



Looking ahead

Three views on the future of digital

Since the advent of the Internet, the growth of all things digital has had an exponential impact on business and society. Today, the evidence of digital's power to create connections, change lives and drive new business models is all around us. We have become used to things that were unthinkable barely a decade ago. Mobile, social media and big data have each been revolutionary in their own way, but what of the future? What new developments are in the pipeline or at a conceptual stage? What kind of initiatives have the potential to spark further social and economic change? How should leaders be preparing their businesses for future opportunities while protecting them from the next wave of disruption?

We invited three highly respected players in the digital world to consider what further developments we can expect to see in the coming years and suggest how leaders might think about the challenges around the corner.



Dr. Michael Chui

Principal, McKinsey Global Institute

■ Big data, open data

We believe that big data and data analytics are going to be incredibly important, certainly in the short to medium term. It is becoming a basis of competition in every industry. Companies that learn how to use data effectively are going to be more likely to win in the marketplace and those that don't are going to fall behind.

It's challenging because this isn't a capability that you build and then you're forever ahead of your competitors; it really is a run-faster business. Your competitors are always going to be trying to catch up with you or leapfrog in front of you, so you really have to become a learning organization in order to succeed at it.

We recently released a report on open data, which is data that becomes more liquid, shared amongst multiple organizations and consumers.¹ Open data can become an instrument for breaking down information gaps across industries, allowing companies to share benchmarks and spread best practices that raise productivity. Sometimes you have to pay for it and sometimes there are restrictions on its use, but it can give rise to novel, data-driven innovations benefitting both businesses and consumers.

■ The growing impact of mobile

Mobile will continue to be a big deal going forward. We sometimes describe it as increasing diversity of form factors because it's not limited to tablets or phones. Although many billions of mobile devices already exist, more than half the world has not yet been connected to the Internet. That's a huge amount of head room, in addition to all the innovation that will come from people who are already connected. Mobile also has tremendous implications for the enterprise in terms of where and how people do their work.

Mobile has numerous implications for our current business models in terms of improving efficiency and effectiveness. Simple things like being able to optimize where people go and what routes they take can make a big difference if you're managing a sales force or a team of maintenance or installation technicians. We have already seen new business opportunities unlocked by mobile devices; for example, services that allow you to summon a car to your location would not exist without smart phones, location sensors and so on. There is a whole industry developing around mobile advertising enabled by knowing where people are, how close they are to a store, and mobile payments are having an impact as well as creating new lines of business.

Another key concept is the Internet of Things: embedded sensor networks. This will lead to all kinds of new business models, new products and services as well as increasing the efficiency and effectiveness of the things that we already do.

■ How the board should address the digital question

Awareness is the first step. The board needs to learn about digital issues, including data, social, mobile and the Internet of Things. It is important for companies to invest in the capability to monitor potentially disruptive technology shifts that might affect the business in both a positive and negative way. Some amount of attention from senior leaders is essential. It's rarely the case that an existing company with a successful business model will just throw everything away and do something completely different. However, it is important to understand the implications of these trends and be prepared to experiment and scale up as the situation demands.

Business leaders need to be extremely cognizant of the fact that these types of disruptive shifts are frequently underpinned by technology trends. It's rarely the case that you can stop a technology trend. You might be able to slow it down a bit, but usually it is more helpful to either get ahead of it or be positioned to move quickly if and when the trend really accelerates.

¹ *Open data: unlocking innovation and performance with liquid information*, McKinsey & Company, October 2013.

In my observation, organizations that are most successful at adapting to technological change have the courage to reallocate resources in a significant way; also, they just have the best people across a number of different dimensions, including intrinsic ability, knowledge, leadership and motivation.

■ Embracing social

In our research, we found that there are some organizations that mostly gain impact from the use of social technologies within the organization and some that mostly gain impact from their connections outside the organization, whether it's with customers, business partners or suppliers. However, we found that companies with a significant use of these technologies both internally and externally had a higher level of impact across both arenas. That suggested to us that what companies learn about using social technologies externally helps them with their internal uses and vice versa. There is real value in being able to do both.

■ The socio-economic impact of disruptive technologies

McKinsey Global Institute recently published a report on the impact of economically disruptive technologies.² One of the big trends we looked at was the automation of knowledge work and a set of technologies which automate physical work, including self-driving cars, 3-D printing and advance robotics. What we're discovering is that there are a tremendous number of tasks which previously we thought only people could do effectively, whether it be physical work or knowledge work. This has great potential for improving productivity and improving quality, creating new products and services, but it also will be tremendously challenging on the labor management side.

Historically, whenever we've automated we've always found new jobs for people to do. I think there's a real question as to whether or not we're automating away tasks faster than we're creating new ones. This is arguably one of the most important public policy questions we will face in the future.

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Jeff Huber

Senior Vice President, Google X, Google



■ Machine learning

I think machine learning is the first one. There's a lot of talk in the industry today about big data, but I think that's looking at it too narrowly. If you're using a data warehouse today to get faster answers to the questions you have, that's a useful first step, but that's not where you need to be. You need to keep pushing beyond that. Instead of relying on human intuition and what people can imagine today, turn that over to the machines so they are proposing the questions and hypotheses, they are identifying the patterns and highlighting opportunities that are indiscernible to humans and bringing new insights that you wouldn't have imagined.

If you look behind the systems that Google is working on, these are all machine-learning based systems where it's the machine gaining insight, gaining understanding that is beyond human scope to propose in the first place.

² *Disruptive technologies: Advances that will transform life, business, and the global economy*, McKinsey & Company, May 2013.

■ Continuous connection

The second trend is that there is enormous power in having not just ubiquitous broadband but, importantly, continuous connection — it changes how people learn, how people think about health and medicine, for example. It is probably the biggest factor changing the world. John Doerr's famous comment in the 1990s about the Internet being "under-hyped" is still true. We are just beginning to understand the implications of everything being continuously connected.

■ Precision medicine

The third area that is going to have enormous implications is personalized precision medicine. The gains being made in health today are dramatic and accelerating. It's mainly from computing meeting biology, with technologies like genome sequencing which have already yielded a new round of understanding in cancer drugs, for example, Genentech's development of Herceptin. The concept of computing being able to understand the next level of biology, not just in general or average terms, but specifically for you — that is a massive change.

■ Every business is an online business

Every business today has to recognize that it is an online business. Every industry and segment is going to become smart and continuously connected and transparent and probably will be marketplace priced. It's just a matter of time before every industry will get there, so you have a choice of taking the lead and making it happen or having it done to you. If you don't recognize what's happening, there's a good chance you'll be disrupted or disintermediated.

Bringing in the right digital skills and experience is only part of the answer. Cultural change has to pervade the organization and leadership must be fully committed. There are great leaders today who don't get it yet; they need to become infected, immersed. They have to believe in their soul that this is part of the business of the future and unless you bring the entire organization along, you're not going to get to where you need to be.

■ Innovation is key

You have to set the expectation of innovation everywhere and in everything that you do. No matter what your industry, the biggest danger is viewing your market, your business and your ecosystem as static because they never are. Companies either innovate or they die and if you're comfortable today in your static ecosystem, it's only a matter of time before somebody comes and kills you.

If you look at the kind of innovation around transportation and hospitality businesses like Uber and Airbnb, you can see what I think will be a very strong trend: businesses creating new marketplaces by providing aggregation and transparency. Another example would be Lending Club, where I recently joined the advisory board, which is creating a transparent marketplace to bring together borrowers and lenders/investors and has the potential to be extremely disruptive of the personal and small business lending space.

■ A return to insourcing

Another issue that is over-hyped is outsourcing, which is already starting to come down. Across manufacturing and IT, there is a real renaissance in doing those locally and thinking deeply about the intellectual properties embedded in those activities because they drive innovation. One of the perceived drivers of outsourcing was that it was cheaper to do in other places, but that's now being proven wrong due to the equalization of pricing across different geographies. In China and India, the cost of outsourcing is rising alongside the cost of living. Also, it's harder to innovate or to iterate rapidly in those models. So if I can do something locally, I can achieve faster iteration, faster innovation, faster cycle times and I can end up well ahead from an innovation perspective and close to an equivalent position in terms of cost.

Jeff Huber is senior vice president at Google X. During his 10 years at Google, he built Google's advertising systems and Google Apps. Most recently he ran Google Maps, which has over a billion users. Google X embodies a radical model of innovation where "moonshot" projects enable radical solutions powered by breakthrough technologies to solve huge problems affecting at least a billion or more people. Read related article, "The 10 Innovation Secrets of Google," on Spencer Stuart's web site.

Matthew Postgate

Controller, BBC Research & Development



■ The digital instrumentation of life

We are in the middle of a very broad change in society that will have an impact on everything from logistics to entertainment. I call it the digital instrumentation of life.

Increasingly, the activities of people and machines are going to be measured and the resulting information will be used to change the way in which these activities take place, whether it's shopping, healthcare or communication. People in local government have already decided it's a good idea to start machine-to-machine deployments by putting sensors in parking bays, so you know something is happening. When this sensing equipment starts to find its way into consumers' hands there will be the kind of explosion we've seen in the mobile app space. The broader access and application of design alongside technology will allow these processes to become human; that's when it's most interesting. These new processes will be built around information rather than capital equipment and, in many ways, this defines the difference between the Information Age and the Industrial Age.

Having said that, as more and more information becomes available, we're going to have to make some decisions about how it is used. The approach we take as we make this transition as a society will set the foundations for many years to come. At the moment there is a dominant model that trades privacy for indirect revenue. I think we will begin see the rise of paid-for digital services — business models that are subscription-based rather than advertising-funded — and long-term investments underwritten by large organizations and by governments which see the benefit somewhere else in their cost or revenue model.

■ Adapting to become competitive

With the accelerating pace of change, organizations have to be adaptable, but many leaders don't accept that empirical fact. In 10 to 15 years' time, the successful organizations are going to have a very different shape and a different set of activities if they are to continue the success they've had in the Industrial Age. Many organizations are trying to skill up in this area, but what they are avoiding is reskilling.

We've moved beyond the phase where you address the transition to digital by building another operating unit on the side of your existing enterprise. We're now at the stage where you have to look deep into your organization to find the right mix of skills to address this very different opportunity.

One way that organizations can cope with this transition in the near term is outsourcing and using a supplier-centric model. However, organizations need to stop thinking of technology as a homogenous activity. Instead, identify which elements are strategically important and ensure you have an internal capability to deliver them. You can then use the market to drive cost efficiency for other elements of your technology capability that are either less strategic or more commoditized. That isn't the sort of lens that is normally applied to those insource/outsource decisions, but it should be your starting point because your internal strategic technology capability is going to be the single most defining element of your competitiveness in the next 10 to 20 years.

■ Creating a distributed workforce

There's a significant competition for talent and companies need to look more globally for the talent they need. The U.S. has a huge advantage in terms of scale, the size of its domestic market and how vibrant it is and how open to new ideas. If you are a non-U.S. multinational without access to the U.S. labor market, it is very difficult for you to compete for that talent so you need to look at an alternative solution — in other words, look more broadly at a federated way of plugging the skills gaps.

You need to look further afield to the increasingly skilled workforces of China, India and Eastern Europe and develop a distributed network to help develop new technologies. Quite frankly, a non-U.S.-based company has got a better chance of doing that than trying to recruit technology staff from the West Coast who have the pick of the jobs. Understanding how you can develop and then integrate these distributed teams together is going to be critical.

■ The secret to managing smart, creative people

In my experience, there are three elements that motivate smart, technical people [in digital roles]: they need to have interesting problems to work on, fantastic people to work with and the tools that they want to do the job.

First, with a deft management style you have to keep people motivated, ensuring that the interesting jobs get passed around, while communicating the strategic importance of challenges that are seen as less interesting. For example, at the BBC, everybody wants to work with iPlayer, but we need some people to really focus on our B2B enterprise systems. If we want competitiveness, we need that competitiveness to start at the beginning of our production chain. We once set an ambition that we would never launch an internal-facing tool that we would not be prepared to put in front of our audiences. The reason this is important is because it directly translates into the kind of services that audiences consume. Nevertheless, it is still hard to deploy the same level of resources further away from where the value is most obviously created; a degree of pragmatism is inevitable.

Second, great people like working with other great people. They will come and work for you if they believe you're serious about this new way of operating and in turn they will attract other great people. Good people don't always stick around, but it's so important that they do, not least because they attract each other. You have to have a two- to three-year view and track whether you're getting more good people in than you're losing. Equally, one or two bad people can have a really corrosive effect, so you need to maintain a perspective about that mix. You also need to find a way of recognizing and rewarding the really great people as they are catalysts and have a disproportionate impact.

The final piece is giving people the right tools for the jobs. We are talking about a generation for whom domestic IT is more advanced than enterprise IT. It can be incredibly demotivating for this group; it's really important to balance enterprise prerogatives such as security and value for money with this reality. Having the best tools is absolutely critical, or you can quickly undo all the work that you put into the first two.

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Jason Baumgarten (Seattle) and Drew Keith (Milan) conducted interviews for this article.

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