

# ***The new digital ecosystem reality:*** Nine trends rewriting the rules of business

*Technology Institute*

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# Overview

If the only constant is change, why are we so bad at it? We've been complaining about change for centuries — witness Socrates bemoaning the deteriorating manners of youth.<sup>1</sup> Yet we have not mastered it. Consider the short-sighted reaction of the head of the US Patent Office at the turn of the 20<sup>th</sup> Century, who suggested eliminating his office because “everything that can be invented has been invented.”<sup>2</sup> Even today, we still don't seem to understand how to react to a changing world.

Is change coming faster now, or does it only seem that way because we're in the middle of it? The Internet was first devised more than 40 years ago; the first personal computer emerged just a few years later; the Web was first proposed in 1989, almost a quarter-century ago.<sup>3,4</sup> That's hardly new. But the fact is that all of them have unleashed a floodgate of incremental changes and improvements in technology. They flow as if from an unlimited supply of creativity.

Whether or not it's an illusion that change is happening faster, the fact remains that humans are still unaccustomed to it and our response to it remains handicapped. In the 21<sup>st</sup> century, it is harder to react and respond. There are more sources of information and more kinds of data to consider in decision-making. And even responding well may only result in short-term success, because change is to the status quo what mold is to bread — fast-acting and irrevocable.

All business executives must worry about change, but the CEOs of technology companies — positioned as they are at the forefront of this floodgate — must be especially cognizant of the changes in their world. They're the ones awash in challenges, whether from technological advancements, new market entrants and shifting customer spending and behavior. They're the ones who must understand that their industry faces one of the most dynamic and disruptive shifts they've faced.

CEOs have faced disruptive shifts before, but this one is different for two reasons. First, the impact of new technologies overlaps more than ever before (e.g., the increase in mobile devices feeds both social collaboration and big data). The challenge and the opportunity of creating a “connected experience” is bigger than ever before. But at the same time, the changes are coming faster. Dealing with both greater aggregation and acceleration means that companies have to do no less than adapt their internal DNA, as they move to new revenue and cost models brought on by a variety of nine key trends.

Technology executives must understand these shifts, whether they come from convergence, consumerization, or complexity. They must understand the impacts these shifts will impose on their business, whether they come from social media, regulatory compliance, or big data. And they must prepare to master the trends. It will not be easy, because as history has shown, mastering change is never easy. But with the right strategies and vision, it is possible to be among the few who welcome and conquer, rather than fear and evade, change.

1 Plato, *The Dialogues of Plato*, vol. 2, (Oxford: Oxford University Press, 1892).

2 Charles Holland Duell, 1898.

3 Richard T. Griffiths, “From ARPANET to World Wide Web,” *Leiden University*, October 2002, <http://www.let.leidenuniv.nl/history/ivh/chap2.htm>.

4 CERN, “The Birth of the Web,” <http://home.web.cern.ch/about/birth-web>.

*“If change was as easy as a directive, then the companies that made 1999’s Fortune 500 list would not need to say goodbye to 238 of their peers a mere 10 years later, a change of almost 50% from the 1999 Fortune 500 to the 2009 Fortune 500.”*

## **The nine trends**

*The New Digital Ecosystem Reality* is a series that will provide PwC’s perspectives relative to the trends and challenges that businesses should consider to remain competitive. PwC has identified nine key technological, economic, and political trends for CEOs to consider. That so many trends are cresting at the same time only complicates the challenges CEOs face. But by looking at how they affect companies, and understanding how they can prepare to meet these challenges, CEOs can increase their chances for success.

**Trend number 1: Disruptive innovation.** Radical shifts in technologies translate to radical shifts in business models. Consider this sobering fact: “If change was as easy as a directive, then the companies that made 1999’s Fortune 500 list would not need to say goodbye to 238 of their peers a mere 10 years later, a change of almost 50% from the 1999 Fortune 500 to the 2009 Fortune 500.”<sup>5</sup> Companies such as Digital Equipment, Wang Labs, Tandem Computers and Data General, undisputed leaders at one time, failed to recognize the need to shift to newer, more innovative technology or business models.

Even more sobering: these same technological challenges are beginning to affect other companies that didn’t consider the impact of technology. But technology now impacts everything: that’s why certain former stalwarts are

shadows of what they were, or have gone out of business altogether. It’s why technology CEOs face a dual challenge to understand these disruptions. After all, they must not only serve their companies, and help them navigate the shoals of change, but also help guide their customers as well. The alternative is irrelevance.

How can technology CEOs prepare? In many ways, they already are.

According to a recent PwC survey, they are investing in both research-and-development and customer growth: 37 percent of technology CEOs view new products or services as the main opportunity for growth, versus 25 percent of all CEOs.<sup>6</sup> At the same time they must consider a variety of other steps, including:

- Developing an appropriate innovation strategy that ties in with the corporate vision and company capabilities;
- Determining the best ways of fostering and sustaining organic innovation;
- Identifying opportunities for growth (e.g., organic, acquisitions of relevant innovation);
- Determining which strategic bets to invest in, how, and when;
- Identifying appropriate partners for highly integrated digital ecosystems (e.g., Ford and Microsoft with Sync).

## **Trend number 2: Managing cost and complexity.**

How can CEOs manage cost and complexity? In terms of IT complexity, more than half of all companies are turning to the cloud to reduce expenses. This can include everything from infrastructure to software. Several multi-billion dollar companies are using cloud-based apps platform to reduce IT infrastructure costs.

They must also adjust their operating model to increase agility. Companies also have shown that it can be done through relentless focus on innovation both in technology and processes, in order to lay the foundation for a more-efficient cost structure. Recent analyses has shown that both Target and Walmart offer prices up to 20 percent lower than Amazon for many products, even though the latter has no brick-and-mortar stores to maintain.<sup>7</sup> Walmart, in fact, has the biggest IT infrastructure of any private company, which helps it accurately forecast demand, track and predict inventory levels, improve its logistics, and manage customer relationships.<sup>8</sup>

5 Toby Elwin, “The Cost of Culture, a 50% Turnover of the Fortune 500,” 2010, <http://www.tobyelwin.com/the-cost-of-culture-a-50-turnover-of-the-fortune-500/>.

6 PwC’s 16th Annual Global CEO Survey, January 2013, [www.pwc.com/ceosurvey](http://www.pwc.com/ceosurvey).

7 Ashley Lutz, “Target is Actually Cheaper Than Walmart Right Now,” *Business Insider*, August 2012, <http://www.businessinsider.com/target-is-actually-cheaper-than-walmart-2012-8>.

8 “Walmart’s Keys to Successful Supply Chain Management,” <http://www.usanfranonline.com/wal-mart-successful-supply-chain-management/>.



At the same time, companies are using technology to get better information faster and cheaper. In part, this involves using social analytics within the connected experience they have with customers; that is, improving marketing by getting better information from what customers and prospects report in social media. It involves creating a connected experience with suppliers and partners through digital ecosystems; that is, working with partners in other industries with key expertise that companies then do not have to recreate themselves. It involves using collaboration tools to improve workflow; that is, deploying tools that make it easier for participants in a virtual supply chain work together.

#### **Trend number 3: Convergence.**

It's hard to make a historical analogy for the convergence trend. Never before have consumer and corporate capabilities merged so quickly and so intractably as they have recently. It's not just that consumers and employees are using the same technology devices; it's that they're using them for similar

activities — accessing corporate data to gain better insight into immediate and ongoing relationships (flight delays, package shipments, loyalty programs) — than ever before. This convergence of devices and services are creating new business models and revenue sources.

The result: most companies across industries are being forced to become technology companies. This is because they are increasingly communicating with stakeholders and delivering value using technology — much of it wireless and mobile. But how can they deploy these capabilities quickly? How can they ensure that any new operational strategy doesn't cannibalize an existing business model — or do it in a way that seamlessly accommodates both old and new customers? And once they deploy these capabilities, how can they equally quickly take input from stakeholders and improve those systems in order to engage and retain customers? Many companies will need to increase the cadence of their customer communications in order to meet these increased expectations.

#### **Trend number 4: Consumerization of IT.**

Employees have become accustomed to an unprecedented ease of use in the way they access information online, whether through mobile devices, tablets or personal computers. They expect applications to be as simple, intuitive and task-oriented as banking online, participating in social media or making restaurant reservations. In part this simpler, task-oriented direction is driven by the screen size of mobile devices, but it still perpetuates itself no matter what the interface.

This will affect companies in two ways. First they will need to develop enterprise applications that are easier to learn, and thus improve productivity. Second, they will need to develop applications that are easier to use on smartphones and other mobile devices. Accommodating both these trends will require commitments to application development tools that address multiple platforms. It will also require commitments to increased security and privacy to ensure that



corporate and personal data stay separate on a single device in a bring-your-own-device scenario.

**Trend number 5: Changing dynamics between developing and developed countries.**

Over time, on average, emerging markets are growing faster than the traditional developed markets, which means that technology companies will increasingly be looking to the former for new business opportunities. Many of these countries' demographic trends point to a "mobile-only" generation, using a single device that provides both data and voice communications.

Technology companies will need to develop products that can be easily used by customers who may not have had either extensive education or formal computing training. They may not also have access to traditional technical support, which means the devices will require greater reliability. Furthermore, the applications running on them should be simple and straightforward.

To prepare for this trend, technology CEOs should think about rationalizing their global operations, simplifying and standardizing business processes and products so that development can be applied across any region, but then tailored for a particular region. That provides the best of both worlds — mass production with appropriate personalization.

**Trend number 6: Social media.**

Because of their shortened product and marketing cycles, technology companies should understand the impact of social media more than other CEOs. It is crucial to understand

quickly what features customers want in their devices and systems, and especially how they feel about new features and products after they've been introduced. Harnessing social media is the foundation for everything from increased customer engagement to improved corporate communications and marketing strategies.

As new as social media is, technology CEOs already understand its importance. According to PwC surveys, 90 percent of technology companies are focusing on strengthening relationships with customers and clients by increasing engagement. In pursuit of new customers, 84 percent of technology companies are enhancing their focus on social media.<sup>9</sup>

Understanding social media can give enterprises better information faster and help them control potential backlash from unwanted publicity.

But social media is not just crucial from the standpoint of discrete events. It's also a keystone of the connected experience, especially as they relate to customer engagement. Transactions must evolve to relationships, especially for those companies that are moving toward consumption-based pricing models. Those models revolve more around the customer experience than the transaction. Companies can use social media to interact on a regular basis, to deliver information and advice, and thus increase the value of the experience.



<sup>9</sup> PwC's 16th Annual Global CEO Survey, January 2013, [www.pwc.com/ceosurvey](http://www.pwc.com/ceosurvey).

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*For instance, government demand for transparency of financial data will increase, and there will be a corresponding rise in the resources that will need to be allocated to deal with it. As part of the increasing uproar over tax morality (as opposed to tax legality), governments may also demand more bilateral advance pricing arrangements (APAs, which protect global enterprises from double taxation), while mandating a decrease in the number of unilateral APAs.*

**Trend number 7: Data explosion.**

As noted, enterprises must deal with more sources of information than ever before for decision-making. Many of these sources are internal — they're generated by internal systems, revealing patterns and trends relating to sales, marketing, support, and other facets. These patterns and trends, well analyzed, can reveal successes and failures faster than ever before. For a technology company, this is crucial. It can ramp up production of a successful product, and increase its marketing — or vice versa: it can start upgrading a device — or even cease production — based on speedy analysis of sales and reactions.

This means companies must be able to accommodate input from unstructured social media with input from structured sales results in order to harness the broad flow of information. Harnessing big data (the combination of unstructured and structured input) is a key capability of technology companies. Doing so effectively means staying at the forefront of customer needs. This requires developing a variety of systems: data warehouses, analytic tools, storage systems, and business intelligence.

**Trend number 8: IP and data protection.**

Being able to compete in the highly global world of technology requires maintaining an extremely delicate balance for technology companies. On the one hand, they must adhere to industry standards, while on the other, they must develop enough proprietary technologies or capabilities to differentiate themselves. The latter requires establishing stringent protections for intellectual property. This is the key to sustainable competitive advantage, but also increasingly challenging to protect in an ultra-connected always-live world.

Intellectual property is increasingly at risk, not only by competitors, but sometimes even by partners and governments. Nor is it just intellectual property that's vulnerable. Technology companies that rely on e-commerce systems are vulnerable to increasing instances of hacktivism and digital blackmail. They use extortion and threats of flooding servers to disrupt business and ultimately affect reputations. Companies need to ensure that their systems are accessible to their friends and unavailable to their enemies — and sometimes it's hard to tell which is which.

**Trend number 9: Changing political and regulatory landscape.**

More than those in many industries, technology CEOs have already been subjected to extensive regulatory conditions: some countries have established strict rules regarding the use of certain metal components in computer equipment, while other countries have developed rules about disposal of computer equipment. Nonetheless, the trend continues in other areas; some 58 percent of technology CEOs are worried about regulation, according to PwC surveys.<sup>10</sup>

For instance, government demand for transparency of financial data will increase, and there will be a corresponding rise in the resources that will need to be allocated to deal with it. As part of the increasing uproar over tax morality (as opposed to tax legality), governments may also demand more bilateral advance pricing arrangements (APAs, which protect global enterprises from double taxation), while mandating a decrease in the number of unilateral APAs.

No matter what regulations government agencies propose, technology companies must be prepared to track manufacturing and product information, and to be audited on a regular basis.

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<sup>10</sup> PwC's 16th Annual Global CEO Survey, January 2013, [www.pwc.com/ceosurvey](http://www.pwc.com/ceosurvey).

## ***The overall importance of these megatrends***

That's an extensive smorgasbord of issues for enterprises to tackle. Perhaps the biggest uber-challenge these trends represent: many of them are inter-related and thus cannot be tackled with an independent strategy. Take convergence: it represents a merging of corporate and consumer capabilities within computer devices, much in the way that consumerization represents the same trend within usability. Addressing a global market also means understanding ease of use across a variety of languages and cultures.

At the same time, accommodating myriad customer preferences within sales and marketing requires state-of-the-art data analytics. Also in the data realm: security and transparency represent two sides of the same challenge. Enterprises must protect data, but they must also establish methods to report data.

Even more daunting, there's no guarantee that once conquered, these trends won't evolve into other challenges. It's impossible to know what they'll be or whether they'll relate to manufacturing, connectivity, usability, interoperability, or something else. That's the nature of change.

## ***Creating the pillars for success***

So how can technology companies prepare to tackle both these looming trends and an uncertain future? PwC recommends two complementary strategies, one targeting the short-term trends and the other targeting long-term challenges.

First, technology companies should tackle these nine trends. That means that wherever they have achieved a digital transformation of their business — in manufacturing, in the supply chain, in finance — they should extend that transformation. Digitization supports automation, which decreases response time and increases the accessibility of information.

Technology CEOs should develop an agenda not only for revenue growth, but for ongoing enterprise profitability. That means understanding both new technologies and how they might be integrated into systems (for instance, some software developers are integrating social networking capabilities into their software for tighter customer engagement), but also increasing organizational and operational agility. It all comes down to how fast you can respond to change.

Importantly, they should also think about how they will deal with resource scarcity. This isn't just a question of commodities or precious metals. It's also a question that technology companies currently face every day — how to find the right people to develop products that live on the cutting edge. By definition, employees skilled in new technologies are rare and difficult to find. Technology CEOs must think about how their companies are going to find, nurture, educate and retain employees that will keep them competitive.

Second, technology companies should establish a system with which they can continue to adapt and thrive. To succeed in this new model, technology companies should extend their expertise in several ways. They should optimize their own IT operations and infrastructure to be more agile and responsive (and in turn educate their customers how to do the same). They should transform their business operations to be as agile as their technology. This means being able to quickly identify and analyze new business models, and then monetize and differentiate their services.

They will also have to be better than ever before at engaging communities and channels; that is, at developing relationships that keep them informed of needs, wants and capabilities. As their supply chains and markets expand, however, it becomes exponentially harder to maintain close, personal relationships with partners, suppliers and customers. Technology companies should get better at communication and collaboration, internally and externally, to take advantage of the insights available.

The tasks at hand are difficult but not impossible. It requires long-term, courageous thinking and action — qualities that are not always as constant as change. Technology companies now have the opportunity to equate courage and change — if only because those are the ingredients to remaining relevant and thriving in a world rife with both shifting competitive pressures and new opportunities. PwC will present a series of perspective papers that explore key issues to assist companies as they face these evolving challenges.

### ***PwC can help***

There are nine key trends challenging CEO's but by looking at how these trends affect companies and understanding how to prepare to meet these challenges, CEOs can increase their chances for success. For a deeper discussion on technology trends, please contact one of our leaders:

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### ***Let's talk***

Please reach out to any of our technology leaders to discuss this or other challenges. We're here to help.

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