BUILDING THE AGILE BUSINESS THROUGH DIGITAL TRANSFORMATION

NEIL PERKIN AND PETER ABRAHAM

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Building the Agile Business through Digital Transformation

Neil Perkin
Peter Abraham

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EC1V 3RS
United Kingdom

c/o Martin P Hill Consulting
122 W 27th St, 10th Floor
New York, NY 10001
USA

4737/23 Ansari Road
Daryaganj
New Delhi 110002
India

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PART ONE
The digital-native organization

In this introductory Part we set the context for digital transformation, define the key characteristics of a digital-native organization, make the case for why these characteristics are necessary, and discuss some of the key barriers to change, particularly within large organizations.

INTRODUCTION

Change is the process by which the future invades our lives.

Alvin Toffler[1]

In the contemporary business environment, the ability to be a genuinely agile company, and one that is native to the digitally empowered world in which we all live and operate has become not only a driver of competitive advantage and success, but critical for business survival.

It was researcher Marc Prensky who, in 2001, originated the term 'digital native' (Prensky, 2001)[2] as a way to describe people who were born after 1980 and whose lives have been characterized by access to networked digital technologies having grown up never knowing a way of life other than one mediated by digital.

Digital immigrants on the other hand, may be quite sophisticated in their use of such technologies but grew up in an analog world and so their experience is typically characterized by less familiarity with the digital environment.

In a similar way, the digital native organization might be considered to be one that has grown up in, and has been very much shaped by, a digitally empowered world. As such, their view on the world is not tainted by legacy technologies, thinking, culture, strategies, or approaches. While some organizations have proved to be very adept at transforming for the radically different environment in which they find themselves, this distinction

is an important one since just about every area of every business (including customer interactions and expectations, operational efficiency and productivity, marketing and communications, sales, logistics and distribution) has been significantly changed by the impact of digital technologies.

Digital-native organizations may have originated more naturally from the technology sector, but they now stretch across the widest range of industries from retail to logistics to marketing to automotive. Yet what they hold in common is a natural, inherent ability to take a different view on the world and the competitive markets in which they operate, to take an often contrasting approach to traditional ways of solving problems, and even to have a different 'feel' to the values and organizational culture that they embrace. These are capabilities, approaches, processes and cultures that are informed by the networked, technology-centric world in which we live, but it is also a shift in mindset. It is as much about the behaviours of individuals and members of the team as it is the technology or digital solutions they are providing.

In the same way as people's early experience helps shape them for the rest of their lives, so companies that are digital immigrants are required to unravel a lot of outmoded assumptions, ways of doing things, and organizational habits in order to rebuild to become not only native speakers in the digital world, but native do-ers. We call it digital transformation, not digital adaptation because the change it requires impacts how things get done, how people work, the way in which the company is structured, and how people *feel* when they walk through the door in the morning. In other words the very fabric of how a company operates, behaves and does business.

This book is about transforming business to be fit for purpose in a digitally empowered world. Alongside our own insights, we have incorporated into the text some 'stories from the frontline' – contributions from other experienced practitioners of digital transformation bringing to life their observations about how to do it well. Our book seeks to capture, distill and define the key lessons that might be learned in order to help companies on their journey of transformation towards becoming true digital-native businesses.

Notes

1 Alvin Toffler, *Future Shock*, Introduction, Bantam Books (1990), ISBN-10: 0553277375, ISBN-13: 978-0553277371

2 Prensky, M (2001) Digital Natives, Digital Immigrants, [Online] http://www.marcprensky.com/writing/Prensky%20-%20Digital%20Natives,%20Digital%20Immigrants%20-%20Part1.pdf [last accessed 16 October 2016]

01 The key forces for change

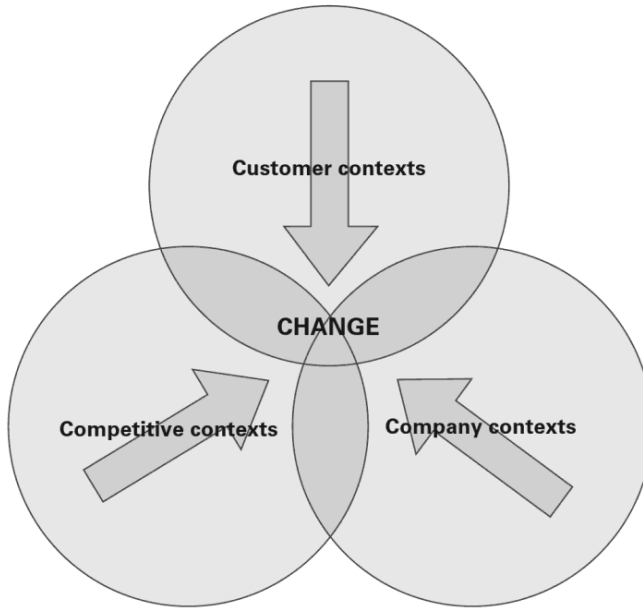
There can surely be very few businesses that do not feel the vivid and urgent need to acquire a heightened level of agility in order to deliver against evolving customer expectation and in response to the challenges and opportunities brought by digital technologies. Technologies that are impacting right across the business from marketing and sales, to HR, finance and operations. Technologies that show little respect for existing business models, competitive advantage or established best practice. Technologies that are actively rewiring the way in which entire markets operate with unprecedented speed and comprehensiveness.

Processing capability has increased exponentially (an Apple iPhone 5 has almost three times the processing power of the 1985 Cray-2 supercomputer)[1] meaning that everyone has a supercomputer in their pocket with access to virtually universal information. And yet, while these changes may be driven by technology, they are very far from just being *about* technology. If we want to understand the real impact we need to consider the behaviours that surround the technology. Similarly, if we want to understand how best to respond to these challenges, we need to consider not only strategies but our approaches, thinking, mindset and behaviours.

In fact, in this book we are deliberately *not* focusing on technology. Our observation before writing it was that there were many discourses on the need for organizations to change in response the impact of digital, but very few that gave practical advice, models or methodologies for understanding what we need to actually *do* in response to this rapidly shifting environment. Consequently, we will focus on the 'how' of digital transformation rather than the 'why'. On the far reaching and comprehensive change that is needed in the very fabric of how we run our organizations. But it is also focused on the practical steps that organizations can take to embark on their own journey towards digital maturity.

But let us begin by summarizing some early context around the key driving forces that are shaping this urgent requirement. Organizations are currently sat at the centre of a perfect storm characterized by accelerating change, and rapidly shifting competitive, consumer and company contexts (Figure 1.1).

Figure 1.1 Characteristics of change



Relentless, accelerating change

In 2006 the world's most valuable companies by market capitalization were Exxon Mobile (oil), General Electric (conglomerate), Microsoft (tech), Citigroup (financial services), BP (oil), Royal Dutch Shell (oil). A decade later in 2016, that list is dominated by technology businesses, comprising Apple, Alphabet (the holding company that owns Google), Microsoft, Amazon, Exxon Mobile (the only non-tech company in the top six) and Facebook.

Change is not new. Progress has always been with us. Advancement is a given. But what digital has brought to just about every sector, industry and business is a transformed scale, scope and *pace* of change. Meaning that the required organizational response is not only wide, but deep and fundamental.

'Adapt or die' goes the mantra. The need to transform businesses to become more native for a digitally empowered world is not only urgent, but

essential and inevitable. Those that are slow to transform will be left behind, disrupted and disintermediated.

As far back as 1938, Buckminster Fuller was talking about 'Ephemeralization', describing the trend for how technological advancement means doing *'more and more with less and less until eventually you can do everything with nothing'* (Fuller, 1973).[2] Joseph Schumpeter, the economist who taught at Harvard in the 1930s, described capitalism as an evolutionary process involving a 'gale of creative destruction' that sees new companies and industries continually emerge to remove or replace the old. But technology has brought a new urgency to this process.

Ray Kurzweil's renowned 2001 essay 'The Law of Accelerating Returns'[3] famously argues that technological change and therefore progress, evidenced by historical trajectory, is exponential rather than linear, and that breakthroughs spawned by technology will be increasingly common.

Research by Professor Richard Foster of Yale University found that the average lifespan of a company in the S&P 500 index has decreased from 61 years in 1958 to around 15 years today.[4] His estimation is that by 2027, more than three-quarters of the S&P 500 will be companies that we have not yet heard of.

Yet the picture is perhaps more nuanced than this headline finding suggests. Analysis done by Boston Consulting Group (Reeves and Pueschel, 2015)[5] that looked at the patterns of entry, growth and exit for 35,000 publicly listed companies in the United States since 1950 showed that over the long term company lifespans have indeed decreased (and mortality risk increased) yet in the more recent past they have plateaued. Research from the Santa Fe Institute ('The mortality of companies')[6] using a database of 25,000 American companies from 1950 to 2009 for example, pegged the typical half-life of a publicly traded company at around 10 years but found that the most common reason for a company to disappear is merger or acquisition.

So while mortality risk for businesses has increased over the long term, the true picture about the impact of accelerating change on businesses is more nuanced. High-profile examples of businesses that have failed to innovate successfully in the face of digital disruption (Kodak, Blockbuster, Nokia) encourage us to think of the impact of digital and accelerating technological change in terms of corporate fatality.

Yet while these examples represent perhaps the most acute result of this phenomenon, for most organizations the impact of accelerating change is likely to be reflected in multiple scenarios and challenges that the company will need to deal with, and all with multiple potential consequences. For example, by creating a significantly more volatile environment in which the company operates, unexpected new entrants to the sector, growing competition from all sides, rapid shifts in customer expectation, fundamental changes in operating relationships with customers, suppliers and partners, and accelerated changes in product or service propositions and lifecycles.

In response to relentless, accelerating change, a new heightened level of agility is not only desirable, but critical to survival. It has never been more important to determine a defined organizational response to the shifts in our three crucial contexts: competitive, consumer and company.

Transformed competitive contexts

With barriers to entry in just about every sector dramatically reducing through ever-cheaper, easier, more flexible and scalable access to cloud-based support and infrastructure services and markets, the threat from new, potentially disruptive entrants is concurrently increasing. And it is happening at an ever-faster pace.

Digital technologies have served to disrupt the power balance in markets between consumers and organizations. Digital and social platforms have brought with them the connected and empowered consumer, reducing the control that businesses have over their brand perception, and creating new ways to empower discovery, trial and adoption. Greater transparency in pricing has brought new downwards pressure on pricing towards commoditization of products and services. The integration of digital into operations and supply chain brings significant potential advantage in timescales, efficiencies or costs. The challenges for senior corporate leaders are not only numerous but varied, emergent and rapidly evolving.

Horizontal innovation (competition from anywhere)

IBM's 2015 global C-suite study[7] interviewed over 5,000 business leaders from more than 70 countries and from 21 industries. One of the most interesting findings focuses on so-called 'horizontal innovation' – the idea that where once it was comparatively easier for senior leaders to be able to

anticipate where competition will come from, there is now a much greater risk from competition that is invisible until it is too late.

As new digitally empowered businesses scale rapidly in one sector, rewiring the value chain in a particular market through software, they are then able to more easily move horizontally into other sectors by reapplying their capability and expertise in new ways. The net effect is increasingly blurred boundaries between industries as sectors are brought together and potentially redefined. When the IBM survey asked senior leaders about the developments that they expect the next 'wave' to consist of, this industry convergence eclipsed other trends including rising cyber risk, the 'anywhere' workplace and the sharing economy.

As we will go on to discuss, digital is, of course, exceptionally adept at rewriting the rules of competitive advantage but when the potential is high for rapid disruption to come from anywhere, and disintermediation (the switching of, or reduction in, intermediaries between producers and consumers) is happening at pace, we need to reimagine our response and reorientate our organizations towards a new and consistently higher level of organizational agility.

The 'full stack startup'

Competitive threats from horizontal innovation may originate from anywhere of course, but one of the unique dynamics that digital has enabled is the increasing potential for disruption from a new breed of ambitious startups that have in their sights not just incumbent businesses but entire industries.

These are startups empowered through digital technology to operate at global scale, access the best talent, reduce communication costs and reach far broader audiences than was once possible.

Hal Varian, Google Chief Economist, talks of micro-multinational companies:

> *If the late 20th Century was the age of the multinational company, the early 21st will be the age of the micro-multinational: small companies that operate globally.*
>
> (Varian, 2011)[8]

Varian believes that just as in the 19th century (where the elements were standardized mechanical parts like wheels and gears) and the 20th century (internal combustion engines, electronics and, eventually, microchips) we live now in another era of combinatorial innovation.

Today, a large proportion of software development and innovation on the web involves connecting standardized components (including open source operating systems, servers, database management systems and languages such as Linux, Apache, MySQL, Python) in new ways. Not only are the building blocks of innovation readily accessible, but the barriers to entry have reduced dramatically through improved accessibility to support infrastructure and systems such as cloud computing, data, business, communication and content services.

As a consequence the pace of innovation has increased. The smallest company can access the kind of infrastructure, much of it accessible from a device in your hand, that was barely available to even the largest companies 15 years ago, compete for best people, work with global talent around the clock, capitalize on global variation in knowledge, skills and wages:

> *Innovation has always been stimulated by international trade, and now trade in knowledge and skills can take place far more easily than ever before.*
>
> (Varian, 2011)[9]

Renowned writer, technologist and the founding executive editor of *Wired*, Kevin Kelly talks about how it may feel as though many of the most significant digital innovations have already been developed over the past 30 years, yet we have barely begun:

> *… from our perspective now, the greatest online things of the first half of this century are all before us. All these miraculous inventions are waiting for that crazy, no-one-told-me-it-was-impossible visionary to start grabbing the low-hanging fruit.*
>
> (Kelly, 2014)[10]

With the kind of standardized component and infrastructure access that Hal Varian talked about, the potential for entrepreneurs, says Kelly, has never been greater. He describes how there has never been a better time 'in the whole history of the world' to invent something, to start something new. How there has never been a time:

> *… with more opportunities, more openings, lower barriers, higher benefit/risk ratios, better returns, greater upside, than now. Right now, this minute. This is the time that folks in the future will look back at and say, 'Oh to have been alive and well back then!'*
>
> (Kelly, 2014)

The phrase 'unicorns' has become a label (derived from the investment and VC community) used to denote startup businesses that are in rapid

growth and that have acquired a valuation in excess of US$1 billion. A better descriptor perhaps is the 'full stack startup',[11] originated by internet entrepreneur and venture capitalist Chris Dixon to describe the new breed of company that is setting out to disrupt and rewire entire markets. Except the real disruptors might better be termed 'full stack stay-ups' rather than 'startups' owing to their innate ability to generate sustainable growth through continuous but rapid innovation.

Dixon believes that we are in what he calls the 'deployment phase' of the internet. Technological revolutions, he says, happen in two main phases: the installation phase and the deployment phase. The early stages of each revolution are typically characterized by a financial bubble that drives the installation of the new technology at an irrationally fast rate. The crash that inevitably follows is, in turn, followed by a recovery and then a protracted period of productive growth that 'deploys' the technology much more broadly throughout other industries and society as a whole.

If a company develops a new technology that is valuable to an industry, says Dixon, where once the expectation would be to license or sell the technology to existing companies in that industry, the new approach is to build a complete, end-to-end product or service (a 'full stack' approach) that bypasses existing companies:

> *The most interesting tech companies aren't trying to sell software to other companies. They are trying to reshape industries from top to bottom.*
>
> (Dixon, 2015)

So Buzzfeed is a media company in the same way that Netflix is a streaming movie company, or Uber a taxi company, or Tesla a car company. These are companies that have technology at their core. They can deliver improved product experience, circumvent cultural resistance to new technologies and capture a greater portion of the economic benefits.

It is a potent combination. With big ideas, grand ambitions, exceptional talent, unprecedented access to global markets and lower barriers to entry than ever before, the potential for disruption and horizontal innovation is writ large. A rolling survey conducted by CB Insights[12] was tracking 169 unicorn companies at time of writing, across sectors as diverse as hardware, retail, data, fintech, social, transportation, healthcare and media.

But while more renowned unicorns like AirBnB and Uber are visibly rewiring entire markets, a perhaps less immediately conspicuous but no less present danger comes from large corporates with broad product and service portfolios coming under attack from multiple startups. New competitive threats from young, early stage businesses that utilize disruptive business

models and are empowered by digital to attack individual product areas or service offerings, threatening to 'unbundle'[13] incumbent businesses.

The shifting nature of advantage

Just about every organization is finding that navigating the ever-changing environment in which they find themselves is like riding a surfboard on a choppy sea of uncertainty. Yet for many, their approach to strategy has not changed.

We need a new kind of strategy for a new world. A strategy that is far more adaptive than the fixed, inflexible forms of strategy that are still prevalent in many businesses. A 'digitally native' strategy that is more suited to the fast-changing, technologically empowered markets that we now operate in.

Columbia Business School professor Rita Gunther McGrath (in *The End of Competitive Advantage*)[14] frames this as a change in the purpose of strategy from trying to secure sustainable competitive advantage to exploiting a series of transient competitive advantages that in themselves combine to form long-term advantage. McGrath based this assertion on research that looked at companies which had a market cap of over US$1 billion and that had, over the period 2000–09, sustained a net income growth of 5 per cent above global GDP. There were only 10 of these companies, but she looked in detail at the lessons from their strategies.

Drawn from that, McGrath developed a useful framework for a more agile organizational strategy that echoes many of the themes discussed in this book:

- **Continuous reconfiguration:** moving on from extreme restructuring programmes to a process of 'continuous morphing' that combines core stability in essentials like corporate vision, while enabling dynamism in operations, structures and execution. This is empowered through fluidity in the allocation of talent rather than narrowly defined roles.
- **Healthy disengagement:** rather than defending an advantage to the end, taking a more systematic, frequent, formal approach to disengagement, and feeding the learnings back into the business.
- **Resource allocation that supports agility:** key resources are managed under central control and not held hostage by local business units, resources are organized around opportunity rather than opportunities being squeezed into existing structures, access to assets and leveraging external capability being key, not necessarily needing to own or build everything yourself.

- **Innovation proficiency:** moving from episodic to continuous and systematic innovation, protected through governance and budgeting being separate from business as usual, dedicated resourcing, and a balanced approach of resource investment across core, growth and entirely new initiatives. Higher levels of experimentation and learning from failure encouraged.
- **Leadership:** promoting continual shifts with broader constituencies involved in the strategy process, talent directed towards seizing opportunity, and rather than seeking perfection, accepting of fast and roughly right.

We are at a watershed moment for organizational strategy. One where attachment to traditional, deeply ingrained approaches that seek to extract maximum value from sustainable competitive advantage for as long as possible, even when that competitive advantage is in decline, is becoming a significant barrier to progress. One where outmoded, inflexible, slow-moving systems, strategies and processes that are optimized over time around sustainable advantages are becoming a liability.

Much of this is not only about enabling companies to be more agile and flexible, but about moving away from a number of the things that create a great deal of demoralizing frustration among employees – the inflexible pursuit of legacy models, an episodic approach to innovation, narrow job roles, rigid planning processes, post strategic-review downsizing and so on. Instead, the continuous pursuit of new markets, new technologies, innovation and improved capability around a focused vision has the potential to be hugely energizing, motivating and inspiring for employees.

If navigating the current business and consumer environment is like riding a surfboard on a choppy sea of uncertainty, we need to learn how to surf the waves of opportunity. McGrath talks about how strategy and innovation have historically been thought of as two separate disciplines:

> *Strategy was all about finding a favorable position in a well-defined industry and then exploiting a long-term competitive advantage. Innovation was about creating new businesses and was seen as something separate from the business's core set of activities.*

The disparate fields of organizational change, strategy and innovation are all coming together, driven by the need for far greater adaptability in order to win in a world of transient competitive advantage. Every company now needs to think more like a startup. Today's digitally native organizations, for example, are making huge efforts to retain the culture and agility of a startup as they scale.

So what does this really mean in terms of organizational strategy? In June 2014, Boston Consulting Group revisited their classic growth share matrix. The matrix, originated by BCG founder Bruce Henderson 40 years ago, famously plots a product portfolio on a 2 × 2 against growth rate and market share, giving us categorizations like 'stars', 'problem child' (or 'question marks'), 'dogs' and 'cash cows', and is a key part of business school teaching on strategy.

Many large organizations have used its principles of mapping company competitiveness (share) against market attractiveness (growth) as the basis for investment and resourcing decisions. High share could result in sustainably superior returns and eventually cost-efficiencies driven by scale and experience, high growth indicated markets with the greatest leadership potential.

In the face of rapid change and uncertainty driven by (among other factors) technological impact, BCG now say that companies need to 'constantly renew their advantage, increasing the speed at which they shift resources among products and business units'. In addition, market share is no longer a direct predictor of sustained performance, with competitive advantage increasingly coming from other factors such as adaptability.

Their research, which mapped every US listed company to a quadrant on the matrix, found that companies circulated through the matrix quadrants faster than in previous years (comparing a five-year period 2008–12 to one from 1988–92). In fact, looking at some of the largest conglomerates, the average time any business unit spent in a quadrant was less than two years in 2012 (with only a few exceptionally stable industries seeing fewer disruptions).

There were also changes in the distribution of companies across the matrix, and a breakdown in the relationship between relative market share and sustained competitiveness. Cash cows generated a smaller share of total profits (25 per cent lower than in 1982), and were proportionately fewer, with the lifespan of this stage declining (by some 55 per cent in industries that saw faster matrix circulation).

Unsurprisingly, BCG go on to say that the matrix is still relevant, but needs to be applied with greater agility and a focus on 'strategic experimentation' to allow greater adaptability. This is likely to mean more experimentation in the question marks quadrant, run more quickly, economically and systematically in order to identify promising ones that can grow into stars. It is also likely to mean faster response to cashing out stars, retiring cows and maximizing what value they can from dogs.

Transformed consumer contexts

The power shift from organizations to consumers, and the greater transparency and democratization in product and service creation, development, marketing, sales and operation that has been fuelled by technological empowerment has brought new and challenging consumer contexts to many businesses.

As digital empowers ever-richer and more seamless interaction, customer expectations are dramatically increasing. As soon as we are spoiled by a seamlessly intuitive, smartly designed, on-demand customer experience like Amazon one-click or Prime, we want and expect everything to be like that. In their book *A Beautiful Constraint*,[15] Adam Morgan and Mark Barden neatly describe this phenomenon and the rise in 'unreasonable' levels of consumer expectation as 'Uber's Children'.

As more products become services, impatience with even the tiniest annoyances becomes a brand differentiator and the most exceptional (even if not directly related) customer experience the benchmark by which everything else is judged. If I can renew my car tax online so easily, why is it so cumbersome to change a standing order online with my bank? If I can see real-time how far my taxi driver is away from me, why am I waiting in at home not knowing when my package will arrive? If I can navigate seamlessly to immediately stream on-demand almost any piece of music that I want, why can't I do that with all forms of content?

So while service design has become a real differentiator and driver of advantage, the competitive context for brands has also become far broader, consumer expectations far more challenging to address, and the advantage of continually innovating around customer need never greater.

As Adam Morgan has pointed out, the unreasonable consumer is, in effect, asking businesses questions that challenge and propel brands and companies to greater heights and changing the face of entire categories in the process:

> *... if we don't ask propelling questions of ourselves, someone is going to ask them of us, someone with authority and legitimacy. It may be our largest or most influential customer, or our noisiest challenger, but if we don't anticipate this, by the time we hear them we will already be behind the curve. This is the corollary of the new.*
>
> (Morgan, 2015)[16]

As advantage increasingly resides in customer experience and usability, those businesses that have long been schooled in great service design and

that can adapt rapidly to shifting consumer contexts will increasingly show the way. And as wave after wave of innovation hits customer interfaces (once desktop, and then mobile, now increasingly those mediated by artificial intelligence), this, and the market-beating competitive advantage that will be derived from investment in the smart application of new technologies, will increasingly separate the great from the simply good.

The 'gateway principle' and the customer interface battle

As technology exponentially advances, so the interfaces that we have with that technology advances and evolves with it. Ever-more sophisticated user interfaces enable the potential for more progressive user interaction and seamless user experience. Put simply, the way in which humans are interacting with technology, and the expectations that we have in terms of convenience, capability and ease of use, is shifting at pace alongside the development of that technology.

So text and keyboards are augmented with touch screens, voice activation, artificial intelligence, and eventually virtual and augmented reality. As this advances, it becomes essential for businesses to understand where the value lies, and how to best optimize for not only rapidly shifting customer interactions and expectations, but also behaviours. Underlying customer needs may change less than we think, but the behaviours that surround them and how we choose to fulfil those needs *do* change, and is ultimately a very real source of advantage or disadvantage. So while technology is important, understanding the underlying behaviours that surround it and how they change is even more so. As Henry Jenkins (Professor of Communication, Journalism and Cinematic Arts, University of Southern California) once said: 'Our focus should be not on emerging technologies but on emerging cultural practices'.[17]

Yet alongside the shifts in customer interfaces (and the rapidity of those shifts) there is another key dynamic which has become more important over time: who *owns* that customer interface or at least the data that comes from customer interaction. While it remains important to optimize for shifting customer touchpoints the dangers of digital disintermediation are never far away. Aggregators (like MoneySupermarket or ComparetheMarket) enable consumers to compare prices more easily but also then become the primary gateway for that market. Rather than go to multiple insurance providers for example, it is far easier and more convenient to use a comparison service, but as a consequence that service becomes the funnel through which customers are channelled to providers.

Similarly, ubiquitous digital services such as Google, Apple, Facebook and Amazon (so-called 'GAFA') are building ecosystems of digital touchpoints around users through which we are able to perform all manner of tasks. Leave a comment on a website? Easily login with Facebook. Find a restaurant nearby? Voice search on Google. Need a recipe? Ask Siri. Need that recipe to be read out to you as you cook? Ask Amazon's Alexa assistant via their Echo speaker.

The power in being the primary gateway, of course, is more customer data, which can in turn be leveraged to create more personalized digital experiences and generate revenue. The customer relationship with the service provider is now mediated through multiple service 'layers', all battling to be the customer interface.

As our use of smartphones matures, an increasing amount of interaction happens not direct with apps (where brands can own more of the interaction), but via search and the notifications layer, at the operating system level (where Apple or Google own more of the interaction). As GAFA invest more in AI-driven automation and services like Facebook M (in Messenger), Google Now, Apple Siri and Amazon Alexa, and these services are embedded and integrated into an increasing number of third-party applications, service providers become ever-more mediated.

It is, as Tom Goodwin, memorably describes it, like the 'thin internet': a 'more seamless, more pervasive, personal and even predictive' (Goodwin, 2014)[18] blanket spread thinner in more context specific layers across more devices. The battle is increasingly for the customer interface,[19] with the balance of power increasingly tilting towards a new breed of company that derives enormous value from software-driven services that are the gateway, and mediate between large (more often not owned) supply systems and consumers. Digital disintermediation is a continuous, ever-shifting danger.

Transformed company contexts

The Data Explosion

The exponential increase in the amount of data generated by the ever-growing volume of connected devices and services is not new news. Most organizations are awash with data. In 2010, Eric Schmidt famously described (at Google's Atmosphere Convention) how:

> *There were 5 Exabytes of information created between the dawn of civilization through 2003, but that much information is now created every 2 days.*[20]

EMC's Digital Universe Study in 2014[21] (using research conducted by IDC) predicted that with the ever-increasing number of connected people (believed to be almost 3.5 billion, or 46 per cent of the world population, at time of writing),[22] connected and increasingly smart devices and 'things', the 'digital universe' will grow by 40 per cent a year into the next decade, increasing from 4.4 zetabytes in 2013 to 44 zetabytes in 2020. In 2005, the digital universe was estimated to comprise 'only' 132 exabytes of data.

But the challenge of deriving value from it all remains very real. For all the talk of 'Big Data', most companies are struggling to handle, analyse and extract potentially valuable insights from the (comparatively small) amount of data they already have access to. An oft quoted finding from the 2012 EMC/IDC Digital Universe study revealed that less than 1 per cent of the world's data is actually analysed.[23]

Data may well be the new oil, but as one of the interviewees for this book said: 'Data is the new oil because it's toxic unless you refine it', a reference to the widely acknowledged originator of the metaphor Clive Humby (Founder and Chairman of well-known customer science business Dunnhumby) who described (to the Association of National Advertisers in 2006, written up by Michael Palmer)[24] how:

> *Data is the new oil. It's valuable, but if unrefined it cannot really be used. It has to be changed into gas, plastic, chemicals, etc to create a valuable entity that drives profitable activity; so must data be broken down, analyzed for it to have value.*

Gartner's model for maturity in data analytics[25] sees a progression of value (and also difficulty) that begins with the basic descriptive analytics (what happened), moves to diagnostic analytics (in which we understand why it happened), to predictive analytics (where we can predict what *will* happen), and eventually to prescriptive analytics (understanding how we can actually *make* it happen).

As simple information moves towards optimization, the opportunity for greater operational efficiency and benefit increases dramatically.

Everything becoming a service, and software 'eating the world'

As the internet becomes ever-more pervasive and is integrated into an increasing number of not just devices but also objects, an increasing number of products are morphing into services. As more things become connected, so the potential to augment product experience through service becomes

much greater. So we have the connected car that enables voice-controlled access to a whole range of new services, the smart thermostat that I can access and control remotely via my smartphone, the album that is updated multiple times by the artist even after release.[26]

Where once products were released into the world and subsequent improvements would only come from new versions of that same product, now continuous augmentation, fixes and enhancements can happen in the same way that our smartphone operating system is continually updated.

As more products become services, the operational requirements on a business change significantly. Ubiquitous, always-on connection creates opportunities (and demands) for ongoing improvements and updates. Ongoing customer interaction generates the potential for enhanced service delivery through data collection, visualization, personalization and recommendation. Real-time data acquisition and aggregation allows for near real-time response, adjustment and adaptation. The product sits at the centre of a connected ecosystem of touchpoints and interactions, glued together by data and the single customer view, and blurring real-world with virtual world experiences.

Writing about the launch of a new Nike+ app, for example, Toby Barnes (Product Strategy Director at AKQA in Portland) has described[27] how transformative the app is not just to Nike's customer and product proposition, but to the business itself:

> *The app is a sharp point to a service. A service that involves physical stores, runs clubs, events, knitted products that are created as consumers design them, content strategies based on physical activities, non linear story telling and breaking org charts into atoms and networks.*
>
> (Barnes, 2016)

The proliferation of services in turn means that service design, adept collection, analysis and application of data, and seamless, exceptional customer experience become real product differentiators and sources of advantage. As that advantage increases, so does the importance, potential and power of software across just about every product category.

In a prophetic *Wall Street Journal* article authored in 2011, Marc Andreesen wrote about how more and more business problems start to look like software problems and why 'software is eating the world'.[28] As an increasing number of product areas become surrounded by service propositions, and an ever-growing number of industries, from travel to logistics, banking to healthcare, education to consumer packaged goods are remodelled by software, Marc Andreesen's prognosis is fast becoming reality.

As seamless integration of software with hardware and other physical and real-world product experience becomes ever-more critical to customer perception and advantage, many businesses across a broad range of sectors are needing to not only redesign product experiences, technology and support infrastructure, and operations, but learn a raft of new skills to equip themselves for a very different world.

From linear to networked dynamics

The digital age has brought with it an unprecedented level of connectedness at both an individual and an organizational level creating far greater opportunity for value to be derived less from linear, one-way relationships and increasingly from networked systems of customers, suppliers and partners, involving two-way value exchanges.

An increasing number of digital-native businesses are creating platforms that connect, facilitate and enable value creation and exchange that involve all parties. Think business models built on peer-to-peer. Or the so-called 'sharing economy' in which customers 'rent' usage of products rather than own them, facilitated through digitally enabled communities. Think open source models and ecosystems of external developers that create value for themselves but also the business, accessing data through APIs.

Think of networked approaches to supply chain management that now enable a move away from linear flows of information along the supply chain to a far more connected system and communication flow between key suppliers, secondary suppliers, manufacturing, distribution centres and retail, enabling better decisioning, a heightened level of responsiveness to change, and real-time visibility to demand, thereby reducing wastage and latency.

And also think of networks of external or remotely based talent or services that can be tapped into at short notice. When Nobel economist Ronald Coase wrote about why companies exist in 'The Nature of the Firm' in his classic 1937 economics article,[29] he described it as being to make it easier to coordinate, and lower the cost of, producing goods and services. Yet digital technologies are unbundling traditional aggregations of value, enabling a far more distributed approach to sourcing and accessing value, and reducing the transaction costs of utilizing flexible and scalable talent and services.

In the same way that technology has rebalanced the power relationship between companies and their customers, so the advent of ever-more

accessible and more loosely coupled architectures of micro-services (cloud-based services accessed often through APIs or Application Programming Interfaces that enable remote access to data and services) is driving a move away from monolithic software to services that are far more flexible, agile and scalable. Hugely powerful software and services that were once expensive, complex and the domain of only those businesses that could invest heavily, are now accessible to the smallest startup. Powerful data sources that were once locked behind firewalls can now be accessed to drive new insights and power new services.

The transition from linear value chains to dynamic, networked ecosystems where data, information and value more readily flows between all parties in the system is one of the key business shifts of our time. Yet networked dynamics require new approaches, new partnerships and new levels of openness.

If we are to truly capitalize on this trend we need to change our understanding of how businesses can create and retain value in a digitally empowered world.

The heightened impact of talent

While having the best staff has always been central to business success, the whirlwind impact of technology has brought with it a stark amplification in the importance of talent. The potential for performance divergence between those companies that can attract and retain the best digital talent and those that can't has never been greater. Put simply, it has never been more critical to have the best people.

Digital technologies have shifted power towards individuals and small teams within companies who can create dramatic change through the origination *and* execution of exceptional ideas. The difference between the great and the merely good in digital talent increasingly makes the difference between the outstanding and the also-rans in business.

And yet, as the demand for great digital talent expands, shortages in talent pools from which businesses can draw have left companies fighting to fulfill shifting skills requirements. Worse still, acute shortages in specific areas (notably developers, data and analytics, and content) have generated intense competition in which the winners win big, and the losers get very little.

At the same time, the competitive context for digital talent has shifted rapidly. If you are a large multinational with a stuffy, traditional corporate

headquarters in the suburbs, you are not only up against other large multinationals but the cool, funky startup in the trendy part of town. The best people can be choosy about where they work, the environment in which they work and learn, and whom they work with and learn from. Increasing transparency in employer practice and brand means there is nowhere to hide. The culture and environment into which those people arrive become critical determining factors for whether you will be able to keep them for any length of time or attract them to work for you in the first place.

Changing employee expectations means that talented individuals at all levels, the kind that can really make a difference to wider business performance and advantage, will only work in the kind of culture and environment that truly gives them greater freedom and flexibility, a sense of purpose and empowerment, one that enables them to thrive alongside like-minded people, and one where they can learn from the best in the industry.

The agile context model

We have created a practical tool for understanding the key questions that sit at the intersection of the key contexts (competitive, customer, company) and the attributes of agility (velocity, focus, flexibility). Workshop these questions, using the canvas in Table 1.1 as a way to identify key areas of challenge and opportunity:

Table 1.1 Questions to workshop

	Velocity	Focus	Flexibility
Competitive	What are the market factors that prevent you from moving quickly?	How does your vision and strategy compare to your competitors?	Are there cultural aspects to the industry that create inertia?
Customer	How well does your organization understand shifting customer need?	How well is your strategy and innovation linked to your customer need?	How quickly are you able to respond to shifting customer need?
Company	What are the key forces for inertia in your organization?	How well is organizational execution linked to a compelling vision?	How well does your culture support agility?

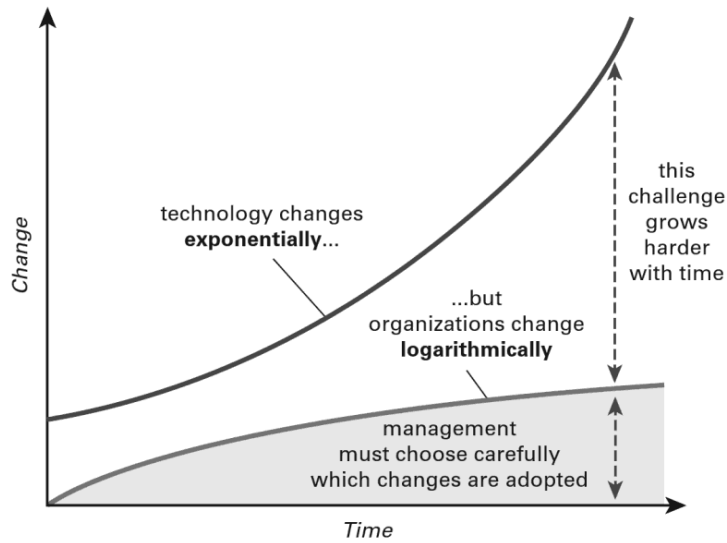
The key challenge: rates of change

When we begin to consider our response to these not insignificant shifts, we first need to appreciate the fundamental challenge that sits at the heart of digital transformation – the variance between the rate of change within organizations and that which is characteristic of the external environments in which they operate. Put simply, change within businesses typically happens at a slower pace than the rate of change in technology and the consumer behaviour that surrounds it. Too often, companies are playing catch up with consumers.

Marketing technologist, author and blogger Scott Brinker frames this dilemma rather neatly (in his thinking around 'Martec's Law'),[30] describing this as the 'quintessential management challenge of the 21st Century'. Technological change happens exponentially, but organizational change is dependent on factors that transition far more slowly (attitudes, thinking, structures, behaviours, culture) and so is logarithmic (Figure 1.2).

The widening gap between these two curves is perhaps the key leadership, management and organizational challenge of our times. A company's ability to absorb, respond and adapt to and master accelerating technological change is critical to its success in the modern world yet most companies are simply too slow. Too slow in adapting processes. Too slow in making decisions. Too slow in reorganizing around opportunity. Too slow in identifying

Figure 1.2 Organizational change is logarithmic



where value lies and innovating to capture that value. There is a paradigm shift required in the level of organizational agility that most companies are currently capable of and in the very fabric of how they work. If strategy is about linking execution and action with purposeful choices and direction, we need a new kind of corporate strategy. One that is altogether more suited to a digitally empowered world.

Yet before we even begin on our journey towards becoming a more agile business, we need to recognize some fundamental truths: to appreciate the way in which digital disrupts so that we might identify potential dangers and opportunity and respond before it is too late; to develop a common way of understanding what digital really means within the business so that we can execute against a clear vision and provide direction; and to be prepared to deal with the barriers and blockers that are contributing towards inertia and preventing change from happening.

Stories from the frontline

Gerd Leonhard, Futurist and Author: The Future of Digital Transformation

The term 'Digital Transformation' is well on its way to becoming overused, long before it even has a chance of becoming a reality. It has become an expression that implies a readiness for the future but which rarely indicates any profound change in thinking. The kind of changed thinking necessary to equip today's corporations for surviving the imminent transition awaiting humanity as technology becomes truly embodied. The shifts that this will bring, not only to the world of work but to education, retirement, our concepts of birth, life and death mean that we must not only digitally transform, we must transform digitization.

Transforming digitization means that we must reassume the lead narrative and change technology before it changes us utterly. Digitization must not become the vehicle to mass layoffs and unemployment, social contract erosion or cultural collapse and resource wars. Today, we already exist in a world where a shared economic narrative has almost disappeared and as humans on a planet with finite resources we must master technology in ways that we have not yet demonstrated, including socially, culturally, ethically and environmentally.

The time for treating ethics as a public relations exercise, a nice-to-have after the economic model has extracted maximum profit, is long

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How digital disrupts 02

Perhaps it is the transformational role that data is starting to play in the healthcare industry. Or it is the revolutionizing of mapping and navigation through user generated input and augmented reality. Or it is the increasing sophistication of algorithms and different forms of curation in news and content discovery. Or it is the growing use of automation and artificial intelligence in customer service. Or it is the role that digitally enabled 3D printing will increasingly take in the manufacturing and construction industries. It seems that everywhere we look there is a different nuance to how digital is driving fundamental shifts in the propositions, revenue sources, costs and operations across many different industries.

Digital disruption is as broad as it is deep, impacting right across sectors and organizational functions. So just why and how have digital technologies disrupted so many businesses and markets so fundamentally?

It was strategy guru Michael Porter who, in his 1985 bestseller *Competitive Advantage: Creating and sustaining superior performance*[1] originated the concept of value chains to describe what businesses do – a value chain being a set of activities that a company performs in order to deliver value to market in the form of a product or service.

An organization is essentially a string of components forming a value chain welded together by transaction costs. Primary activities (inbound logistics, operations, outbound logistics, marketing and sales, service) are set out alongside supporting activities (infrastructure, people, technology, procurement). A business's competitive advantage is the sum or the average of its transaction costs. Companies usually wield large advantages in some components and are lagging in others, but they are founded on the idea of a sustainable competitive advantage, focused on continued improvement in efficiency and standardization as a main ingredient in order to lower transaction costs in particular components.

If competitive advantage is derived from cost leadership and/or differentiation, then digital can enable new sources for either or both.

As businesses grow, pressure to add in resource and cost and to deliver ongoing shareholder return may well result in the need to increase prices. This need may be justified through the optimization of goods and services. Yet a new digitally empowered competitor entering the market may only (to use Pareto's principle) deliver 80 per cent of the value but can do so at 20 per cent of the cost. When this is combined with a potentially sector-defining change in customer experience, this creates a significant disruptive threat.

In his TED talk on 'How Data Will Transform Business', Philip Evans, author and MD of the Boston Consulting Group, argues that with digitization it may become possible to achieve zero marginal cost in some components, meaning that the transactional costs plummet to a level where there is less or nothing to economize on.

Evans argues that when certain components in the value chain plummet it can change the rules of the game for an entire industry – because it breaks up both the welding and usually (but not always) the entire value chain and allows for new competitive advantages and new value chains to take root – especially if the component that did plummet has been protecting the industry from outside competition.

> *... what used to be vertically integrated, oligopolistic competition among essentially similar kinds of competitors is evolving... from a vertical structure to a horizontal one... The plummeting of transaction costs weakens the glue that holds value chains together, and allows them to separate.*
>
> (Evans, 2013)[2]

This is comparable to the theory of disruption where Clayton Christensen argues that an industry is ripe for disruption when its core technology (or the component in the value chain that is essential to the nature, protection or capitalization of the industry) is 'stretchable'.[3]

Christensen uses the example of education. A teacher is a technology, and was not stretchable in 2000, and therefore not ripe for disruption, but with MOOCs (Massive Online Open Courses), a plethora of digital learning resources available and even Stanford University making course material available for digital consumption, the shape of education is morphing into a very different future.

As a succession of markets succumb to digital disintermediation where incumbent mediators in sectors (media or content businesses, retailers, brokers to name a few) are challenged, usurped and even replaced or removed altogether, the scope of digital disruption simply gets wider.

The lifecycle of a technology

Invention is a lot like surfing; you have to catch the wave at the right time.

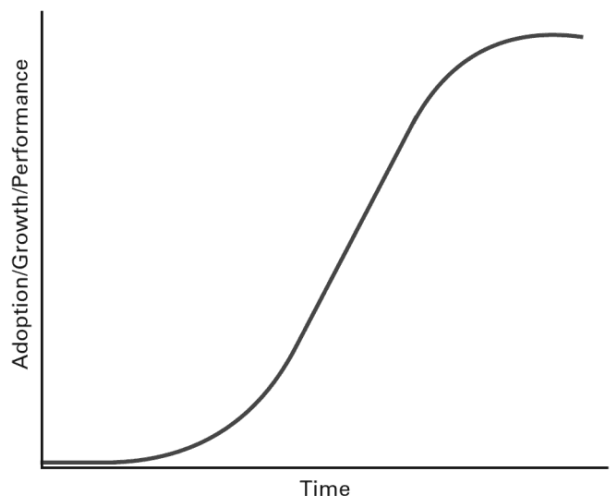
Ray Kurzweil

Renowned futurologist (and Google's Head of Engineering) Ray Kurzweil has described the lifecycle of a technology (or an invention based on a new technology) as being shaped as an 'S-curve'. Kurzweil noted back in 2004 that the pace of innovation is doubling every decade and so he said that inventions should be aimed at the world of the future, not the world that exists when your R&D project is launched, since so many contexts change so rapidly.[4] So if technologies follow an S-curve over time (slow, then rapid adoption and development, before plateauing into maturity) in order to time an invention properly you need to be aware of the entire lifecycle (Figure 2.1).

Kurzweil describes seven key stages in the evolution of a technology:

1. Precursor: the enabling factors for the new technology are in place (and visionaries may even be able to describe its goals or its operation), but it has yet to become a reality.
2. Invention: for which determination and timing are often key.
3. Development: the refining of the invention, which has likely entered the world as 'an ungainly and impractical device'.

Figure 2.1 Lifecycle of an invention



4 Maturity: this stage often comprises the bulk of a technology's lifespan. It has become an integral part of everyday life and probably seems as though it will never be replaced.

5 False pretenders: assaults on the now established technology from potentially disruptive newcomers that claim to be in a position to replace it, and indeed might be better in some ways, but are invariably lacking in salient, critical features. The failure of the newcomer(s) only leads to a stronger conviction that the existing technology will survive indefinitely.

6 Obsolescence: further newcomers master the absent qualities, pushing the older technology into obsolescence.

7 Antiquity: the final resting place.

Kurzweil says that in order to be successful, an invention needs to move through each phase (precursor, invention, development and maturity), which reminds us of the Schumpeter definition of the process of technological change which is divided into three key stages: 1) Invention (ideas); 2) Innovation (the development of new ideas into marketable products and processes, or commercialization); 3) Diffusion (scaling or adoption).[5] There are, of course, challenges at each of these stages which are often forgotten about but worth considering at an organizational level, since we need to be good at all three of them.

Why businesses get disrupted: the ambiguity zone

While Ray Kurzweil applied the S-curve to describe the lifecycle of a technology, it was Charles Handy who (in *The Empty Raincoat*)[6] originally described how the S-curve is a way of understanding the trajectory of many successful systems, demonstrating the need for significant and regular reinvention and change, and how disruption can often happen just when an existing technology looks like it is performing the best that it ever has. The duration of specific curves may vary but each one typically begins with an initial period of learning through trial and error, followed by rapid growth, and then a plateauing and ultimately decline in performance.

The overlapping of S-curves, caused by the introduction of new technologies or models into a market is what creates both challenge and opportunity (Figure 2.2). Many organizations will avoid significant change until crisis is

not mean that we should forget everything we know about great companies, great products and great brands.

Yet if we are to form a useful, instructive definition we should take account of more than the technical aspects of digital. It is often the case that within organizations there is a disproportionate focus on the technology itself (new technology for the sake of new technology), over all the enablers that surround the technology, really bring it to life, and fully realize its capability (people, behaviours, processes, skills, culture).

When the team that drove the initial digital transformation of service delivery for the UK Government moved to do the same thing at the Co-Op, they originated a definition that recognized that when done well, digital means more than fundamentally redesigning services; it also means changing the way in which we work:

> *Applying the culture, practices, processes and technologies of the Internet era to respond to people's raised expectations.*
>
> (Bracken, 2016)[9]

Creating a single sentence definition for what digital means to your business creates the platform from which change can be actioned.

Notes

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What's stopping you? 03

Slow by design

If we are to embark on the journey towards becoming a more agile business, it is worth pausing to consider some of the key forces for inertia within organizations and potential blockers to change.

The interviews conducted for this book surfaced a wide range of barriers to progress, the most commonly cited reflecting technology, strategy and people related reasons, including:

- **Technology and data:** outdated, inflexible systems, creaking IT infrastructure, difficulty in systems integration and joining up data.
- **Short-termism:** a focus on short-term targets and priorities, hampering the ability to progress with larger, longer-term projects or change.
- **Talent:** the challenge of attracting and retaining the best digital talent.
- **Legacy approaches:** entrenched behaviours, processes and decision-making that are inherently slow and problematic to unlearn.
- **Organizational silos:** the drag brake of internal politics, competing divisional agendas, siloed decision-making.
- **Prioritization:** challenges around understanding how best to allocate limited resources, often due to lack of knowledge or certainty of impact, and the ability to show identifiable, short-term gain or benefit.
- **Culture and structure**: the inhibiting effect of an organizational culture that rewards and entrenches behaviours that counteract change, or inflexible structures that slow progress. Comments included the need to change culture in order to work smarter and/or faster, or around how structures are inhibiting, or too much micro management.

Many of these barriers reflect fundamental aspects of organizational culture and practice. As Eric Schmidt and Jonathan Rosenberg describe it in *How Google Works*, most companies are run today to minimize risk, not

maximize freedom and speed. Information is hoarded, not shared; decision-making power lies in the hands of the few:

> *Their design is a vestige of an era when failure was expensive, and deliberation was a virtue.*
>
> (Schmidt and Rosenberg, 2014)[1]

In other words, they are slow by design. If an organization has scaled and grown utilizing specific, established processes or ways of doing things, it creates inbuilt inertia that is very hard to counteract. As the company becomes larger and focus moves more towards efficiency and optimization rather than breakthrough innovation, the approaches become not only established but honed and embedded. As hierarchies flourish within the larger company, and grow up around embedded practices, the inward focus of the company increases as the outward focus declines. Inertia strengthens over time.

Why organizations become 'sticky'

Why do organizations and people become resistant to change? And why does change seem to become harder the larger the organization gets? One key reason is that organizational culture becomes entrenched and intransigent over time, resulting in what Professor Victor Newman describes (in his book *Power House: Strategic knowledge management*)[2] as the 'sticky organization'. If a culture grows up around the problem-solving experiences and processes associated with a particular kind of technology, then relationships between people and patterns of behaviour also grow up around that and can adapt to block change in an effort to maintain social stability.

The relationship capital, or the social capital that has been built up over time between teams and individuals through the accumulation of reputation, influence and positive impressions becomes a powerful blocker to change. As innovation specialist Matt Edgar has said, a startup spends much of its formative life making and breaking new relationships and links. These are unpredictable social conditions but ones in which innovation can flourish. A large organization on the other hand:

> *... is almost nothing but a massive knot of pre-existing relationships. Getting something done, even something new, often means following a well-trodden path to actors already known to each other.*
>
> (Edgar, 2013)[3]