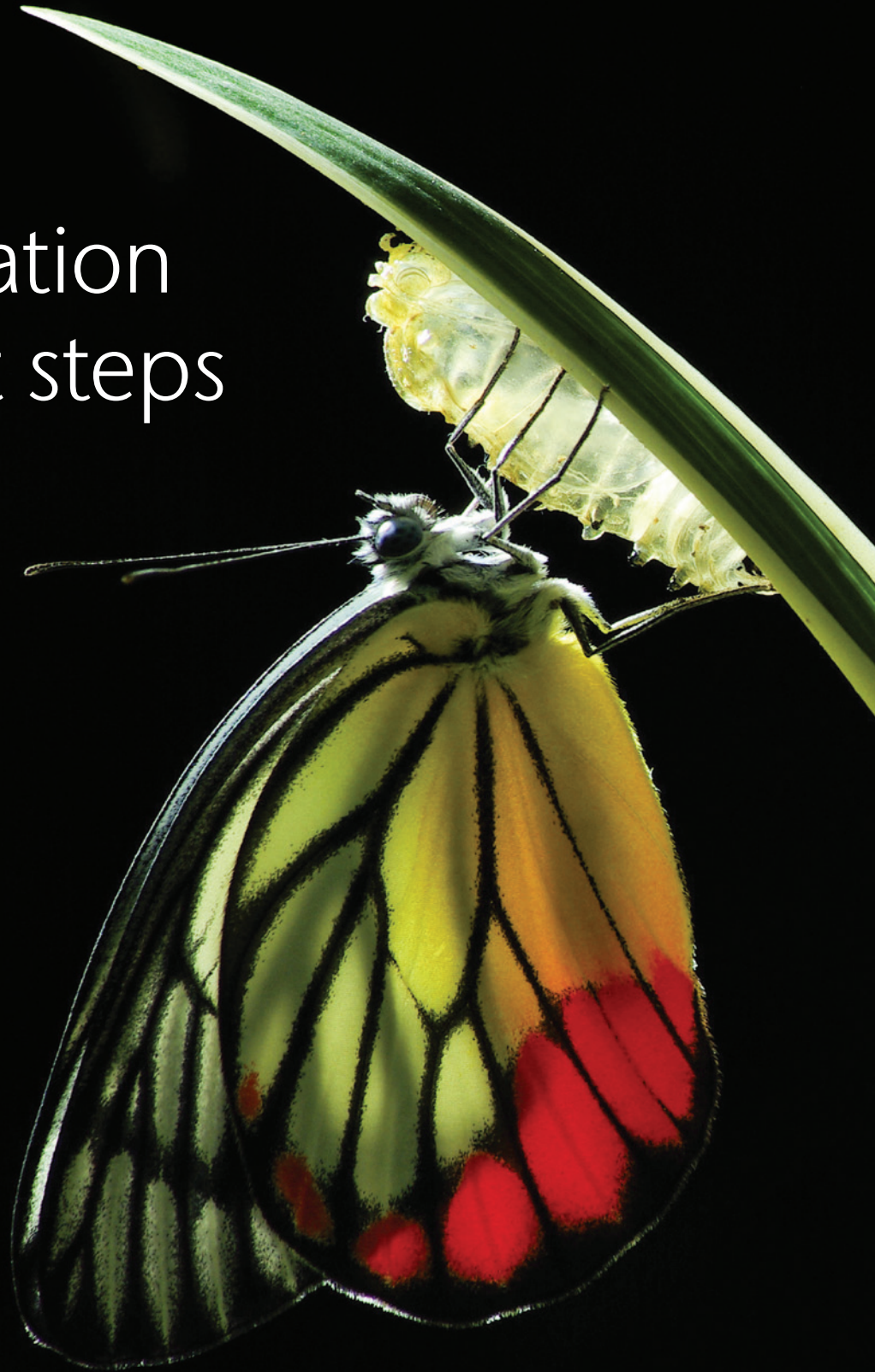




INFORMATION  
TECHNOLOGY  
FACULTY

# Digital transformation – the next steps

A business guide  
to digital change  
management



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# 1. Introduction

The internet as most of us know it – in the form of the world wide web – has only been publically available since 1994, and its commercialisation didn't really take off until 1996. So in around 20 years we have moved from a small number of clunky HTML-based websites, with simple text and graphics information pages, to an all-pervasive network of interactive, responsive multi-media content and web-based applications, all accessible from a wide range of devices including televisions, phones and gaming machines.

This guide aims to provide insight into how this phenomenal period of change has brought about the introduction of new, disruptive, digital technologies into the workplace and the impact this has had on businesses of all sizes.

## 1.1 What are digital disruption and digital transformation?

Put simply, 'digital disruption' is the impact on 'business as usual' of new digital technologies and 'digital transformation' is about proactively managing that impact.

But what sorts of change are we talking about?

Business transformation is about developing new business models. This could be about new production processes, new delivery channels, approaching new markets, working collaboratively with suppliers, co-developing services with customers or any number of other things.

However, such transformations are likely to be enabled by the strategic development of information technologies, so the term 'IT transformation' is also commonly used in business. These information technology transformations often only reflect changes to existing business practices and are not, in reality, new applications of technology.

By contrast, digital transformation is primarily about understanding the existing information and data in your business and then remodelling your business processes and business systems accordingly. Following how data flows through your business (how it is generated, captured, stored, shared and used by which people at which times for what purpose) can both ensure that you maximise the use of digital technologies, but also help you to challenge existing ways of doing things and restructure accordingly.

As outlined in our definition, this remodelling is often triggered by the introduction of disruptive technologies, and this needs to be understood both from the side of the 'disrupter' (the technological innovator or digital entrepreneur who seeks to change the market) and from the side of the business adopter (who is looking to improve business processes, adopt new ways of working or to create fundamentally new business models).

## 1.2 What is driving change in business?

Much has been written about the impact of technologies such as cloud computing, social technologies and big data, and **4 Digital transformation: characteristics and technologies** will look at some of the key benefits (and risks) associated with their use.

However, none of these would have been able to grow without the emergence of underlying, enabling technologies. These include:

- ever-increasing processing power;
- ever-increasing data storage;
- improved operating systems and networking infrastructure;
- the internet as a platform;
- the emergence of open source software;
- increasing reach and bandwidth of broadband;
- miniaturisation and the rise of mobile; and
- demographics.

Add to these the falling costs of technology and it is easy to see how an environment has evolved in which it is increasingly easy for entrepreneurs, developers and scientists to explore new applications of technology and to challenge existing business applications, business models and even economic models.

## 1.3 Digital transformation in small and medium businesses

There have been many stories in the media about such global successes – but are they really relevant to small businesses?

In the context of digital transformation, the answer is most certainly yes, although a certain amount of perspective is required. Despite the overhyped success stories most technology start-ups do not sell out to one of the big players for a fortune. Most fail, many struggle, and a certain number will do quite nicely in a particular niche. Nevertheless, the large technology companies have done two very important things: encourage start-ups to have a go, and enable existing companies to innovate and transform.

Amazon and eBay are excellent examples of how a traditional business model can be transformed by a new company using disruptive technologies. They have been able to harness the successive waves of innovation – the faster processing, better networking, increased bandwidth, cheaper technology, and diverse devices – to both enhance their offerings, improve their back office systems (accounting, HR, payroll, customer relationship management (CRM), logistics etc.) and create new opportunities and move into new markets.

Getting digital transformation right can help a small business to achieve a range of traditional benefits (eg, competitive edge, improved processes, reduced costs, closer relationships with customers) and also create new opportunities (new markets, new revenue streams, new supplier relationships, new processes – in short, new business models). A number of case studies are included in this guide to illustrate a variety of such benefits.

However, there also are many ways to get it wrong:

- through failing to adapt to new technologies;
- by missing changes in customer behaviour;
- through poor planning;
- through lack of employee and stakeholder engagement;
- by not understanding the significance of paradigm shifts in the market place; and
- by failing to anticipate the true costs of change.

Any of these can seriously damage a business and, ultimately, even cause it to fail completely.

#### **1.4 The aim of this guide**

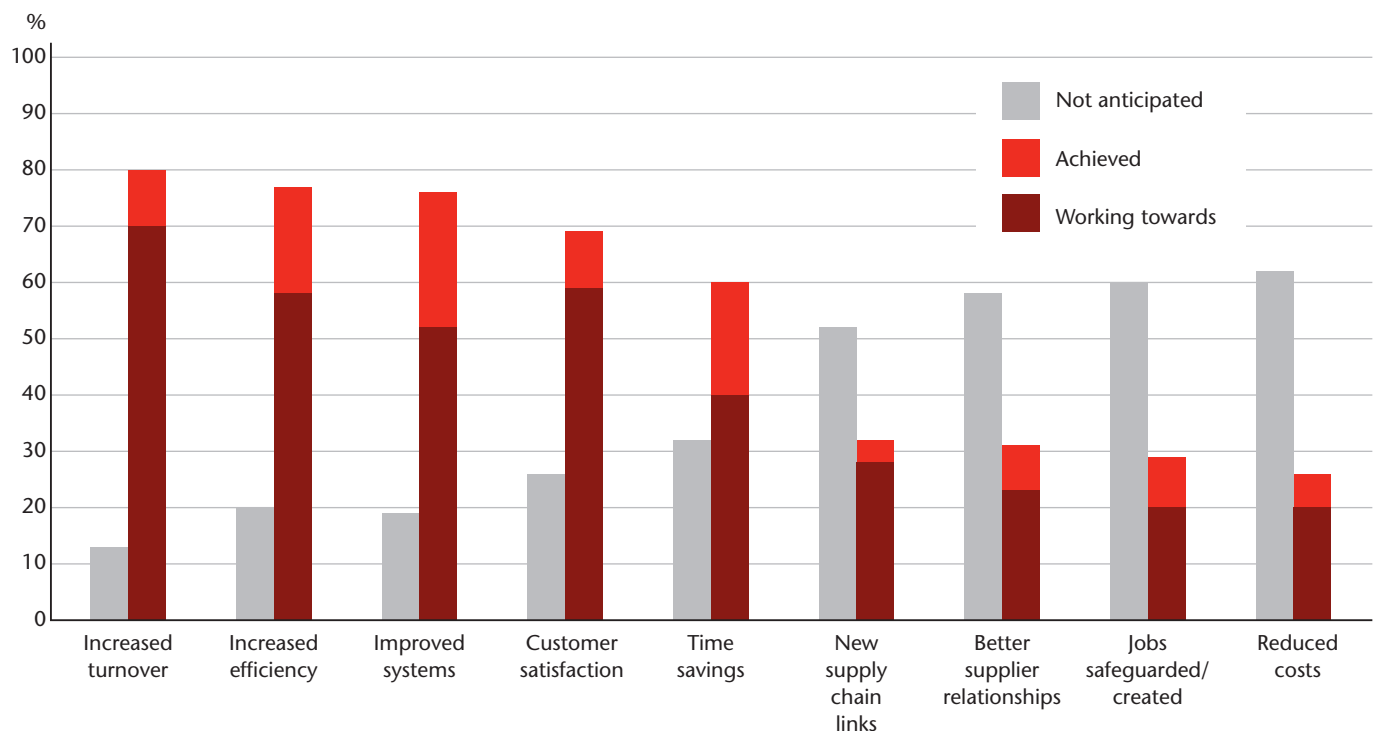
This guide has been written to provide an understanding of the opportunities and challenges that small business face when considering change and to provide a framework for proactively planning and implementing change in order to exploit the opportunities afforded by digital transformation.

## 2. Business benefits of digital transformation

In order to identify the range of business benefits that successful digital transformation can typically deliver, it's informative to look at the findings of some recent research undertaken by Superfast Business, a business support project in the South West of England. The survey of nearly 1,000 companies sought to determine what benefits they had either already experienced or that they expected to gain through participation in the project, which focused on helping businesses adopt cloud, mobile, social and big data technologies and was only open to SMEs (with most participants having 10 or less employees).

The graph below shows the benefits that participating companies had either already achieved after six months, or expected to achieve in the following six months.

Figure 1 What benefits has your business achieved as a result of the support and what benefits do you expect to achieve over the next six months?



The graph clearly shows that within a six-month period significant gains had already been achieved and many more were anticipated.

It is notable that companies appear not to have been fixated on cost reduction but rather adding value to business proposition. The broad areas of benefit appear to be around increased turnover, efficiency and performance and improved customer service.

For these companies, digital transformation certainly delivered the sorts of benefits that businesses traditionally benchmark. When thinking about your own business, though, remember that digital transformation is about innovation and benefits may accrue in new areas, such as:

- increased customer engagement and improved customer conversion;
- improved customer, supplier and employee collaboration;
- improved quality control processes;
- flexible working;
- personalisation of products; and
- co-production of products and services.

# 3. Digital transformation in practice

This section includes a variety of case studies involving businesses of different sizes and from different sectors. They illustrate from a practical perspective how emerging technologies have been used to achieve digital transformation, with the resultant delivery of a range of benefits including increased profitability, enhanced customer service, more effective collaboration, faster processing times and increased customer loyalty.

## 3.1 Case studies

### Online retailer of prescription glasses

Established in 2004 in response to the high costs of buying prescription lenses, the company uses digital technologies to reduce the price of high-quality glasses. Now Europe's largest online prescription eyewear store, it offers a free seven-day home trial together with online tools to help select the right frame for your face.

#### Problem

- Increasing competition on and offline, pressure on pricing – customers are no longer necessarily loyal to one brand or provider.
- Customers wanting greater choice and to 'try before they buy'.
- The expectation for fast fulfilment of orders leads customers to shop around.

#### Solution

- Review of the existing online ecommerce platform in order to create a more engaging customer experience and increase choice.
- The web interface was redesigned to enable customers to virtually select the right frame for their face.
- Better integration of systems with suppliers to speed up fulfilment.
- Introduction of a seven-day home trial for customers.

#### Digital transformation

- The CRM system was moved into the cloud to better integrate it with the accounting software and ecommerce back end. The company was then better able to recommend related products (such as prescription sunglasses) and other accessories.
- The fulfilment system was improved through enhanced online collaboration with suppliers which included just-in-time ordering of components and the sharing of sales forecast predictions.
- Improvements to the CRM system enabled the offer, and tracking, of goods for home trial.



## **Benefits**

- The immediate benefit was through improved customer satisfaction with better ratings both on the website and on social media channels.
- This in turn led to better customer retention and increased add-on sales per customer.
- The company was able to reorganise its customer support team to work more flexibly, with several part-time staff covering shifts from home.

## **Hospitality sector – hotel operator**

A leading hotel chain reviewed its digital strategy with the aim of making 'digital hospitality' a core part of its value proposition. As a result the company invested significantly in designing operational processes that embedded digital engagement with the customer throughout their stay.

### **Problem**

- This is a fast moving sector where customers are more informed and have online tools to help them make decisions based on price, quality of service and added value.
- Mobile phones are increasingly the method of engagement by hotel users and systems need to reflect that.
- Customers expect a personalised service based on individual requirements and preferences.

### **Solution**

- Introduction of a new digital strategy including rethinking the customer journey and incorporating digital technology throughout.
- Development of a 'seamless' digital customer journey with electronic payments, one-click booking, online check-in, better use of mobile technologies (with a policy of 'mobile first') and personalisation of email campaigns based on better knowledge of customers.
- The introduction of an innovative loyalty scheme without time or availability restrictions.

### **Digital transformation**

- Complete overhaul of IT infrastructure in line with new digital strategy.
- Introduction of real-time customer engagement tools delivered through smartphones when customers are on site.
- Investment in new email marketing campaign technology with 'self-learning' recommendation tool to improve targeted messaging.
- Use of digital image libraries to enhance online experience.

## **Benefits**

- Customer-centric culture achieved across the organisation and a focus on the digital as well as personal customer experience.
- More 'employee-friendly' technology as the systems incorporate tablets, smartphones, online training and social media tools.
- Increased customer retention through better digital engagement and loyalty scheme.

## **Uber**

Uber's story is commonly referenced because it is an excellent example of how traditional business models can be challenged by innovative new approaches. What began in 2009 as a luxury car service in San Francisco is now valued at more than \$50bn and operates in more than 300 cities worldwide. In taking on existing taxi services, Uber analysed the customer experience and used digital technologies to overcome the negative aspects of hiring a cab.

## **Problem**

- Getting a taxi is not always an easy experience, as it involves finding and hailing a taxi or waiting after making a booking.
- Once in a taxi, the customer experience can be poor – arguments over the route, whether the meter was started, agreeing the payment, deciding whether or not to tip, getting a receipt etc.

## **Solution**

- Uber changed the private transportation market with the creation of a digitally enabled personal transport service.
- Marketing through local networks and social media.
- Use of mobile technologies and Google to enable a better customer experience.

## **Digital transformation**

- The Uber smartphone app is integrated with Google Maps so that customer can see how far away the nearest cars are, set a meeting point on the screen and hail a car.
- Driver's information (including ratings) provided in real time.
- Uber drivers call or text to confirm they are on the way. The app charges your card on arrival at the destination so cash, change, tips, or receipts are not needed.

## **Benefits**

- Improved customer convenience and experience.

## Health sector – physiotherapist

Online assessment tools and cloud-based back-office administration tools have transformed a traditional business model and increased the amount of 'value-added' time patients get with specialists.

### Problem

- Today's patients are more educated and informed than they used to be, with access to a wide range of information from health and user groups. 72% of people have researched a health-related problem in the past 12 months.
- However, it is still easy for patients to make the wrong diagnosis and to potentially make the condition worse.
- The relationship of the physiotherapist with the patient has significantly changed – there is a need to share accurate data and work together on the problem.
- Out-dated back office systems make booking appointments clumsy and practitioner time management inefficient.

### Solution

- Information portal to help patients understand how physiotherapy could help them.
- An app to guide patients through a diagnostic process and share information with the therapist.
- New cloud-based back offices systems.

### Digital transformation

- Creation of online knowledge base and diagnostic app. The app provides the first line of diagnostic and removes the need for a face-to-face appointment.
- Accounts moved to online accounts package Xero to enable integration with other applications.
- Online booking of appointments enabled using Timely appointment scheduling software integrated with Xero.
- Therapist scheduling, treatment notes, invoices and payments managed by Cliniko practice management software integrated with Xero.

### Benefits

- More efficient practice management, better scheduling, invoicing and client booking.
- Reduced consultation time through use of diagnostic app and focus on added value treatment for customers.
- Shared client information to inform decision making and treatment.

## **Manufacturer of biodiesel processors**

Since it was founded in 2003, the company has established itself as one of the world's leading manufacturers of biodiesel processors, developing technology that produces top-quality biodiesel as a complete replacement for fossil diesel. It has an international customer base together with bio-refineries in 28 countries. The result is that employees are spending increasing amounts of time travelling, while requiring immediate access to central IT systems and enhanced collaboration capabilities.

### **Problem**

- Exports account for almost 90% of turnover, with employees constantly on the road, doing business across international time zones.
- Inability of employees to access the latest versions of key documents for meetings at client sites and to promptly put together proposals arising out of such meetings, with the result that sales opportunities were being lost.
- Conferencing technology already in use was not up to the job for serving an international customer base.

### **Solution**

- Consolidate IT strategy on the cloud-based Office 365 software package.
- Provide cross-border collaboration, document sharing and updating, and diary coordination.
- Voice, instant messaging and video communication solution provided in a consistent and streamlined way without the need for a high-maintenance physical infrastructure.

### **Digital transformation**

- Regardless of their location, everyone has 24-hour access to secure email, shared diaries and a central SharePoint document library.
- Effective collaboration is achieved through a full range of communications options and real-time collaboration tools.
- Microsoft Windows Intune provides simplified software support, maintenance and security.
- Migrating the business's accounting processes to the cloud allows employees to generate invoices and quotes more easily, wherever they are in the world.

### **Benefits**

- A new level of consistency because everyone has access to the most up-to-date versions of important documents from any device, including smartphones and tablets, as well as email and messaging services.
- Ability, when overseas in a different time zone, to answer a site-specific question with the latest documentation accessed via the cloud.
- Use of Voice over IP (VoIP) has significantly reduced phone bills, while functions such as call diversion to employee mobile numbers mean that overseas calls can be answered outside UK working hours.

## **Boiler servicing and maintenance**

The business specialises in the installation, servicing and maintenance of domestic and commercial central heating systems. Many of its employees are constantly on the road, fulfilling service and engineering tasks. It was recognised that the business needed to become more efficient in real time, giving its mobile engineers access to key systems and information while on the move so that they could respond to customers' requirements and questions more efficiently.

### **Problem**

- Company did not have full control of engineers working on site – backend system was a very old version of Access database on a desktop PC.
- Engineers did not always know where they were supposed to be at any time and did not always have contact details of customers.
- If a customer wanted to pay by credit card the engineers had to phone in to the head office for desktop processing.

### **Solution**

- Exported data from Access to a csv file, cleaned it up removing very old 'dead' records, aligning fields correctly.
- Set up a CRM system, created custom fields and imported data from csv.
- Equipped engineers with mobile devices to take credit card payment via smartphones.

### **Digital transformation**

- The daily/weekly calendar of appointments is now viewable via the mobile app on smartphones.
- Clicking on the appointment shows the customer details – name, address and telephone number, and clicking on address brings up Google Maps on the smartphone.
- Engineers can also immediately send back details of any parts used on the job and can mark it as complete so that it can be invoiced promptly.

### **Benefits**

- The smartphone credit card reader means engineers no longer have to waste time telephoning through to process a card.
- All engineers have immediate and instant access to appointments and customer details.

## Retail marketing company

The company undertakes a range of marketing activities related to selling products to consumers through channels such as stores, shopping malls and kiosks. However, a lack of accurate data on consumer spending patterns had resulted in a number of marketing campaigns not fully meeting their agreed expectations.

### Problem

- Company was not achieving satisfactory returns on levels of marketing spend.
- Inability to identify when and how to advertise to consumers in order to maximise the chances of conversion.

### Solution

- Build up patterns and trends of consumer habits including where and when they shop.
- Identify discretionary spend – what goods are ‘needs’ versus ‘wants’.
- Use loyalty cards to gather the required information.

### Digital transformation

- Ability to use data captured from loyalty cards to provide targeted, timely marketing activity.
- Marketing activity more likely to have a direct impact upon the level of sales.

### Benefits

- Improved conversion rates from marketing campaigns.
- Increased investment on marketing spend.

## Sports betting company

The company recognised that its increased use of technology (ie, online betting) had actually resulted in a change to the profile of some of its customers which significantly raised its level of business risk. It was, therefore, looking to use data analytics to provide it with the necessary information to limit this risk to an acceptable level, while still offering its wider customer base the required level of service.

### Problem

- Some customers have become ‘professional gamblers’ and earn big money on bets placed.
- Such big wins result in a need to reduce the odds significantly in order to limit potential losses, but this also limits the potential pay-out to the wider public.
- From a customer perspective the company would prefer that its betting outlets provide 500 winners with a £2,000 pay-out each, than two winners with £500,000 pay-outs.

### **Solution**

- Identify betting trends by using a big data and analysis platform.
- Use the data to limit the activity of professional gamblers and respond in real time to their betting habits.

### **Digital transformation**

- Data can be captured and processed in a real time manner 'in the cloud' as betting outlets are increasingly taking bets online.

### **Benefits**

- Increased customer loyalty as the odds offered can be enhanced, with pay-outs limited to 'casual gamblers'.
- Such gamblers tend to wager smaller amounts and lose more often than they win.

## **Professional services practice**

SME professional services practice employing 500 fee earners at 20+ locations, faced a challenge to streamline and execute cost-effectively, its core business processes. It commenced the required transformation by digitalising its process of risk management and reporting, to be followed by digital transformation of the rest of the business through redefining and digitalising other key business processes.

### **Problem**

- A professional LLP may be required by law to keep risk registers; typically LLPs maintain these risk registers on Excel spreadsheets.
- Recording and prioritising risk in the risk register is mostly ad-hoc, ie, there is no easy way to calculate the priority of one risk over another.
- No clear understanding of how to score risks.
- Established compliance, but correlation between risk and business objectives is not defined.
- Data is not displayed in a way where calls to action are obvious.

### **Solution**

- Creation of an import mechanism to transfer data from an Excel spreadsheet into a secure, robust online risk register.
- Display of data in an actionable way.
- Creation of definitions in English that correlate to numerical scores.
- Rules and logic set up which provide an underlying calculator to score each risk.
- Functionality within the software used to create dynamic, meaningful reports.
- Creation of 'click-to-dial' and 'email' from the dashboard to risk owners to simplify communication.

## Digital transformation

The practice has set out a clear strategy for the digital transformation with the first step being the implementation of the online risk register, and the following outcomes so far.

- A mass of data is imported into the software, displaying it in an intelligible manner and not in its raw form.
- The initial display of data is in the way the user wishes to see it, with the most urgent at the top.
- Each risk has a life from point of discovery to closure. Key dates are diarised and alerted.
- The software enables visual comparisons globally, regionally and by office as well as by department.
- The reports allow drill down into detail by risk or risk category.
- The reports highlight the impact of the mitigation activity on reduction in risk score/risk priority ie, how much your mitigation has reduced the risk priority.

## Benefits

- Executives can focus on risks by priority and track a risk during its life.
- Risk executives can start to set company risk objectives for the year and to make risk owners accountable.
- The whole science of risk management has become a useful business tool in addition to meeting a compliance requirement.
- Overall, it has generated efficiencies through:
  - freeing up valuable executive time by about 20%;
  - bringing the various stakeholders closer through simplifying the end-to-end process, with ease of access to clear, reliable data in a robust actionable form. Time and efficiency gains of 33% of original budgeted overhead;
  - clarity and timeliness of information has in itself reduced the burden of risk and embedded it within the business as good practice.

## Next steps

This dashboarding and reporting tool, having been tried and tested as above, is to be implemented across management and executive data. The internal data will be cleansed and imported from legacy stores, relevant external data will be collected directly into the digital data store and the existing software will be adapted to provide management with the ability to respond faster to market trends and provide a better service to clients at a lower cost of delivery.



### 3.2 Getting it wrong

It is worth remembering, of course, that not all companies get digital transformation right – and indeed some fail to see the need in the first place.

A prime example of this is Blockbuster, the DVD rental company. The company had a huge high-street presence and loyal customer base. It was a household name and placed in a prime position to take advantage of the emerging world of online digital.

However, the company repeatedly failed to innovate its business model and lost ground in the market not once, but twice. First, it lost ground to DVD postal services, and was uncompetitive with the large high-street rental overhead it carried. It then failed to respond to the early streaming services such as Love Film.

Finally, when it had the opportunity to buy its way into this new market, with the acquisition of the emergent streaming company, Netflix, it also failed to understand the potential this would provide.

Blockbuster did not properly assess the future for streaming (in much the same way as Kodak failed to understand the impact of digital photography). This lack of vision also meant Blockbuster failed to see the impact of the internet on online booking – the replacement of browsing in the high street with browsing in the comfort of your own home (just as, at the same time, successful pizza companies were moving to online ordering and home delivery).

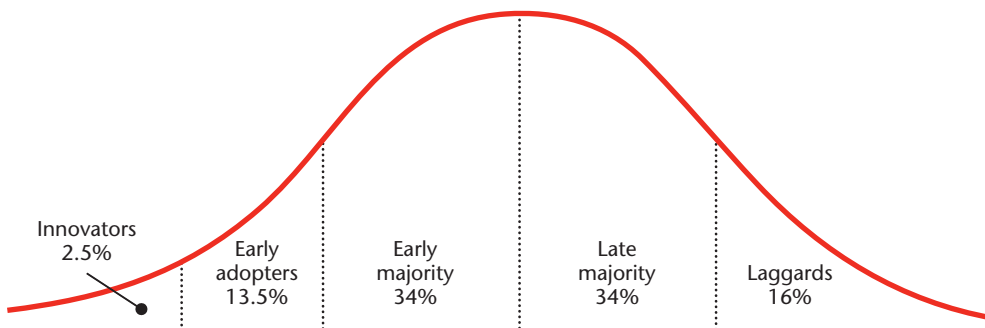
Blockbuster's story is ultimately about complacency. There was no culture of innovation, rather a blindness to the digital transformation that was going on around it. As CEO of Netflix Reed Hastings said, 'If Blockbuster had launched their own streaming service two years earlier, Netflix may never have happened'.

# 4. Digital transformation: characteristics and technologies

Disruptive technologies are, by their very nature, unpredictable, volatile and, often, unrefined. They do, though, accelerate the pace of trial, adoption, adaptation and further innovation, creating a cycle of new ideas and the application of those ideas.

This, in turn, has a knock-on effect for more traditional businesses as those ideas become better understood and are embedded in more robust products and services.

In the technology sector there is a well-known technology adoption curve:



This is based both on the propensity of the user to take risks and also the time and money that is required to be invested in understanding and implementing new technology.

A business that ignores new technologies is as much at risk as one that wholeheartedly adopts them. For obvious reasons this explains why the majority of technology adopters are to be found in the 'early' and 'late' majority phases of the bell curve.

## 4.1 Characteristics

The key characteristics of digital transformation, as catalysed by disruptive technologies, are the pace of change in the digital marketplace and the pace of adoption by businesses, by end users and by society as a whole.

Successive waves of technological innovation, based on internet technologies themselves, have created the perfect conditions for the further acceleration of such innovation. Technology companies have very low barriers to entry and now use 'agile' and 'lean' business methodologies to create, test and co-develop new products and services. The focus has shifted from major investment in product development (followed by market testing) to the use of low cost prototypes (often referred to as Minimal Viable Products), and a focus of available resources on market testing and iterative development in response to discovered needs.

Such agile and lean start-up methodologies are now widely used across all business sectors. Digital transformation thus involves the rethinking and re-engineering, at a fundamental level, of business models and market engagement.

## 4.2 Technologies

While this guide is not focused on technologies in themselves (but, rather, the impact of those technologies on the business), it is nevertheless inescapable that business owners and managers need to have some understanding of both the opportunities and the risks associated with using existing and emergent disruptive digital technologies. So, the list below provides a quick snapshot of some of the key issues to consider when thinking about the possible use of these technologies in the digital transformation of the business.

### Broadband and wireless

**Benefits:** Fast data transfer; always-on connection.

**Opportunities:** File transfer, use of cloud-based computing (see below), video streaming, videoconferencing, data back-up, interactive services, gaming, desktop sharing, remote monitoring, CCTV (the list goes on).

**Challenges:** Data contention (sharing bandwidth with other users); service outages; working in rural areas or offline.

**Risks:** Loss of connectivity leading to productivity issues; changing cost models.

### Cloud technologies

**Benefits:** Revenue as opposed to capital spend; can be used from any internet-enabled device; try before you buy; only buy what you use; scalable; usually good integration between applications; can include data-back up and version control.

**Opportunities:** Flexible working, collaboration; ability to try new software at low risk.

**Challenges:** Offline access to systems/data; upgrades to different system components; adapting to change; integrating multiple system components.

**Risks:** Reliance on specific providers, data loss (sometimes backing up the back-ups is necessary even in the cloud environment); changing data standards; security (protection against hackers, careful management of administrative tools/user permissions; policies that cover staff responsibilities).

### Social media technologies

**Benefits:** Low-cost or free; integrates with websites; large reach; niche reach.

**Opportunities:** Engaging meaningfully with customers, both to respond to feedback (positive and negative) and to involve them in product or service development; market research; delivery of services.

**Challenges:** Keeping up-to-date with developments; proportionate investment of time in relation to realised benefits; understanding the appropriate medium for a specific message.

**Risks:** Damage to brand/reputation, either through failure to engage in conversations, or to create or maintain quality content; wasted staff time.

## Mobile technologies and the rise of the app

**Benefits:** Cheap; multi-purpose; can be managed remotely.

**Opportunities:** Flexible working; app development; integration with workflow/business processes.

**Challenges:** Mobile Device Management (MDM); integration with business systems; battery life; cost of the development and ongoing maintenance of the app.

**Risks:** Security/data loss.

## Big data analytics

**Benefits:** Real-time insight and reporting to enable decision making.

**Opportunities:** Collaboration with business partners through shared data sets; visualisation of data; modelling and forecasting; new revenue streams.

**Challenges:** Managing multiple data sets (both within and without the organisation); determining relevance and what should be measured, correlated and modelled; increasing volume, velocity and variety; changing data standards; managing unstructured data; managing the data processing infrastructure/software.

**Risks:** Data overload; poor data quality; poor analysis/correlation/interpretation leading to bad decision making; high costs in relation to returns.

## APIs (Application Programming Interfaces) and data standards

**Benefits:** Widely available; integrate the systems you need; adaptable over time.

**Opportunities:** Create/evolve a business software ecosystem based around your changing needs; collaborate with suppliers and customers.

**Challenges:** Integration requires data programming skills and a sound understanding of the strategic objectives; published APIs changing.

**Risks:** Security; data integrity; reliance on external software companies.

## Artificial Intelligence (AI)

**Benefits:** Improved analysis of data, better customer experience, data modelling.

**Opportunities:** Simpler user interfaces, predictive analysis.

**Challenges:** Programming; testing; implementation.

**Risks:** Lack of understanding; poor implementation; over-reliance on data analysis without cross checks.

More detailed guidance on the above technologies can be found in the following IT Faculty guides.

- *Making the move to cloud computing*
- *Cloud and virtualisation – a comparison*
- *Developing a social media policy*
- *Social media and the law*
- *Developing a bring-your-own device strategy*
- *The business of apps*
- *Collaboration tools to benefit the business*
- *Big data and analytics – what's new?*

# 5. Planning the transformation

## 5.1 Understanding innovation

Innovation is about finding new and better ways of doing things and, as such, is a fundamental part of any change programme.

The nature and speed of digital disruption has been outlined previously, but what does it take to use this as a catalyst for innovation and as a basis for digital transformation?

One way to look at the subject is through the 4Ps Model developed by John Bessant and Joe Tidd. This proposes that innovation is about positive change in one of four categories:

- product innovation;
- process innovation;
- position innovation; and
- paradigm innovation.

### Product innovation

This relates to changes in the products and/or services that a business provides. We are all familiar with incremental improvements being made to things that we use or services that make our lives easier, but probably don't often stop to think about what lies behind them.

In the case of digital transformation such innovation is often driven by the application of new technologies. These can help increase customer choice (eg, through personalisation of products and services), facilitate R&D, create new delivery channels and even underpin new pricing mechanisms (such as those that have emerged in the airline sector).

### Process innovation

This comes about when changes are made to the ways in which products and services are produced and/or delivered. Traditionally these have come about through the use of new manufacturing equipment, project management software or collaboration technologies, with the aim of increasing efficiency and productivity, and reducing costs.

However, it can also occur in the design, production or delivery processes. Offshoring and outsourcing are examples of how costs can be stripped out of a business by using more competitive labour elsewhere. The use of call centres, software developers and marketing agencies external to the business are all examples of process innovation. Another example would be reduction in office space through the introduction of flexible working practices.

In a broader sense, process innovation relates to rethinking the entire supply chain. Many companies think of themselves as bounded organisations but the reality is that they are all part of business ecosystems which work together to transform raw materials or labour into value-added products and services. Supply chain process innovation can help make your business more resilient to external impacts by developing stronger and more collaborative relationships with business partners that look at the end-to-end process not just the value added in each part of the supply chain.

## Position innovation

The third focus of innovation relates to how specific products or services are perceived or valued in the market place. The classic example of this is how Levi's jeans were 're-invented' as a fashion item where previously they had been positioned as hard wearing work attire. In the digital context the most obvious example is how a phone has been re-positioned as an internet device, a camera, a watch, a music and games centre. It has been re-positioned so well, in fact, that making phone calls is now only the fifth most common use.

## Paradigm innovation

A paradigm innovation, by contrast, is about fundamental shifts in how customer needs are addressed. In manufacturing terms a great example is that of Rolls-Royce who shifted from selling aeroplane engines to becoming a service company that charged for 'power by the hour'. In the digital sector, Apple's iTunes – a music platform – has completely changed the way in which the very traditional music sector delivered products to customers.

## 5.2 Understanding your data when planning for change

Having a clear picture of the data, information and knowledge flows within your business will enable you to proactively plan for change. It is far easier to make decisions on possible change if they are based on a broader understanding of how and why data flows through the organisation. This can be achieved by answering the following questions.

- When is data created, captured, retrieved or transferred within the business?
- Why is it created, captured, retrieved or transferred within the business? The answer to this can't be 'because we have always done it this way'.
- How is it stored – in what format(s)/application(s), and for how long?
- How is it updated, by whom and with what authority?
- How is it backed up?

It's also useful to look at your business systems in terms of what part of the overall processing of data they help to manage, rather than thinking of them as specific pieces of software that, in effect, end up controlling your business processes.

Often, in the past, businesses have been constrained, rather than empowered, by the software packages that they have chosen. Shrink-wrapped accounting or CRM software, for example, can impose certain disciplines on the user. The packages have, after all, been written to hard code the existing business processes of established businesses, and this is perfectly fine until you want to reflect changes in your business processes within the software. At this point a lot of traditional software packages lacked the flexibility to enable even subtle changes to operating procedures.

For this reason many of the larger business solutions were offered as configurable, modular, software systems which could grow and change with the company's requirements. Enterprise resource planning (ERP) systems, such as SAP, are now the mainstay of larger businesses.

However, new digital technologies, and the ways in which they can be implemented and integrated, are now bringing the benefits of the ERP approach to smaller companies and at a fraction of the cost.

This does require a certain amount of strategic thinking and discipline, though, and this is where a high-level systems architecture diagram can be helpful. This will be considered further in **6 Getting started**.



# 6. Getting started

The earlier sections of this guide have set out what digital transformation is, how it can benefit a company, and what the current underlying technologies are. This section takes a practical look at how to start implementing a change process, providing a high-level overview of the areas you will need to consider. More detail on each of these areas is provided in Appendix 2.

For a transformation process to be successful at all, though, you must first be in the right mind set. This is after all, a transformation process, not a one off transformation project. Getting started with digital transformation is therefore about creating a new culture within the business that is positive about, rather than resistant to, change. In order to do this you will need to:

- assess your ability/readiness to implement change;
- have a vision of where you want your company to be;
- look for ideas;
- build a framework for change;
  - change methodology;
  - data architecture;
  - the change team;
- think about culture change and communicate effectively;
- anticipate costs;
- measure success; and
- be aware of risks and issues.

## 6.1 Assess your ability/readiness to implement change

In order to understand how ready your organisation is to undertake transformation (and therefore how successful it is likely to be as things stand) you should undertake a diagnostic review of key aspects of your business.

This should cover a holistic overview of how technology is used to support your business objectives.

- Where are you now?
- How efficient are you as an organisation?
- How well do you engage your customers and other business partners?
- How well do you embrace new ways of working?
- How effective are you in terms of governance?

An outline diagnostic question set is provided in Appendix 1.

## 6.2 Have a vision

Having a vision of where you want to be is not the same as having a traditional business plan with milestones and targets. It is more about setting some high-level objectives that define the change you are trying to achieve within the business. This is about thinking strategically and providing a sense of direction.

For further information see 'Think strategically' in Appendix 2.

## 6.3 Look for ideas

Everybody that is involved with your business – including staff, customers and suppliers – will have a different perspective on what might improve your productivity, competitiveness, marketability or sales. Make sure you are open to feedback whether this is through formal reviews or, more likely, through informal channels such as the chat by the coffee machine or comments on social media. Listen to and discuss these ideas as small incremental changes across the business can have a huge difference.

For further information see 'Identify opportunities' in Appendix 2.

## 6.4 Build a framework for change

### Methodology

Change programmes are typically driven either by business strategy or IT strategy. Digital transformation requires that these strategies inform rather than lead one another. This is important because, as outlined above, we are talking about managing a continuing process of change not a specific project with a set deadline.

As such, a more agile approach is required than is provided by traditional project management methodologies. This means that achieving your vision needs to be broken down into stages and your plans (or tactics) reconsidered at the end of each stage in the light of where you are at that point. Perhaps each stage will require a small formal project but it is essential to allow the flexibility to adapt or modify your plans.

### Data architecture

Your ability to do this will be considerably enhanced if you have planned out the data and process flows in your organisation. These can be used to create a generic model of the data architecture for your business and to help guide where and how digital technologies might be used innovatively to support your strategic aims.

### Change team

Change will not happen by itself. You can introduce new processes, technologies, procedures and rules, but unless people embrace them your change initiative will be dead in the water. Make sure that only people who fundamentally believe in the change – even when there are problems – are involved in the process and empower them to be advocates for the new ideas – both inside and outside the organisation.

More detail on these subjects can be found in Appendix 2 – ‘Choose your methodology’, ‘Plan the architecture’ and ‘Build the change team’.

### **6.5 Think about culture change and communicate effectively**

Having advocates for change is a start, but be aware that others may take longer to understand and accept new ways of doing things.

Good communication is imperative here – in terms of listening to, understanding and responding to concerns, and also in terms of communicating early successes that validate the purpose of the change.

For further information see Appendix 2 – ‘Think about culture change’ and ‘Communicate’.

### **6.6 Anticipate costs**

Considering the above it is evident that the true cost of a digital transformation project goes way beyond procuring the technology. It may encompass large amounts of staff time, including:

- consultation;
- development;
- testing;
- feedback;
- planning; and
- project management.

You may also be writing off previous investments, restructuring workspaces, replacing processes, changing documentation... the list goes on.

It will be impossible to accurately predict the total cost of transformation over time. If you have planned properly, you will be able to estimate how the transformation will impact on your existing budgets and what staff time to allocate over time.

Remember that digital technologies often catalyse a shift from capital to revenue spending and that the ability to flexibly scale your systems up or down will have a direct impact on expenditure.

## 6.7 Measure success

As with any project, it is important to understand whether the desired benefits are being achieved through digital transformation. This requires establishing a set of parameters at the outset by which success can be measured. Such parameters should fall directly out of the planning process and relate to the agreed drivers of change. Examples could be:

- customer satisfaction;
- customer retention;
- increased sales;
- employee productivity;
- employee engagement;
- reduced stock levels; and
- quicker product development cycle.

They must obviously be specific to your objectives though and can be used to test, feedback and iteratively refine your processes or data management.

While change is by its nature continuous, there has to be periodic measurement of the success of the transition.

## 6.8 Be aware of risks and issues

Finally, as with traditional project management methods, it is important to keep a log of any potential risks (and ways to mitigate them) along with actual issues and how they are being handled.

# 7. Top tips

## 7.1 Keep learning

If this guide has repeated any single message, it is that change is now a constant in business. Keep a watching brief on new technologies. Discuss them at meetings, look at what other companies are doing and constantly challenge yourself as to whether there are new, different and better ways of doing things.

## 7.2 Innovate effectively

- Think about innovation in its broadest sense – it can come from anywhere and affect any part of your business.
- Create an environment for innovation – this requires innovation to be part of your business culture.
- Embrace change. Remember Darwin's quote: 'It is not the strongest or the most intelligent who will survive but those who can best manage'.
- Involve everyone, including external partners and customers.
- Capture all ideas – closing out 'bad ideas' will stop people from contributing and, in the words of Linus Pauling, 'the best way to have a good idea is to have a lot of ideas'.
- Test new ideas with staff, customers and potential customers.
- Evaluate the impact of change on the business, for example employee engagement, cost base, sales, brand etc.
- Don't stop – innovation must become a constant in your business.

## 7.3 Get started

- Take the time to map your business processes. This does not need to be an onerous exercise – involve key people in the organisation and draw it out as a flow chart on a large roll of paper.
- Don't let the map stop at an artificial boundary around your own business – make sure it includes links to suppliers and customers.
- Create a high-level data architecture based on this map. Where does data enter the business? How is it used? Where is it stored? What software do you use at various parts of the business process?
- Now produce a simplified generic version of your business so that you can think about it in terms of how the actual business should naturally function, not how your software and systems make you work.
- Think about your organisational structure in relation to the above. Does your organisational chart actually represent what happens in practice? Think about how this might change.
- Apply your knowledge of digital technologies and the ideas you have brainstormed when reviewing the map of your business. Start to re-imagine how it could work.

## 7.4 Make change happen

- Go through the question set in Appendix 1 and review the steps in Appendix 2.

# Appendix 1: Digital transformation – self-diagnostic question set

The following questions should be evaluated twice – once for where you think you are now in your business, and once for where you think you should be in, say, six months' time.

Review your answers in order to prioritise areas for change within your business and to inform your transformation strategy.

## Your business now

### How good is your business planning?

- Do you have a written business strategy?
- Do you have a formal business plan?

### How well do you manage business information?

- Have you mapped your business processes?
- Do you use information effectively?

### Is the use of IT core to your business?

- Do you have an IT strategy?
- How sophisticated is your use of software?
- Do you budget for IT?

### How progressive is your business?

- Do you seek to innovate?
- Do you seek to collaborate?

### How ready are staff for technology changes in your business?

- Are staff prepared for change?
- How skilled is your workforce with technology and its application within your business?
- Do you invest in skills development?

## Working efficiently within your business

### How well do you use technology for day-to-day projects?

- Do you use project management tools?
- Can everyone access the tools at any time?
- Do you have any automated systems?

### How well do staff communicate internally?

- Do staff use technology to work internally?
- Do your staff use social media to communicate internally?

### **How well do you manage knowledge in your business?**

- Do you have an intranet?
- Can you share information easily, eg, business performance?

### **Do you use technology to improve efficiency and productivity**

- Do you use ERP or manufacturing resource planning systems?
- Do you use cloud technology to be more efficient, flexible and mobile?

### **Do you use payment and finance technologies?**

- Can you accept telephone, mobile and online payments?
- Do you use online banking?
- Do you have access to accounts and finance at anytime, anywhere?

## **Influencing and interacting with customers**

### **Do you have an effective digital marketing strategy?**

- Is it a part of your overall business plan?
- Do you have a search engine optimised website?
- Do you use web analytics?
- Do you regularly evaluate competitors' products, websites and social media?

### **How effective is your CRM?**

- Do you have a CRM system?
- Does it cover the full customer journey?
- Do you use it for reports and forecasting?
- Do you regularly send out e-communications to your customers?
- How responsive do your customers think you are?

### **How well does your website work for you?**

- Does it engage customers and add value?
- Does it work on mobile/tablet devices?
- Do you deliver products and services online

### **How well are you selling online?**

- Do you have integrated stock control, finance integration and delivery updates?
- Does your ecommerce integrate with back-office functions?
- Do you offer personalised products or services?

### **How well are you using social media?**

- Do you regularly use and update social media channels?
- Do you have good online interaction with your customers?

### **Do you use customer feedback and analytics to inform business decision making?**

- Do you check that brand reputation is upheld? Do you check all online channels for brand damage?
- Do you use information gathered from your website and social media to identify new ways of working?
- Do you use knowledge gathered to adapt or modify your business plan?

### **New ways of working/cloud computing**

#### **Have you implemented, or are you considering, cloud technologies for your infrastructure?**

- How do you manage your computer network?

#### **Do you use Software as a Service (SaaS)?**

- Do you use online productivity tools?
- Do you use online collaboration tools?

#### **Does your business encourage flexible working?**

- Can staff work from home or on the move?
- Do you have a flexible working policy?
- Can staff work flexible hours?

#### **Do you enable bring your own device (BYOD) in the work place?**

- Can staff use their own laptops, tablets or mobiles to access work systems?

#### **Do you use technology to collaborate with other businesses?**

- Do you share information with business partners?
- Do you work with other businesses online?

#### **Do you seek and use peer support online?**

- Do you use the internet/social media for peer learning?
- Do you use the internet/social media for learning support?



## Best practice

### Do you have effective governance of your IT?

- Do you have an IT policy? Does it cover use of hardware and software, data protection, intellectual property, and internet use?
- Do you have a social media policy?
- Are your terms and conditions and privacy policy in place?

### How developed is your disaster recovery plan?

- Do you have an offsite backup?
- Have you planned to survive flood, fire or other disasters?
- Do you have a crisis management plan?

### Are your systems secure?

- Is your system fully protected from viruses/malware?
- Is your system protected against hackers?
- Do you have measures in place to enable staff to use their own devices securely when accessing organisational data?

### Are you compliant?

- Do you comply with the Data Protection Act?
- Have you performed a privacy impact assessment?

# Appendix 2: Making digital transformation work for your business

This appendix expands on the guidance given in **4 Getting started**.

## Think strategically

Digital transformation differs from the traditional concept of change management projects in that it is a continual process and, often, a moving target.

Having a single vision of what things look like before and after your planned change is not enough. In addition to understanding where you are now, you need to consider what internal and external factors could affect your transformation initiative. Use these to create a series of possible outcomes that describe how the business might look if any or all of these factors play out.

Having a clear idea about the intended trajectory of the business, and of the variations this may involve, will help you to identify potential barriers to successful transformation and to think innovatively about how to overcome them.

Bear in mind that you will only know if your digital transformation programme is successful if you can identify meaningful and measurable benefits to your organisation. Building these into your framework for change will help the various areas of your business to implement ideas, measure their effectiveness, adapt your approach and actively achieve these benefits.

## Identify opportunities

In a digital world, change – and therefore the need to innovate – are constants for business. This idea needs to be built into how your business operates and will ensure that any mechanism to improve efficiency, productivity or market reach is both logged and explored.

A host of techniques are available for facilitating such discussions within the organisation, each with a slightly different focus.

When considering business model innovation, for example, thinking about ‘customer empathy’ will help gain insights about your customers, or prospective customers, by stepping inside their shoes in order to understand:

- how they think and feel;
- what they see and hear;
- what they say and do;
- the ‘pain’ that your product or service could remove; and
- the ‘gains’ that they would benefit from.

Others tools focus on prototyping new products and services, and on creating scenarios of how these products and services might be used in real world situations.

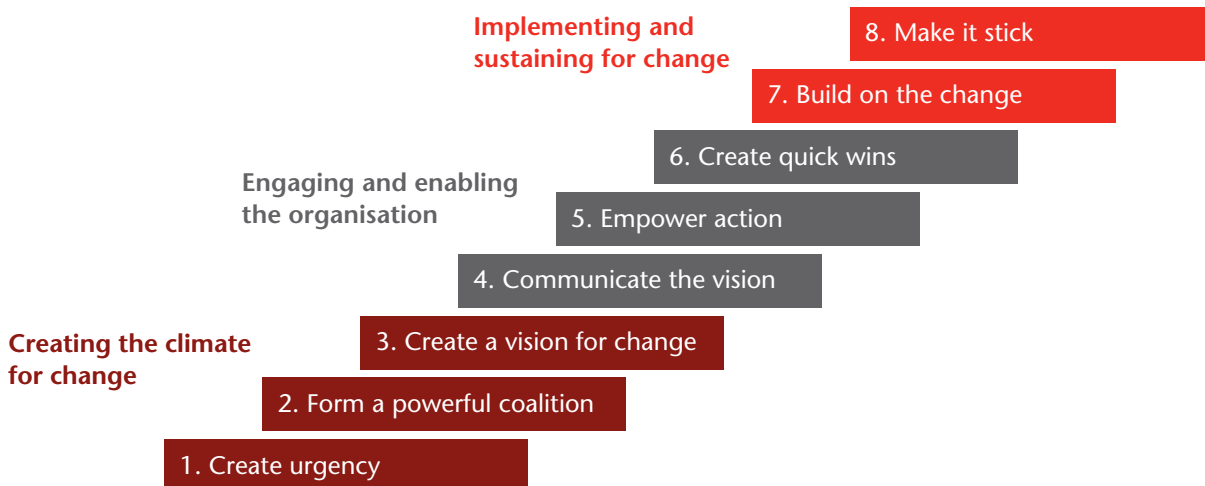
Whatever techniques you use, they should include people from every part of your business or, for small businesses, may include trusted suppliers and key customers.

## Choose your methodology

Your approach to digital transformation is likely to borrow from a number of existing methodologies from both traditional change management and from current thinking around software development and IT implementation.

Depending on their background, proponents of such methodologies will place a clear emphasis on one or the other but, in the digital age, it is essential that business change and IT change inform (rather than drive) one another.

In business terms, Kotter's eight-step change model is perhaps most frequently used.



The urgency is normally created by an external or internal catalyst for change which could be market disruption, technological innovation, political or economic change etc. Its principles underlie those of this guide.

However, it is necessary to weave into this model some more formal approach to the adoption, adaptation and evolution of new technologies over time and on an iterative basis.

Traditional software development follows what is called the 'waterfall' methodology which for a fixed project (in terms of time and budget) takes you through: capturing requirements; design; implementation; verification; and then maintenance.

In more recent times, 'agile' software has become much more in vogue. This is a set of software development methods in which requirements and code evolve through structured collaboration between self-organising, cross-functional teams. The teams will get together in regular meetings (or scrums) to define the next achievable phase of development which is known as a 'sprint' and may last between one and four weeks.

This approach is a lot less rigid than the waterfall methodology but is known for being unpredictable both in terms of delivery schedule and budget.

Recently, many software companies have been adopting what has been called a 'hybrid-agile' approach. Here the overall scope and purpose of the development is defined in a strategic overview, with a reasonable amount of flexibility about what the final product will look and feel like (given that many parameters – such as available software platforms and other technologies – may change) but within which each phase of development is treated more like a waterfall project. The 'sprints', if you like, have to produce milestone components of the overall design with measurable benefits against investment.

The idea of 'hybrid agile' is well suited to digital transformation when equally applied to the broader business change management initiative.

## Plan the architecture

Businesses need to start thinking about their data systems and processes as a conceptual framework that encapsulates the data and process flows identified in a data and process mapping exercise.

Having done this, each element of the overall system can be generalised as a business function (eg, accounts, CRM, marketing, analysis) rather than populated by a specific software package. Remember, this is a conceptual framework of how you want to work rather than the documentation of what you already have. It will include data flows with external organisations (suppliers, customers, shareholders etc,) as well as internal data flows.

At this point, you can overlay the existing system's components you already use (and which your trading partners use) but, more importantly, start to consider what future versions of the system might look like in relation to your strategic thinking.

Once you have generic modules in your conceptual framework, you can think of each of them as a plug-and-play component for which there might be a current best of breed application that can be tested, implemented and configured according to your requirements.

Almost all modern software, including SaaS offerings and apps for mobiles and tablets have published APIs that enable them to be integrated with other systems.

APIs and data standards exist to make it much more flexible to link systems together in order to best meet the needs of your evolving business requirements. You may not know exactly how your systems are going to end up looking, but if you create an overview of how your business works at the data level, it becomes much easier to plan for transformation in an intuitive and flexible way.

The key is to evolve the business ecosystem to reflect your business requirements, not on one or more specific system components to manage/run your business. The technology is, after all, only there to deliver your business objectives – not to define them.

Important: do not be drawn into the idea that this piece of work is only important for larger organisations. This step is still very valuable even if you are a sole trader.

## Build the change team

Culturally, this is often a difficult task for larger, more traditional businesses, as it often does not mesh with the established organisational hierarchy.

For a smaller company there may be little choice – it will be all hands on deck – but it is still worth thinking about the following list.

The people who lead digital transformation within the organisation will be the people who:

- intuitively understand the need for change (and the corresponding internal and external drivers);
- are not burdened by existing ways of doing things;
- are collaborative;
- are focused on outcomes;
- can define measurable goals and analyse data;
- can effectively communicate objectives, urgency, progress and successes; and
- live and breathe new technologies.

Each will need to lead through actions as well as words, as this is the only way that the underlying culture of the organisation will match the desired business transformation.

Leaders must demonstrate collaborative practices in order for them to be emulated by managers and employees.

## Think about culture change

Digital transformation will require employees to work in new ways and abandon the comfort zone of their existing processes. Inevitably, people will initially (and understandably) resist change. They may well feel threatened by the proposed changes and this is often more pronounced when older employees are faced with new and emerging technologies. Staff may, sometimes justifiably, fear being replaced by younger, more technically savvy employees, by software applications or by machines.

Involving people in the digital transformation initiative will not only help to allay such fears, but will invariably improve the desired outcome by eliciting new ideas and thus encouraging buy-in. Creating informal mechanisms for such contributions will improve this kind of engagement considerably.

Communicating the purpose of the transformation and the vision behind it, therefore, is an important element of addressing cultural change.

It is almost certain that training needs will emerge from such engagement and these should be used to create a training schedule covering, for example, new technologies, new systems and processes and new policies.

In a smaller company it may be worth thinking about how much more effectively each staff member will be able to use their time as a result of the transformation.

## Communicate

The understanding and commitment of stakeholders – including employees, suppliers, customers and investors, is critical to the success of digital transformation programmes.

The relevant person or people in your team therefore need to work hard to communicate the:

- vision, purpose and need for transformation (drivers, benefits and ideology);
- need for collaboration, contribution and feedback;
- details of progress, successes or any relevant sector or technology news; and
- changes to the strategy or immediate project work.

As with all communication, it is important to consider the right messaging and medium for each type of stakeholder. As such, it makes sense to create a communications plan at the same time as the strategic vision is set out, documenting key messages for each audience and including measures to determine how well the process is working.

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## About the author

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