelled the capitalist system over the past century facilitating the flow of capital that has created growth, innovation, and progress around the world.

THE PRESENT

Over the past 20 years as the web has developed, networked technologies have challenged the economics of the business born out of the mass industrialization era. Two early, and very different examples, are Napster and Amazon. Amazon was one of the first successful early examples of a company developing a commercial business solely on the web. Launched in 1995, Jeff Bezos, founder of Amazon, talks enthusiastically about how he has developed a superior bookstore by utilizing the web. There are two main reasons: an abundant book inventory (using a network of warehouses and suppliers) and abundant customers. Amazon removed the scarcity of space in bookstores on the high street and the limitations that geography place on the addressable market. Napster, which first launched in 1999, leveraged peer-to-peer network technology to link personal computers and facilitate the sharing of music files. Music digitized into MP3 files resulted in the music industry moving from a model of scarcity (CDs, cassettes, vinyl) to a world of abundance. Napster was the platform that gave everyone with an internet connection free access to a shared library of music.

Of course both of these early business models have evolved a lot since their inception. Napster is now a music streaming service and Amazon now sells e-books (among many other product

categories). Both have competitors and both are still exploring how best to commercialize abundant products and ensure that all stakeholders get a fair share of the revenues.

Monetizing information goods like music and e-books is difficult because once produced it costs nothing to replicate and distribute. The price erosion as a result of easily accessible, abundant goods threatens the ways in which businesses from the mass industrialization era generate revenue. Paul Mason argues that capitalism is metamorphosing through waves of technology innovation. He argues that the price mechanism that capitalism relies on is being eroded:

> THE KEY CONTRADICTION IN MODERN CAPITALISM IS BETWEEN THIS EMERGING POSSIBILITY OF FREE, SOCIALLY PRODUCED ABUNDANT GOODS, AND A SYSTEM OF MONOPOLIES, BANKS AND GOVERNMENTS FORCED TO BEHAVE DESPERATELY TO MAINTAIN 'INFORMATION ASYMMETR

This tension is currently playing out in the markets for intangible goods like music and e-books. In the future however, this tension will pervade elsewhere with, for example, the democratization of the means of production of tangible goods through 3D printing. While there is obvious scope for greater disruption ahead, the power of the network opens up new opportunities and business models to those eager to make the shift.

THE FUTURE

Kevin Kelly stated back in 1996 that the "... network is the innovation", and thus, the opportunities for new business models require us to think in new and creative ways. There are three core examples emerging today that will impact on business in the future:

The first opportunity is for organizations to focus on creating platforms that enable people to trade or share with other people. A recent GfK TechTalk article discussed JP Rangaswami's view that new business opportunities can be exploited by managing 'flows' through a network. The idea is that there are lots of inefficiencies in the current world where the products we own are underutilized. This could refer to automobiles, bicycles or lawnmowers which generally cost a lot to purchase. The cost of ownership could be reduced by maximizing utilization under a shared ownership system. There are lots of examples beginning to emerge that address the opportunities in the so-called 'sharing economy' or 'peer-to-peer economy', with Airbnb being a prime example. The returns are potentially huge, with the market for peer-to-peer commerce being estimated at US$26 billion.

Secondly, the proliferation of an interconnected network of ideas, people, hardware and software will facilitate the mass personalization of everything we use and purchase. The explosion of personal data collection and usage will empower the individual to customize products and services to their own preferences and personal context. According to GfK Global Trends, the demand for personalization is at 47% globally. Furthermore, this trend is likely to be driven by Asian markets such as India and Indonesia where the appetite for personalized goods is extremely high (76% and 75% respectively).* This is beginning to become a reality with digital services through intelligent software. Chris Anderson, in his book Makers, contends that this will become a reality with

physical products when the use of 3D printers becomes more mainstream:

> THE INTERNET DEMOCRATIZED PUBLISHING, BROADCASTING, AND COMMUNICATIONS, AND THE CONSEQUENCE WAS A MASSIVE INCREASE IN THE RANGE OF BOTH PARTICIPATION AND PARTICIPANTS IN EVERYTHING DIGITAL —THE LONG TAIL OF BITS. NOW THE SAME IS HAPPENING TO MANUFACTURING —THE LONG TAIL OF THINGS

With mass personalization becoming more of a reality, new business models need to adapt and stretch across the 'Long Tail' rather than just mass producing one or two popular products at the apex of the demand curve.

Finally, networks of people will impact on the way that we organize labor within the organization. The maker movement is based on an open network of people with varying skill sets and expertise. Project teams are organized through forums, reputation and previous experience rather than through qualifications and a formal CV. This is also becoming the norm for software programers with platforms like GitHub being the place for them to network and to share their experiences with each other. As a result, the Harvard Business Review argues that the 'degree is doomed' fortwo main reasons.

Firstly, the certification of higher education qualifications is no longer a guarantee that the person can do the job. Secondly, higher education is becoming freely accessible online with unbundled courses, allowing for a 'pick and mix' education, Coursera being a great example. With the rapid creation of new job roles and skills, life-long education is critical and the education and recruitment systems need to change to accommodate the demands of the new networked business.

AS WE CONTINUE TO TRANSITION FROM THE MASS INDUSTRIALIZATION ERA TO THE NETWORKED ERA, BUSINESS LEADERS AND INNOVATORS NEED TO THINK IN A NEW WAY.

This is easier said than done as Einstein once said that: "No problem can be solved from the same consciousness that created it". Einstein was talking within the context of physics but the idea should be applied to the business world as network technology is changing the context within which we do business.

BUSINESS IMPLICATIONS

The network is allowing new and existing brands to engineer innovative ways of facilitating networked commerce. Opportunities in this area can be unearthed through identifying inefficient flows of resources. Coursera and Airbnb are not producing anything; they are matching existing resources with latent demand. The difficultly in establishing trust in this sector is a factor which holds back its growth. Existing businesses with strong, trusted brands should therefore view this as fertile ground and differentiate their offering through leveraging their strong brand assets.

Those companies manufacturing products should embrace the opportunities that 3D printers offer to deeply personalize their productsw. Building communities around their customers' personalization of physical products will drive engagement with the brand and generate new ideas for future product development.

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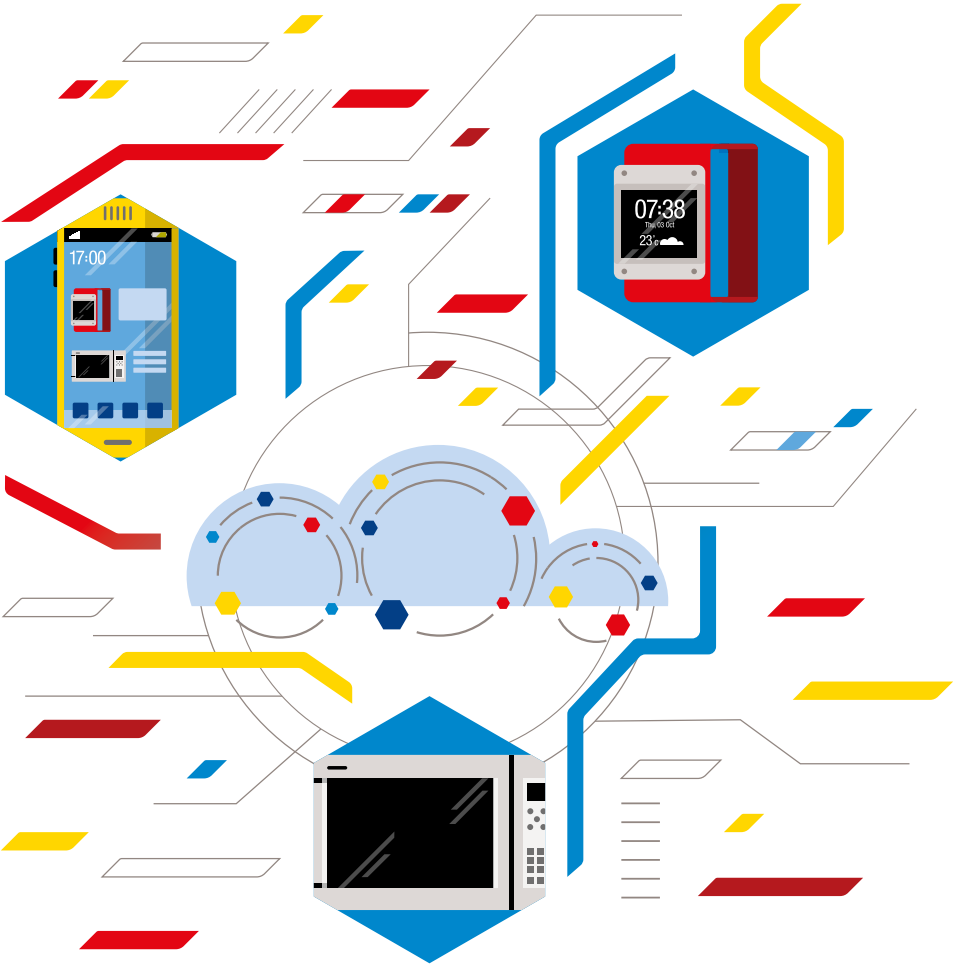
04 THE REINVENTION OF HARDWARE : TRANSITIONING TO A NETWORKED WORLD



The evolution of device categories, from computers to home appliances, is both shaped by and drives consumer behavior; changes to their form and underlying technical capabilities have been integral to creating the world we inhabit. If software defines how we interact with technology, then hardware sets the terms and conditions.

While the exact course of this evolution can be hard to predict, we know that the pace of change is quickening and 2014 promises radical change to existing categories alongside the creation of wholly new ones.

PAST

The history of computing hardware has been driven by a continuous improvement in power together with a continuous decrease in size. As computers have moved from the office to the home, and now into the pocket, they have also increased in their speed and technical performance. A modern, high-end smartphone is not only more compact than an old laptop, but it's probably also more powerful.

The last decade has been defined by the growth of mobile computing; growing from 100 million units in 2005 to 1,427 million units in 2013,* enabled first by laptop computers, then by smartphones, and now by tablets. As these multi-purpose devices have become more powerful, the range of tasks we use them for has expanded, creating new consumer behaviors and transforming existing ones. Other device categories have been disrupted, forcing companies to reposition their digital cameras (global compact camera sales were down by 40% in 2013 from their peak in 2010), MP3 players (MP3 player global sales were down by 50% in 2013 from their peak in 2009), and other single-purpose devices.*

In 2014, momentum is building for a range of new, networked (and often single-purpose) devices that exist alongside current categories. Connectivity is underpinning a new generation of hardware.

PRESENT

While still emerging compared to other categories, the wearable devices industry constitutes a logical extension of the historical trend in computing. If the evolution of hardware has traditionally involved ever-smaller devices, we can assume that the next wave will bring hardware that is likely to be smaller still. The most pertinent question is how we'll interact with them.

New categories are historically enabled by new input methods; you couldn't carry a mouse and a keyboard in your pocket, so the growth in mobile had to be built on a new kind of interface. Touchscreen technology went on to define the mobile platform and the new behaviors it enabled – not least the app ecosystem in which much of the subsequent innovation took place.

So if the business opportunities enabled by wearable devices will be dependent on new input methods, what might these be? While wearables are frequently referred to collectively, in reality the category is made up of a wide range of devices utilizing different interfaces and aimed at different use cases. Where more sophisticated augmented-reality devices are using a combination of voice, gestures and basic touchpads, others can be reliant solely on buttons.

- While the longer term could see an even wider range of such devices, in the short term, their market impact is likely to be limited to narrowly focused breakout products. In the same way that smartphones were originally positioned primarily around their email and web browsing functionality – features that were easy to communicate and met existing consumer needs – market awareness and understanding of wearables will initially be driven by a small number of easily communicable features.

  One key area will be health and wellbeing. Passive measurement of movement and other fitness-related metrics is already a significant market in itself, from the relatively niche Quantified Self movement to the more mass-market appeal of Nike Fuel. While new chipsets will allow this passive measurement to take place within the smartphone itself (echoing it's assimilation of other devices, from digital cameras to calculators) the opportunity for separate wearables is one of robust and continuous measurement where your smartphone wouldn't dare go (for example, high-intensity exercise).

Another area that could see breakout wearable products in the shorter term is notification and communication. While early versions of smartwatches have failed to generate much consumer excitement (despite awareness of and interest in the category) device manufacturers continue to focus heavily on this space and a notification and communication story is a logical fit between current technological capabilities and existing consumer frustrations. The integration of Google Now notifications into the Pebble smartwatch is a good illustration of the possibilities here.

For brands looking at opportunities in this space, there are a number of factors to consider. Most notably, as devices become smaller they also become more personal, driving a different type of consumer engagement. Partly because they're always on, and partly because of the different contexts within which we use them, we interact with smartphones in a fundamentally more emotional way than with desktop computers. Wearables will push this further still, by integrating into the very fabric of our lives; brands will need to be alert to the threats as well as to the opportunities this creates for their customer relationships.

The need to effectively communicate a new category with new benefits will also heighten the importance of a retail presence. The opportunity to interact directly with potential customers will be a strategic necessity for first movers, and the impact of these interactions on brand and product perceptions will continue to grow as a measure of retail effectiveness alongside raw sales figures. For wearables in

particular, design will be more important than ever, and traditional technology players will need to quickly assimilate existing retail insight from style and fashion-orientated categories.

FUTURE

Wearables constitute another marker on the longer-term progression from standalone devices to seamlessly networked hardware. Traditionally 'dumb' devices are following computers and phones in joining this network, forcing companies to reimagine their products, while cloud services sit above them enabling consistent and continuous interactions.

Effective integration of services across these devices will increasingly be a competitive necessity, with user experience expectations raised accordingly. The high levels of satisfaction that consumers have experienced in the smartphone and tablet categories are becoming the new benchmark. Central to a positive and personalized user experience will be the secure and interoperable use of personal data networked across devices. The Internet of Things will be a frustrating environment if data is stored within each networked device and not customized to the end users' preferences.

Where device trends have remained relatively distinct until now, they will increasingly overlap. The latest versions of activity-tracking wristbands, for example, feature functionality capable of controlling and automating household devices; wearable computing is being used to operate the Internet of Things. Moreover, where these trends collide the opportunities generated will be relevant beyond the traditional boundaries of the technology industry.
The Economist Intelligence Unit claims that three quarters of businesses worldwide are already exploring the Internet of Things. Where the hardware story of the past decade has been one of smartphones disrupting other device categories, the narrative for the next one will be the evolution of mobile devices into a network of interconnected products and services. The opportunities (and threats) for established brands across industries are greater than ever.

BUSINESS IMPLICATIONS

The nature of wearable computing enables closer, more intimate communications between brands and consumers. While this generates opportunities for new kinds of customer interaction, it also significantly increases the potential for irritation and annoyance. Brands looking to operate in this space should carefully consider their consumer targeting, value proposition, and mechanism for allowing consumers to manage this new relationship.

Where these elements are in place, the opportunity to empower customers (whether through helping them to meet fitness goals with wearables, or to manage energy bills with smart-thermostats) can significantly enhance brand engagement and loyalty. Ultimately, brand relationships will become more personal; if they're properly managed as well, it will also make them more powerful.

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GfK makes research matter by delivering the future. In a digitized world, we are the trusted source of relevant market and consumer information that empowers our clients to make smarter decisions. As thought leaders in our industry, we have a deep understanding of consumer experiences and choices.

We are 13,000 passionate experts with more than 80 years of data science experience and German heritage. We deliver globally with vital insights into local markets in 100 countries.

We turn research into business opportunities. Through innovative systems and partnerships, we integrate on-and off-line data to support Growth from Knowledge. Our goal is simple: Enable our clients to create winning strategies to enrich consumers' lives.

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techtrends@gfk.com