Digital Transformation

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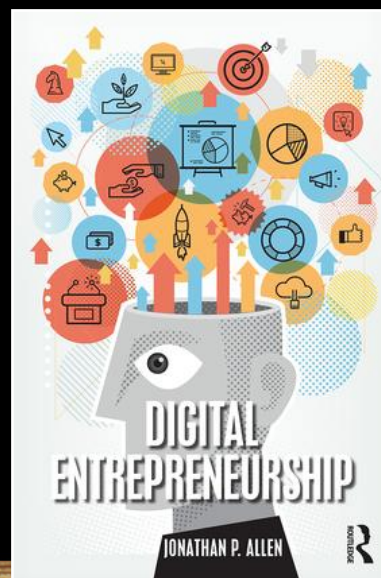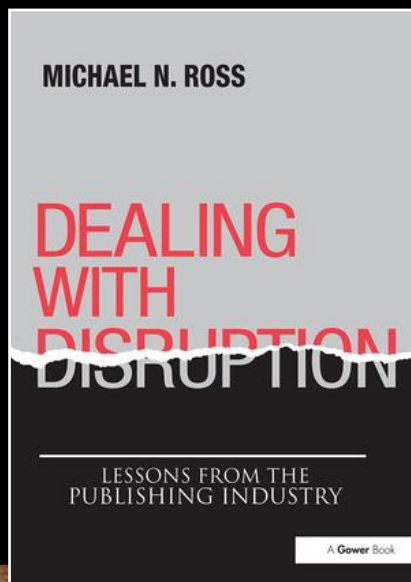
Introduction

Digital transformation is proving to be one of the biggest trends of the 21st Century and it promises to be a large part of businesses and organisations moving forwards. To celebrate the re-imagining of business in the digital age, we have put together some key chapters from leading digital transformation titles.

The first chapter, by Rob Laurens, gives a brief introduction to digital transformation and contributes to the overall aim of his book of assessing where you are now, where you need to go and finally how you can get there.

The next chapter, by Jonathan P. Allen, explores the process of choosing a digital business idea to run with. It continues to introduce key elements of digital transformation and also explains the common types of digital businesses that one can use as a starting point to generate new ideas.

Chapter three, by Stephen J. Andriole, Thomas Cox and Kaung M. Khin, delves in to the potential failures and successes of adopting technology in a business.

The following chapter, by Michael N. Ross, evaluates how traditional revenue streams such as publishing have been impacted by digital transformation.

Chapter five, again written by Jonathan P. Allen, gives an overview of one of the most important steps in digital transformation and digital entrepreneurship. It discusses the launch of a new digital venture and the major issues faced by businesses.

The penultimate chapter, by Stephen J. Andriole, Thomas Cox, and Kaung M. Khin, is an essential chapter in determining your transformation readiness and includes discussion on emerging and disruptive technologies.

Our final chapter, written by Rob Laurens, summarises the importance of digital transformation and his get fit for business strategy plan.

Note to Readers

References from the original chapters have not been included in this text. For a fully-referenced version of each chapter, including footnotes, bibliographies, references and endnotes, please see the published title. Links to purchase each specific title can be found on the first page of each chapter. As you read through this Freebook, you will notice that some excerpts reference previous chapters – please note that these are references to the original text and not the Freebook.

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INTRODUCTION

This chapter is excerpted from

Get Fit for Digital Business

by Rob Laurens.

Learn more

Introduction

The only constant is change

Before we dive into the programme, it's worth pausing to reflect on where enterprises were, and how far they've already come in changing the way they do business. When I started working, some time ago now, the primary way to be found by customers was by way of the Yellow Pages. That chunky printed book was effectively the search engine for the pre-digital world, used by people who knew what they wanted and were actively looking for it.

Database marketing enabled some precision in our marketing, helping us to retain and upsell customers. Some of us used direct mail to target prospects, test our customer propositions and track responses through codes and dedicated telephone numbers.

But at that time, most of our marketing was anything but precise. We placed adverts in publications and places that matched our target market's broad demographic profile. We tracked marketing performance with the question "where did you hear about us?" Market testing was also an expensive and blunt instrument, with occasional focus groups acting as our objective eyes and ears on the ground.

Looking back, in customer terms, we were comparatively blind and profoundly deaf. As a consequence, given that we were relatively isolated from our customers, we thought less about them and more about our products and services. In those days, bike couriers were a common sight in reception, as we physically sent information to one another. I can still hear the exasperated cries of "where's that bike?" We thought we were moving pretty fast, you see.

Now we work to ensure that our websites are visible when consumers type relevant keywords into search engines. We transfer documents,

artwork and some products electronically. We can track almost everything, everywhere. And, because "bits" travel faster than bikes, the pace has ramped up considerably.

Over the past couple of decades digital technology has certainly changed the way we work. As a change leader, getting wider leadership buy-in for many of these changes wasn't too difficult, and was typically based on no-brainer, cost-saving business cases. Implementation was also relatively easy, as we were simply digitising existing business processes. What excited business leaders most in the early days was the internet's potential to dramatically reduce costs (print and people), shifting customers to online self-service as a fast way to boost profits.

But the introduction of online selling wasn't without drama. Perceived as an internal competitor, it could be a hard sell to vested interests within an organisation. People's enthusiasm for change varied, but there was plenty of pushback, particularly from existing sales departments.

In the early days of digital, I remember call centre colleagues refusing to ask customers for their email addresses, because it threatened to cut them out of the sales loop and impact the commission they could earn. There were also regular cases of customers being advised that it was "safer" to book by phone. It became clear that there was a rearguard battle being fought by our sales people, who, understandably, felt threatened by the growth of ecommerce. Their mood was not improved when discounts were offered to customers who bought online, rather than in stores or over the phone. As leaders, we had failed to get buy-in and we risked making enemies of our own people.

Sales and marketing staff were the first to be impacted by the internet, but not the last. Soon product departments began to feel the heat. I worked as an ecommerce director for a mid-market travel company in 1999 and led the development of one of the UK's first flight ticket booking engines. Our target market was students and our product complex. The variety of air fares and accompanying terms and conditions was bewildering. This wasn't a huge issue when experienced sales staff were selecting products for customers face to face or on the phone, but it threatened to derail our online selling goals before we had even begun.

When we launched the booking engine it was far from perfect for customer use. Lack of time, money and that product complexity saw to that. We were, I suppose, "working lean" and "launching beta" with "minimum viable products", although we'd never heard of those things. It just seemed the most practical way to get things done in a digital business environment.

Inevitably there were some naysayers. "Nobody will use it", they said. "Customers might book cheap tickets but they won't book expensive

long-haul tickets. They won't be prepared to enter their payment details online". But we enjoyed strong support from our managing director, so we got the booking engine built and launched.

Customers had to work hard to get through the clunky booking process. But amazingly they did. I still remember the excitement of coming into the office in the morning and seeing that scores of bookings had been made and paid for by customers overnight. A trickle turned into a flood. This gave us the confidence to push the business to deliver a simplified product to boost sales further. In practice this required that we renegotiate our airline contracts, something that a busy product department could have done without. But it rose to the challenge and online sales continued to grow at an extraordinary rate.

We also quickly realised that we needed a constant supply of fresh and interesting content, so we started asking our staff to provide accounts of their trips, as well as partnering with guide books and freelance writers. Students were recruited (quite easily) to travel around the world equipped with digital cameras, new technology at that time, so that we could get daily updates on their experiences to share with our content-hungry audience.

We began to segment our database of students so that we could update them by email with regular content that was particularly relevant to them; for example, we knew that medical students often went on electives to long-haul destinations, so we published guides that would help them to get organised for their trips.

Over the course of the next ten years, as a leader in both business and agencies, I led the design of multiple websites, which delivered increasing levels of functionality, richer content and more user-friendly designs. My teams and I planned and implemented more sophisticated customer relationship strategies and worked to understand the mysteries of search engine optimisation (SEO) and the developing pay per click advertising platforms on those search engines. These innovations quickly yielded a competitive advantage. We had, for a while at least, got ahead of the game and it was working well for us all.

At one company, I led the transition from direct mail to digital marketing strategies. In less than a year, millions of pieces of direct mail had been largely replaced by online channels as our primary method of customer acquisition. It was good news for everybody except the printers, giving us better results at reduced cost. It was also more environmentally sustainable, something that had entered public consciousness and created a backlash against so-called junk mail. Better targeting also had the effect of helping us to acquire customers who stayed loyal for longer, because they were a better match for our product.

Along came a spider

[Bot: a computer program that works automatically, especially one that searches for and finds information on the internet.]

We had entered the new age of the algorithm. Search engines and their spider bots crawling the web proved to be a game changer. It soon became obvious that some businesses were feeling the impact of the web in general and the consumer use of search engines in particular. When I was running a digital agency in London in the early 2000s, we had a client who had recently purchased a medium-sized travel insurance business. They had paid a market price for it that reflected its well-established brand and leading sales performance.

But a problem emerged. A new market entrant, with a new business model, had disrupted the market and was beginning to eat my client's lunch. That competitor was one of the early digital specialists, expert in attracting prospects from search engines and converting them into customers with great websites. They were first and foremost digital marketing experts, rather than traditional insurance brokers, and used their search engine optimisation (SEO) skills to put their product in front of qualified buyers. This allowed them to reach people actively searching for travel insurance at a much lower cost compared to traditional marketing techniques.

It was clear that my client needed to adapt quickly in order to grow web sales and acquire more new customers at a lower cost. We got to work and researched the keyword combinations people were using to find insurance products. Then we optimised the website to rank highly in Google and the other search engines (back then Google had yet to become the digital superpower it is today and other search engines still had a good share of users).

Even then, making a website visible on the first page of search engines results for lucrative insurance keywords was a competitive and difficult business. But we had some of the best SEO people in the business and soon the website was riding high in the organic search engine results – the ones you don't pay for and users click on most.

Getting seen by prospects wasn't our only challenge. Price was also an issue. The cost of our client's policies was not comparable to the new competitor, who had kept their customer acquisition costs low by investing in SEO rather than expensive print and TV advertisements. Our solution was to offer the lowest price and encourage our website visitors to click on the links we provided to our competitors' websites. "Go compare and check our claim" became our customer call to action.

We earned money on each click users made through a partnership deal with the company serving up these link ads to our visitors. It was enough to

subsidise our costs and make a good margin on policies sold at a lower price online. We were, if you like, an early form of price comparison site. If we'd been a bit brighter then, we might have realised that price comparison would become a business model in its own right. Ho hum. In any case, those tactics wouldn't work today. Things keep changing in the digital world, demanding constant innovation to keep up, get ahead and stay ahead.

Social services

When social media came along it was harder to make the business case, unless you were an established brand with big budgets taking every opportunity to stay in the minds of your customers. In the early days of social media, I was working as an ecommerce director for the world's largest travel company, leading digital transformation for a portfolio of over 100 SMEs across the globe.

Initially I had to convince leaders that social media wasn't simply about people watching cats play the piano. It soon became clear that social media had the power to turn our customers into our best and most cost-effective marketing channel, as people shared their travel experiences with their friends and family.

No traditional marketing techniques can compete with the authentic voice of the customer as expressed in their videos, photos or written content. Simply nudging customers into sharing their content proved to be very effective in both marketing reach and cost terms. Although the production values may sometimes have been lacking, the emotional impact of user-generated content on their friends and family began to translate into increased business. All we had to do was encourage and facilitate that natural human behaviour of sharing experiences.

[Social listening: the process of monitoring digital conversations to understand what customers are saying about a brand and industry online.]

Working in the travel industry, it was relatively easy to make the case for social media, as it was quickly taken up by our customers. By using the emerging "social listening" technology we could show our colleagues that social media had become a turbo-charged "recommend a friend", always the most efficient and cost-effective force in marketing.

We later created our own social platforms, linking with Facebook, that gave our prospects the opportunity to view videos, photos and blogs from previous customers (all of whom gave their permission, of course). They

were also able to "meet" their travel companions online before they departed on one of our tours. In other words, we worked with our customers to create more value for all of us.

Next came the introduction of customer reviews, which quickly proved to be a powerful conversion booster, once the business had been persuaded that the benefits outweighed the perceived risks of any negative feedback. And there were more innovations to come.

Mobilising for a new world

The rapid take-up of smartphones and tablets launched the next wave of change. Getting buy-in to make our websites work well on all screen sizes wasn't too difficult. Mobile sales charts were shaped like a hockey stick and we now had good analytics running on our websites. Tracking allowed us to easily prove that an increasing number of our prospects and customers were viewing and buying our products on mobile devices.

Implementation, however, proved more challenging compared to getting buy-in. Making our complex websites mobile-friendly, or "responsive" as we say in the trade, wasn't easy. It required additional investment and we were pushing the limits of our traditional budget allocation. Something had to give. We simply had to stop doing some of the things we'd always done in order to free up budget and human resources so that we could develop our digital capabilities.

The obvious choice was to cut back on the high cost of brochure production and distribution. But we knew it would be tough to get buy-in from some of our stakeholders. Brochures were sacred cows in the travel industry, just as catalogues were or are in many other sectors. They may still have a place in the marketing mix for some, but, for me, the printed brochure began to symbolise the fundamental difference between old and new ways of working.

For many companies, the annual production of the brochure or catalogue was the one event that brought people together from across the organisation. It was really the only time that product, pricing, and sales and marketing people pitched in together, collectively contributing to a frantic month or two of production. After the thing went to print everybody retreated happily to their functional enclaves. It was a set and forget mindset, reflecting the finality of the printed page. Once it was done it was done, finished for another year – cue sighs of relief all round.

[Always-on marketing: a term to describe the change in emphasis from periodic marketing campaigns to a continuous process of marketing across channels to attract qualified prospects to your website.]

But, of course, that can't happen anymore. Digital requires that we are now "always on". That means different functional teams need to work together every day, all year long, constantly collaborating to innovate and optimise the product, proposition, price and customer experience.

Brochure production also highlighted the struggle of teams working simultaneously on old school tasks, while trying to get to grips with all the new opportunities that the web had made possible and increasingly compulsory for business success. Not only did this increase their workload, but they were also on a huge learning curve, working out on the job how best to develop content, how to make websites easier for customers to use and how to communicate engagingly with customers by email.

Our solution back then was to secure commitment, from a willing subset of our SME managing directors, for the transfer of an increasing proportion of budget from brochure printing and distribution to digital marketing activities. This was something of a "lighthouse project", a way of demonstrating the benefits of change in order to accelerate the pace of digital transformation.

To sugar the pill, we developed brochure app technology centrally to help each business to create digital brochures at a very low cost. This app, primarily designed for tablet users, made use of the businesses' existing printed brochure artwork, but enhanced the content with videos and additional photography. The back-lit images were more attractive and immersive when viewed on an electronic device. This helped to reduce resistance from those within each business who felt that cutting back on brochure production would negatively impact sales.

It wasn't just a leap of faith. We had that analytics data showing us that more and more of our website users were using tablets and smartphones. Nevertheless, we were all relieved to see that customers quickly embraced the ebrochure, enjoying its enhanced features and instant access, as opposed to waiting for it to drop through their letterbox in a printed form. It also led to an increase in conversion as the ebrochure provided direct links to further content and easy booking options on the website.

It was the eponymous win-win, improving customer experience and driving more sales while reducing production and distribution costs. It helped to get us off the blocks and we were able to reduce traditional brochure budgets dramatically over a two-year period. That ringfenced money was then reinvested in the creation of industry-leading websites with the best content, functionality and usability. That was the ultimate objective. For my team, the brochure app was merely a stop-gap, a way of getting buy-in, mitigating inertia to change, and getting budget allocation more focused on developing and continually optimising our core digital platforms and channels.

Confronting the challenge of change

As the evolution of digital technology relentlessly accelerates, humans, at least collectively in workplaces, have struggled to keep pace with three key drivers of transformation: changing consumer demand; changing technology; and changing competition. It's not simply that the organic evolution of internal human processing power takes a little longer than the creation of ever more powerful silicon chips – although a Moore's Law for humans would be based on a somewhat longer timescale (which is why we started building digital machines in the first place). It has much more to do with how we prepare and organise ourselves within businesses to respond, and keep responding, to the frenetic cadence of modern business life.

Most organisations have adopted new technologies of course. But they have also frequently left their people struggling to cope with the strictures of old mindsets, traditional structures and old back-end IT systems. You can create any number of websites and apps, but if you fail to fix what's behind them, it's going to be nigh on impossible to create an integrated joined-up business delivering a joined-up customer experience. That's important, because online customer experience has become just as big a part of people's buying decisions as their trust in the brand and the quality and price of the actual products and services which they are buying.

A failure to tackle the fundamental issues that digital gives rise to can take its toll on an enterprise, disappointing customers and putting a big strain on its human resources. This makes it difficult to keep up, consequently creating unnecessary tensions and stress. Technology is a good example; when an enterprise's systems have a modern web front-end which is barely on speaking terms with the legacy back-end systems, making improvements to the online customer experience is difficult. Whenever I see this in an enterprise, it reminds me of a pantomime horse, whose front and back legs are so out of kilter that the company can only stagger down the road, bumping into hurdles, watching enviously as more agile competitors take them at a gallop.

Team morale and individual motivation inevitably suffer. The ability to attract new talent declines. Digital business stars gravitate to the organisations where the conditions for success already exist. Most do not want to spend their time fighting internal battles or wrestling with technical systems that resemble a congealed bowl of spaghetti.

That leaves leaders stuck between a rock and a hard place, having to choose between hiring digital immigrants with a limited knowledge of the web or digital natives with less commercial experience or know-how. An intimate understanding of the latest social app as a user does not make anyone a digital business expert. Perhaps understandably, when confronted by this dilemma, many companies simply decided to outsource almost everything digital to an agency.

Inevitably there was, and still is, tension between new and old ways of thinking. Business leaders began to feel that the geeks were taking over and that they were getting pushed out of the loop, somehow disenfranchised in their own domains (pun intended).

Looking back, I also remember the pivot point when the critical mass of business people moved to embrace digital from a position of initial scepticism. It was reminiscent of Elisabeth Kübler-Ross's famous five stages of grief, whereby after the loss of a loved one, people move from denial to anger before acceptance. That moment of truth prompted something of an existential crisis in the collective mind of many organisations, as leaders debated whether they needed to become less traditional and perhaps more like a technology company and/or content publisher.

When I took on my first role in ecommerce in 1999, I was initially regarded as a bit unhinged by senior colleagues for embracing the web with quite so much enthusiasm. Looking back, I was taking a bit of a risk, as I had been leading a large division as general manager for this company at the time. But I had become utterly convinced that the internet was a business game changer.

In this new role, I was sitting in a new office somewhere between IT and marketing; both physically and metaphorically. At first no one paid too much heed to this newfangled ecommerce and they were happy to let me and my growing team get on with it.

But understandably, it didn't take long for the functional heads in these disciplines to wonder whether perhaps the internet *was* the coming thing. They began to realise that they should be more involved at least, and perhaps try to take some ownership to protect their spheres of influence.

I participated in this battle for ecommerce functional supremacy several times over the next ten years or so, as IT made the case that they should lead because "it was all about technology", while marketing argued that it was primarily "about communications". Nobody thought to specifically mention the customer.

Of course, it turned out that successful ecommerce required input from both marketing and IT . . . and the sales team, the product team, the human resources department (HR) and finance . . . in fact everybody in the business. We realised we needed to get better at publishing high-quality content, and to gain an understanding of how we could use technology better to increase efficiency and improve the buying experience of our customers. And we knew we had to do it without losing sight of who and what we were – providers of exceptional travel experiences to real people, our customers.

Most of all we needed to find ways of turning that realisation into action. That required the emergence of champions and evangelists, both for the emerging technology and for the customer. We needed change agents, ready, willing and able to work with, and challenge, colleagues across functions, before building consensus to get the digital tasks done. Those people

had to be prepared to put their heads over the parapet and take the risk of being the nuisance who was disrupting the comfortable status quo. It was not always a comfortable place to be and the best leaders recognised that.

So, what did I learn from those early days of my digital business journey? Well, I learned that technology, relatively speaking, is the easy bit. The real hard work was making the case and getting buy-in for organisational change and innovation. I learned that we needed to innovate incrementally, piloting new digital initiatives and using data – in the form of customer feedback, website analytics and most of all sales figures – to prove that such changes made positive impacts on the bottom line.

I began to understand how to make change happen, by focusing on practical ways to shift thinking and spending from traditional activities to new and better ways of serving our customers. I started to realise that the old hierarchal ways of managing business as usual didn't work in a digital business world, in which teams needed to be freer to test, learn and execute in a faster and more agile way.

I think I also learnt to balance empathy with assertiveness, and to appreciate that many people are understandably nervous about change and any proposed move away from the traditional tried and tested ways of doing business. It also became clear that, particularly in those crunch moments, sponsorship and support from the very top is not just helpful, but absolutely essential.

Most of all I learned that making change happen is not an overnight "transformation". It requires a change in mindset from leaders and their teams. It requires a willingness to work more closely together, because it affects everybody in an organisation, whatever their function. It demands a renewed focus on customers, and a joined-up, fully co-ordinated approach across multiple areas and many moving parts.

In summary, what I really learned is that getting fit for digital business is principally about people. It's about using technology to enhance those people – leaders, their teams, value chain partners and customers – giving them the everyday superpowers they need to create more value together.

To successfully make all that happen requires a framework and a positive narrative to get everyone bought in and fully committed. Making serious change happen while keeping the show on the road is challenging. It has been compared to changing a wheel while the car is still moving. That's tricky of course, but it is doable with the right skills and good teamwork. It's also very necessary.

So, how do you go about it? Where do you start and on what do you focus your efforts? Which new skills, tools, processes, business habits and techniques do you need to get there? How do you effect positive change when resources are limited and the pressures of "business as usual" remain? We will get to that shortly. But first, let's get a shared understanding of what digital actually is.

What is digital anyway?

We've only just got going and I've already used the term "digital" a lot. I don't think we can go any further without defining it. But that's not quite as easy as you might imagine, at least not in a meaningful way. Digital is a slippery fish. It's difficult to get a good grip on it. I remember a conversation with the managing director of a medium-sized business who asked me what I did. I told her that I help leaders of SMEs to adapt their organisations and operating models to become more digital. She looked at me quizzically for a moment and then asked, "What do you mean by digital?"

At first that sounds like a dumb question – but it isn't. It's a very good question indeed. We all think we know what digital is, but defining it in a sentence is difficult. It's one of those words that means different things to different people. We're already more than twenty years into the digital revolution, so we really should know the answer. It's important, because how we define it changes the way we think about it, work with it and explain it to colleagues and other stakeholders. By understanding, really understanding it, hopefully we can all set off in the right direction.

We may feel that we know the answer instinctively. After all, we all feel the effects of digital and know that it has changed our world forever. We know that over the last two decades technology has transformed the way we shop, learn, connect with friends, find recipes, discover new music . . . the list goes on. And we know that this trend will continue into the future.

We also know that it's made the world faster, changing consumer expectations and habits. We are well aware that it's given us more work to do, particularly if we are undertaking digital activities in addition to the analogue stuff we did before. We can't have missed the fact that it's spawned new market entrants with different business and operating models. It is also impossible to deny that it has shifted the balance of power from suppliers to consumers.

But despite those insights, do we really understand it? For example, does "digital" mean the same as "online"? Let's get that out of the way first. Online means that you are connected to the internet. That's it. Digital is more complex. For a start, there is not one agreed definition. In fact, many people who have been working "in digital" for years struggle to articulate a simple meaning (I've asked them).

Literally, according to the *Oxford English Dictionary* it means:

> Digital (adjective) (of signals or data) expressed as series of the digits 0 and 1, typically represented by values of a physical quantity such as voltage or magnetic polarization.

But that technical definition doesn't help us much as enterprise leaders. Perhaps the rest of the entry helps:

- relating to, using, or storing data or information in the form of digital signals.
- involving or relating to the use of computer technology.

Hmm . . . data and computers. It sounds like information technology – aka our old friend IT. But it isn't that either. It certainly isn't *just* that.

A popular definition of digital for business is Social, Mobile, Analytics and Cloud – or SMAC for short. This is based on the idea that the convergence of these four applications of digital is currently driving business changes. For me, although useful in highlighting some important aspects, this definition only reveals part of what digital really means in practice.

It also neatly illustrates the challenge of capturing digital's constant evolution in a soundbite, having already been revised as SMACI – that extra "I" added to accommodate the growing impact of the Internet of Things (IoT). It could soon become something like SMACAII to encompass artificial intelligence (AI) or perhaps SMABCAIIVAR to also include Blockchain as well as virtual and augmented reality (VR/AR).

My preferred definition of digital in commercial terms is: "any technology that connects people and machines with information or with each other, facilitating a new way of doing business".

It's fundamentally about *connectivity*. It has created the new connected customer who behaves differently from his analogue ancestors. The combination of technology and tools has changed consumer behaviour. Although it hasn't changed their fundamental wants and needs, the merger of the digital world and what we call "reality" has changed the way consumers see the world.

An understanding of what digital really is matters because it sets the digital agenda within organisations. Depending on their understanding of the definition, some leaders decide that digital is a "customer engagement thing," so they push it over to their marketing people. Others think it's a "technology thing," so they give it to the IT department. But the truth it that digital is not simply a "marketing thing" or an "IT thing". It's a "*business* thing" for which there must be shared responsibility across all areas of the organisation. No single function can or should own digital.

Doing versus being

Now that we have a shared understanding of what digital is, let's focus on what it means to leaders and their enterprises. There's a useful distinction

to be made between *doing* digital and *being* digital. In a nutshell, doing digital is tactical. But being digital is strategic.

Most organisations have been *doing* digital for so time now. They have been using email for communication, social media to build relationships, search engines to attract prospects and websites to sell to them. When I first started in ecommerce I was *doing* digital. I say that for three reasons. First, as an ecommerce department we were a separate entity, a standalone business function. Second, we were mostly involved in projects that were digitising existing processes and established ways of doing things. Third, the business case was primarily about cost reduction, rather than customer experience enhancement.

There were good reasons for that at the time. We needed to be independent of the existing functional structure of the organisation, reporting directly to the managing director, so that we could focus fully on getting things done, taking an independent perspective on digital priorities, regardless of the impact on other functions. We also needed skill sets, such as web design and programming, content production, direct marketing and customer relationship management that did not already exist within the business. At that time digital business wasn't simply business as usual, and so it couldn't be immediately integrated into the business as usual team.

In order to gain trust and minimise resistance from colleagues so that we could build up change momentum, we initially had to focus on projects that would almost immediately demonstrate a positive return on investment (ROI), without cannibalising existing revenue streams. We were pump-priming, pragmatically doing what we had to do to get the digital ball rolling in the business and secure further investment for the new skills and tools we needed.

In those early days we quickly understood that operating as another siloed department within the organisation wasn't a viable way forward. Everything we did required close collaboration with other functions. We couldn't accurately measure the real return on investment from digital marketing without tracking sales made through our call centre, in addition to the online sales. We couldn't communicate with prospects and turn more of them into customers unless sales staff asked for, and accurately entered, an email address into the database.

We couldn't run an effective digital marketing budget that was flexibly allocated according to the return on the investment data we were getting, without constant negotiation with the finance and marketing departments. We couldn't sell more product online without getting it set-up appropriately by the product department. Although we had our own programmers for the website front end, we couldn't improve our technical infrastructure

or integrations with back-end selling systems without petitioning for IT resource. These functions had their own priorities and long-established bureaucracies to negotiate. It all took too long.

We couldn't afford to substantially increase our staff headcount, creating a completely new team of digital experts to backfill a skills deficit in the rest of the business. That is a strategy that many large companies have employed to accelerate digital transformation, but as a medium-sized business it was simply not an option. The change we were trying to make was not the creation of a siloed, two-track business where traditional and digital were in competition with each other. Instead, we wanted the business to fully integrate digital into each and every function – to stop simply *doing* digital and start *being* digital.

Success depended on helping our colleagues to adapt their functions, to see the opportunities and threats, to speed up processes and to build up digital capabilities within their own areas. We had to bring them together to solve problems, persuading departmental heads to designate staff for small, multi-disciplinary project teams.

We had to shift the thinking of IT from a focus on internal functions as their primary customers, to a focus on our *real* customers. That meant finding better processes and embedding digital thinking as a part of the mindset. It was a re-engineering of the business, led by board-level change agents and backed by their leadership team colleagues.

One by one we worked through the issues and overcame the barriers. Increasingly, we started using data to make better and faster decisions, rather than working on guesswork and the HiPPO principle (highest paid person's opinion). We were gradually becoming more joined up, less siloed and more customer focused.

We shared our successes and ensured that everybody knew where we were going and the part they needed to play. After a while, we became a better team, all in the name of digital. That team started to include more machines, as we used the emerging free and subscription tools to help us to automate labour-intensive manual processes and tasks.

It took time, but it worked. Organisational changes were made. For example, the sales and marketing functions were brought together, so that cause and effect was managed and measured effectively. Later, customer service was incorporated. This combination of function, but with a significantly flattened hierarchy, became the customer experience champion, ensuring that every touch point within the customer's journey to purchase and beyond was continually being improved. We were then able to track ROI in a more sophisticated way, measuring our customer acquisition costs against average customer lifetime value, rather than simply based on a one-off transaction.

Why versus how

In many ways I think the most important change was one of mindset. We progressed to asking *why* before *what* or *how*. The power of asking *why* is not, of course, a new idea. The "five whys" is one of the most commonly used process improvement tools, a simple technique that gets to the root cause of a problem so that you can solve the underlying cause. Simon Sinek's book *Start with Why* is a global bestseller based on the simple idea that in business *what* you do matters less than *why* you do it.

A wise friend once said to me that the people who know how work for the people who know why. Remembering to ask "why" is a good habit. As small children we rarely ask *how*, but we constantly ask *why*. You could say that it's our default question – except that we sometimes forget to ask it when we're all grown up.

That is certainly true in the case of digital. It has so many moving parts and moves so quickly that we tend to just ask *how*, often in something of a panic, in our rush to get something, anything, done. For example, the question "*how* can we use Facebook or Twitter" tends to get asked before we have asked *why* we should use them.

We need to know why these digital platforms are relevant to *our* customers first. That will tell us how we should use them for brand awareness, relationship building, customer service or lead generation. It may even lead us to conclude that we should not use them at all, perhaps because they are not as relevant to our target markets as other platforms and we simply don't have the resources to do everything – or at least not everything well.

In the same way, before we ask how to build our new website or app – which content management system we will use and the functionality we will build – we should ask why we are building them. We must start with why it is important in the context of our customers' journey to purchase, and therefore why it is an important part of our overall strategy. Again, answers to the *why* questions will determine how or even *if* we build them. You can apply the same logic to mobile, data and analytics – in fact, any aspect of digital.

We also need to ask strategic why questions such as "why is digital important for the future of our business?" "Why are digital businesses outperforming less digitally savvy competitors?" Once we understand the answers to those questions we can begin to ask the what and how questions.

Questions such as "what implications does digital have for the way we do business now?" "What new opportunities have been created by these changes?" "What threats does this new world pose?" "How can we stay relevant and create more value for our customers within this new ecosystem?" "How do we equip and reorganise ourselves to make it happen?" "What should we prioritise?"

Jeffrey Pfeffer and Robert I. Sutton described something they called the "Knowing-Doing Gap" in a Harvard Business School press article and book in 2000. They asked, "Why do so much education and training, management consulting, and business research and so many books and articles produce so little change in what managers and organizations actually do?"

They weren't specifically addressing digital transformation, but business practices in general. In that context, their answer was that "too many managers want to learn 'how' in terms of detailed practices and techniques, rather than 'why' in terms of philosophy and general guidance for action". In a digital business world that observation is spot on.

Beginning with the question of *how* takes us directly to tactics and implementation before we've done any serious thinking. The question we need to start with is *why*. It is the inspirational element, the glue that binds loosely joined teams together and forms the foundation for the future by getting everybody on the same page. That's important, because although individuals can adapt, it takes a whole organisation to evolve. Asking fundamental questions like "why do we need to change?" and "why do we do things this way?" is the first step a leader can take to achieve team alignment and a shared purpose.

Size matters

Peter Drucker once wrote that "Large organizations cannot be versatile. A large organization is effective through its mass rather than through its agility". That lack of speed and agility provides a huge opportunity for SMEs.

Big business has traditionally had the advantage of access to better technology, but with the advent of the "cloud" and the new tools it has spawned, the technological playing field has been levelled to a great extent. Equally, the huge resources that give big business its power can become its major weakness.

Like an aircraft carrier, large companies suffer from a large tactical diameter. Often the speed with which things get done is inversely proportional to the number of people involved. As soon as you have layers of people involved with their own agendas and egos, things tend to get complicated. That complexity creates multiple weak points, of which groupthink and turf battles are two. In practice that means things get held up or broken.

Big companies, with a few notable exceptions also tend to face the wrong way. Their primary mission is to make money for shareholders, rather than to generate value for customers. This approach, aka maximising shareholder value has been widely condemned. Jack Welch called it "the dumbest idea in the world" in a 2009 interview with the *Financial Times*. He went on to say that "Shareholder value is a result, not a strategy … your main constituencies are your employees, your customers and your products". But it remains the prevalent context in most large organisations.

This creates a great opportunity for smaller, nimbler organisations, who can effect change faster and with much less investment. Today, there is little to stop them. We now have the technology, and, although smaller teams are seldom perfect, the very fact of being smaller creates a dynamic that is more likely to deliver. Change is simply easier when you have fewer people, less large-scale legacy technology and less hierarchy and bureaucracy – assuming of course that you have people with the right attitude and skills.

That's why larger organisations are beginning to shift to a more agile way of working. They have understood that change tends to be faster and more successful when smaller, cross-functional teams are deployed. Leaders of large enterprises know that in a time of major disruption, such as the industrial or digital revolutions, it is those who fail to get the innovation balance right who end up losing their shirts and clearing their desks.

So, many leaders have spent the last decade taking their organisations on a journey to digital fitness. They have been asking those hard *why* questions and taking action based on their findings, in the process that has become known as "digital transformation". This process has become a global industry in its own right, one that has doubled in size to a reported $44 billion in consultancy fees alone for 2017. Big business has the resources to get help and the giant management consultancies have quickly mobilised themselves to take advantage of that need and those resources. In contrast, few SMEs do. They have to be more self-reliant.

Consequently, while big businesses have been cracking on with their programmes of digital transformation, many SMEs, although by no means all, have been sitting on their hands. Consequently, they need to guard against becoming the squeezed middle, caught between new entrants who start from a digital-first mindset and the larger organisations who have invested heavily in getting their digital business act together.

Added to that, some established SMEs are facing a triple whammy of their old adversaries aggressively retooling and re-engineering for their digital future, in addition to the threat from new competitors and the behemoths.

Digital transformation?

[Digital transformation: the change associated with the application of digital technology in all aspects of human society. ... The transformation stage means that digital usages inherently enable new types of innovation and creativity in a particular domain, rather than simply enhance and support traditional methods.]

This definition of digital transformation from Wikipedia contains five key words. Two of them are *digital technology*. Three others are more important, and they are *human*, *innovation* and *creativity*.

Digital transformation, or more accurately "business transformation", is a response to the rapid adoption by humans (customers) of digital technology powered by the internet. Transformation success depends upon humans (employees) working effectively with digital technology to deliver better customer experiences for other humans.

It enables new ways of working and creating value (innovation) rather than simply enhancing traditional methods. It frees humans to do what they are best at (creativity) while the machines do more of the heavy lifting. Once fit for digital, your business becomes a harmonious collaboration between humans and machines. It becomes bionic; better than it was before; better, stronger, faster.

Survival of the fittest

[Fitness: The condition of being physically fit and healthy. *Biology* An organism's ability to survive and reproduce in a particular environment. Synonyms: suitability, capability, competency, proficiency, ability, aptitude.]

Nothing lasts forever. Organisations come and go, of course. The only constant is change. But over the last fifty years, the average lifespan of companies has shrunk from sixty to under twenty years.

The market is the final arbiter of success, but I'm not sure that all the casualties are fundamentally bad businesses. No doubt many are and their loss is mourned only by the employees and their creditors. But I think perhaps there are many more that have simply fallen out of step with the modern business world, left behind by smarter, more nimble competitors. They have simply lost their relevance to the modern connected consumer.

For many enterprises, getting fit for digital is really about survival. The sense of urgency for change is usually a function of how close the prospect of extinction appears to be. The most motivated companies tend to be those who can clearly see the writing writ large on the wall. Perhaps they have already been disrupted by new market entrants or competitors who have successfully re-engineered themselves. Standing on the proverbial burning deck can really focus the mind.

For the most successful businesses, of course, there is less incentive to explore fundamental change. It's easier to find the resources but harder to

find the will. The temptation is to adapt, with fragmented technology projects paid for from departmental budgets, rather than evolve with a centrally budgeted, integrated strategy driven from the top.

It's the digital sideshow versus digital as the main event. But, as John F. Kennedy famously put it, "the time to repair the roof is when the sun is shining". Businesses should look to disrupt themselves before others do it for them and they become the wounded impala of the business savannah.

For many organisations, the extinction clock is ticking. The invasive bionic businesses are multiplying, often cherry-picking the most profitable parts of a business, leaving incumbents with the commercial consolation prize. With their streamlined operating models and business superpowers, they are becoming pervasive.

Native species, those organisations who fail to evolve, risk being decimated. Many are already drifting towards that "red list" of endangered businesses. Tony Robbins said, "Change happens when the pain of staying the same is greater than the pain of change". In an increasingly digital world that may be too late.

The International Union for Conservation of Nature has compiled a Red List of Threatened Species. The organisation describes the inventory as a warning flag, signalling for global attention the perilous status of many species. They have been disrupted, their habitats destroyed or taken over by invasive species forcing them into an existential fight for survival. Maybe there should also be a red list for businesses. Maybe somewhere there is.

[Invasive species: any kind of living organism that is not native to an ecosystem and which causes harm.]

It may not be comfortable, but it is worth reflecting on the threats posed by new market entrants. These "invasive species" can be very harmful to your market share, revenue and profits. These businesses are already among us, and not just the digital superpowers like Amazon or Google.

The barriers to market entry in many industries has been dramatically lowered by the internet and the new business models it supports. This new species of business probably doesn't look, think or act like yours. They don't have traditional hierarchies or operate in functional silos.

They don't have legacy systems that slow down innovation. Sometimes they don't even have desks, as remote workers are empowered to be productive wherever they are. They are digitally fit and bionic. They have begun to harness technology in a way that integrates seamlessly with the humans – their people and their customers – creating a significant competitive advantage for themselves.

[Bionic: utilising electronic devices and mechanical parts to assist humans in performing difficult, dangerous, or intricate tasks.]

Bionic businesses have recognised that the new digital technology sitting in the cloud and accessed through the web changes everything, just as the invention of power, first in the form of steam and then electricity, fundamentally changed the way things were done in a superpowered, new world of mass production.

A good example is the technology-driven US insurer, Lemonade. The company offers renters and home owners insurance products promising "zero paperwork and instant everything by replacing brokers and bureaucracy with bots and machine learning". It enables customers who have lost property to submit claims via a video message on their mobile phones. Claims are reviewed using anti-fraud algorithms and, if everything checks out, the appropriate funds can be transferred to the customer's bank account in, it claims, a matter of seconds.

Most established organisations have yet to collectively make that mental and cultural leap. They have struggled to move from a mindset of thinking of digital technology as a communication tool or something that can make their business as usual more efficient, to an understanding that it changes what business as usual activity actually *is*.

So, what are these bionic superpowers? Here are just a few examples:

- *Super hearing*: when you can use social listening software to overhear what people are saying and track sentiment about your business even when you're not in the room. Or use "the power of the crowd" for funding or to prioritise product enhancements based on customer collaboration, allowing your community to vote, rate, and rank suggested changes.
- *Super speed*: when you can use data to make fast and informed decisions and act on them quickly using digital technology, team collaboration and agile processes.
- *Super strength and stamina*: using technology to automate repetitive tasks in the office or factory and help each person to do the work of many, thus freeing up their time to add value in other ways which are more interesting and rewarding for them, their customers and the company.
- *Super service*: when you can sensitively anticipate the next move of a prospect or customer based on what content they've looked at, what products they have previously purchased and where they are in the buying process.

- *Super selling*: when you can target prospects much more precisely using social media profiling or use free tools to gauge demand in terms of keyword searches. Or when you use analytics software to see exactly what people are doing and in what numbers on your website or app.

[Artificial intelligence or AI: the development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making and translation between languages.]

Artificial intelligence is making speedy progress in acquiring skills that were previously regarded as exclusively human. AI, in the form of IBM's chess-playing computer, Deep Blue, beat the grandmaster Gary Kasparov over two decades ago. That was quite a feat, as it's estimated that there are more possible iterations of a game of chess than there are atoms in the known universe. And AI has come on a bit since then. It's the next big thing in our digital and social evolution, and is already playing an increasing role in our everyday lives, from serving up search engine results, helping us to navigate our cars, suggesting entertainment options, making shopping recommendations and automating more and more jobs.

There are two main flavours in the application of AI. The first, known as "classical AI", involves applications powered by algorithms, which are essentially a set of rules given to them by humans that allows them to take decisions. This works best in a controlled environment such as a factory, a microcosm where everything is ordered and controlled, but struggles in the chaos and almost infinite variability of the "real" world. The second flavour, "machine learning", copes better with messiness. Instead of giving computers the rules, machine learning lets them figure out solutions on their own from raw data. The more data they have, the better they can perform.

Many of us are now interacting with AI when we use online customer service. Large businesses are adopting chatbots to deal with routine customer questions and tasks 24/7. You may well have already "talked" to one of these virtual assistants when using the online chat functions offered by more and more companies. Increasingly, they are being used to direct and support online shoppers in making purchase decisions.

Big business is beginning to grasp the opportunity which AI offers to reduce the cost of their workforce, saving human employees for more challenging, higher-revenue-earning tasks. For example, if your flight is cancelled, a chatbot can leap into action and offer you the next available flight, which is considerably more useful than a text or email alert simply telling you that you won't be travelling as planned.

AI has already replaced humans in some situations. "Edward", the "virtual host" at several Radisson Blu hotels, is able to tell guests about hotel amenities, provide other information, check guests in and deal with some complaints. "He" is so convincing, according to Radisson Blu, that more than 90 per cent of guests think he is human, responding with thanks and sometimes even the offer of tips.

Robo-advisers have also become the latest trend in the world of personal financial advice. These computer programs use algorithms to create smart, diversified investment plans. They're easy to use, inexpensive and increasingly popular. Just as technology helps us to call a cab or watch television, when and where we like, personalised technology is now bringing financial planning to the masses.

As the Alexas and Siris of the modern world gain sophistication and acceptance, it's just a matter of time before we all have personal AI assistants to tend to our diaries and desires. In fact, AI today is most visible in devices such as Amazon Echo, Google Home and Apple HomePod, which have already been installed in millions of homes worldwide. Applications like self-driving cars, smart home security systems and intelligent refrigerators are also changing our understanding of what's possible.

These virtual assistants will soon make it into our offices, providing the opportunity to boost productivity and automate more of the repetitive tasks that suck in resources and waste our time. Few SMEs are in a position to develop customised AI applications themselves, but a raft of new applications for such enterprises are being developed by vendors. As natural language voice interfaces improve further, the take up of such systems will accelerate. We will, for example, soon see more businesses using AI to collate and present actionable data that can be used by anyone in the organisation.

Despite these impressive applications, AI is in many ways still in its infancy. It has its limitations and there are many issues that have yet to be ironed out. The machines may have long ago surpassed human logical thinking, but they still lack what we could characterise as "common sense". They tend to miss the subtleties of language and intonation and struggle to deal with unpredictable situations. As a result, most AI-powered bots are still supervised by humans.
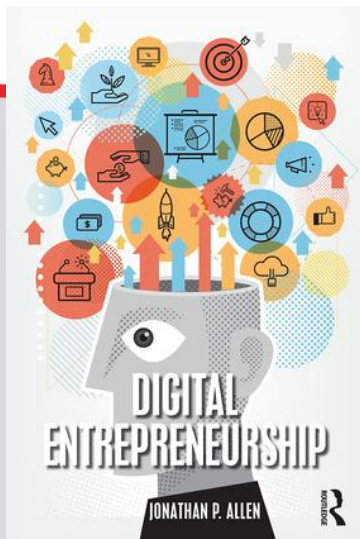
There is, of course, widespread concern that the machines will make humans redundant in the workplace. I tend to side with those who think that humans will not be consigned to the scrapheap just yet. No one can be sure, but on the evidence of previous industrial revolutions, that seems unlikely, at least in the short term. As with similar seismic events, the likely outcome is that more jobs will be created, but with humans performing different roles. As Erik Brynjolfsson and Andrew Mcafee put it: "Over the next decade, artificial intelligence won't replace managers, but managers who use AI will replace those who don't".

CHOOSING A DIGITAL BUSINESS IDEA

This chapter is excerpted from

Digital Entrepreneurship

by Jonathan P. Allen.

Learn more

Chapter 2 | Choosing a Digital Business Idea

Highlights

Chapter 2 begins the process of choosing a digital business idea to prototype, and test.

- One of the first activities in digital entrepreneurship is choosing a digital business idea to prototype and test online.

- A good starting point for generating new ideas is to select from one of the most common types of digital business: content businesses, community businesses, online stores, and matchmaking businesses.

- Another common type of digital business promotes an already existing business in the 'real' world.

- Competitor research in the digital world is easier in some ways, but also more important with hundreds of millions of sites and apps competing for customer attention.

- Digital entrepreneurship offers many different revenue models to choose from, including advertisements, direct sales, subscriptions, donations, or the use of indirect revenue models such as generating sales leads.

Creativity and Innovation for Digital Entrepreneurs

A typical first step in digital entrepreneurship is choosing a new digital business idea to test. Finding a promising new business idea can be broken down into two separate but related processes: *creativity* and *innovation*. Creativity is the production of novel and useful ideas by an individual or small group. Innovation is the successful implementation of a new idea. While more creativity tends to lead to more innovation, there are often tensions between how novel an idea is and how practical it is to implement. While we might assume that smaller, more nimble startup businesses have an advantage when it comes to innovation, in traditional industries high creativity leads to successful innovation more often in larger firms with more resources [1]. Digital entrepreneurship might help change that picture.

There are many models of the creative process, but we will use a simple, classic model of creativity in organizations by Amabile [2] as a starting point. The creative process in this model has at least four stages: the initial *presentation* of a problem or opportunity, whether it is defined by others or comes from your own needs; *preparation*, or the previous knowledge you have of existing problems and solutions; idea *generation*; and idea *validation*, or the choice of which idea to pursue according to some criteria. Techniques for idea generation such as brainstorming or design workshops might be the first thing that come to mind when discussing creativity, but idea generation is only one stage of the creative process.

The effectiveness of the creative process in this model is influenced by at least three attributes of a person or group trying to perform a creative task: the *motivation* to do the

task, whether it comes from within (*intrinsic* motivation) or is a requirement or incentive given by others (*extrinsic* motivation); the *skill level* in the area where innovation is taking place; and the person's or team's *creative thinking skills*.

Most studies find that intrinsic motivation leads to more creativity. When motivation comes from within, people tend to work harder. The intrinsically motivated are more likely to be resilient in the face of setbacks and are more confident about suggesting 'dumb' ideas that might be promising. If you are being required to learn digital entrepreneurship as part of a course at school or because it was suggested by someone else, it will be particularly useful for you to find some degree of intrinsic motivation to increase your creativity. As an individual, creativity can be increased by improving creative thinking skills such as practicing the ability to take on new and different perspectives and exposing yourself to different points of view [3].

While having a great new digital business idea to begin with is always helpful, don't let the lack of a perfect idea be a barrier to starting the journey. Digital technologies have increased the popularity of more 'feedback driven' approaches to finding great new ideas through experimentation [4] rather than solely relying on an early creative stage of idea generation. Learning how to be more creative is a useful skill, but the practical reality of digital entrepreneurship is that new business ideas usually evolve and change over time.

Common Types of Digital Businesses

As a beginning digital entrepreneur without a feel yet for what is possible, generating new business ideas

is a challenge. One source of ideas is to follow what others do. In the digital world, popular new online businesses include: advertising-based content sites, blogs, e-commerce stores, graphics design services, and technical services [5]. In the offline world, the most popular areas for new businesses include: bed and breakfasts, beauty, catering and food, cleaning, consulting, skilled craftsperson services, gardening, home health care, home repair, music, personal assistants, personal trainers, pets, photography, property management, and sales [5]. Copying a business idea from one place and bringing it elsewhere where the idea hasn't been tried yet still counts as innovation. No one criticizes Starbuck's innovativeness just because they copied aspects of Italian coffee culture.

Another source of new business ideas is to consider trends. Trends might relate to particular types of people or life stages (demographics), new product and service possibilities, or simply new styles or fashions. A recent book argues that new parents, students, and older retirees are three promising demographics for new digital businesses [6]. Examples of popular product trends include sustainability, ethical sourcing, wellness and well-being, and homemade and handmade goods. Popular new style trends at this moment might include retro or hipster looks, but they are ever changing.

In our teaching, we've found that a useful starting point for generating new digital business ideas is to choose from one of the most common types of digital business. Each of these types addresses both the creativity and the innovation challenge—they are relatively straightforward to prototype but give the new entrepreneur lots of freedom to find a business that will be meaningful to them.

As a starting point, we offer five basic types of digital business. The first two types, content-based businesses

and community-based businesses, focus on specialized areas of expertise or interest. The next two types, online stores and matchmaking, offer more traditional electronic commerce models based on sales or transaction fees. A fifth type, business promotion, attracts new customers to an already existing business.

Content-Based Business

A content-based business creates value by providing specialized content in digital form. The content can take many forms: articles, blog posts, images, memes, lists, FAQs, recipes and instructions, eBooks, directories, videos, and webinars to name a few. The list of potential topics is practically endless. Thanks to the global reach of the Internet and mobile devices, even the most seemingly obscure topic can find enough of a following to support the beginnings of a digital business.

Pure content businesses can be supported by a variety of revenue streams, but the ease of publishing online advertisements makes it an attractive default option. A core challenge of the content-based business, in addition to finding the right topic, is the work needed to keep content updated consistently.

Community-Based Business

A community-based business creates value by providing specialized content and conversations, which are contributed mostly by users. Just like a content-based business, the list of topics is almost endless, but the topic should be one where a community discussion makes the content more valuable. A vibrant community helps solve the content updating problem, but maintaining a community is hard work in itself. Communities can

be more challenging to start, requiring more up-front effort and creativity to establish an initial critical mass of participants [7].

A community might generate revenue on its own, but can also support a variety of indirect activities that can increase business revenues or reduce business costs [8]. For example, on the revenue side, discussions in a digital community might be an important step in gathering information for a future purchase. For cost reduction, an online community might help with customer support or brand advocacy activities that a business would otherwise have to do themselves.

Online Store

An online store business sells products or services. The product might be physical or purely digital such as an e-book. The product can be something you make yourself or it could be sourced from a wholesaler or local producer. A great starting point for digital business is to team up with someone who has a product to sell but doesn't know how to create an online store to sell it. Another possibility is to sell your own expertise as a service if you have experience or credibility in a particular area.

The main revenue stream for an online store is straightforward—sales. A challenge for online stores that work with physical products is fulfillment and inventory. A real test of an online store idea requires actually creating a product or service and making it available for sale, even if it is only a minimal version at first. A whole universe of automated warehousing, order fulfillment, and shipping services has made testing an online store idea easier than ever, though the cost of these services can add up in the longer run. Once sales begin, digital entrepreneurs can

use data to gain knowledge of customer preferences and find opportunities for cross-selling and upselling related products as well as potential subscription opportunities.

Matchmaking Business

A matchmaking business creates value by bringing together otherwise disconnected sets of people. A dating site is an obvious matchmaking business, but so would be a site that brings together students and tutors, or parents and babysitters, or hair stylists and people who need salon appointments [9]. So-called 'sharing economy' models blur the lines between producers and consumers by connecting ordinary people to share their physical goods or their own labor with others [10]. The digital world is able to bring together previous disconnected sets of people quickly and cheaply.

Matchmaking businesses are sometimes called two-sided markets in the sense that they connect two distinct user groups that are both required for the business to work. This can create a chicken-and-egg problem, where both groups need to be recruited and have enough participants to form a critical mass. If one group is more difficult to recruit, a common strategy is to make a matchmaking business cheaper or free to use for one group while charging the other group full price. A typical revenue stream would be transaction fees from successful matches or subscriptions.

Promotion Business

A promotion business is intended to attract new customers to a business that already exists, or will hopefully exist, in the real world. Millions of small businesses lack an effective (or any) online presence

[11], with a surprisingly high percentage suffering from basic problems such as incorrect contact information. Most existing businesses are interested in finding new customers, but customer acquisition in the digital world can be overwhelming for small business owners or startups.

One great strategy for starting in digital business is simply to find a small business that has a poor, missing, or ineffective online presence and make it your objective to attract new customers. A promotion business could attract visitors and have them contact a business, download information, sign up for a newsletter, or take advantage of a coupon or special deal. Digital promotion businesses can also be used to collect expressions of interest in an upcoming new business or product launch, though if the new business doesn't exist yet the value of obtaining a name and email address might be unclear.

Competitor Research

With billions of Internet users, there is never a shortage of potential customers online. But with hundreds of millions of web sites, social media profiles, and apps, there is never a shortage of potential competitors either. Assessing the competition for a new digital business idea is an important early step in the digital entrepreneurship process. A well-chosen competitor not only makes your own business idea clearer to others, it allows you to strengthen your idea by forcing you to clarify your *competitive advantage*: how your business will be either different or better.

Because of the size of the digital universe, defining potential competitors is not always straightforward.

Competitors can be identified by finding companies that target similar customer markets or by finding companies that use similar strategies and resources, or both [12]. Another way to identify competitors is by customer perceptions, or how consumers view the problems and solutions you are potentially offering [13]. There are also potentially indirect competitors, or companies who do not target the same market but instead offer a substitute product or service for similar customer needs.

No matter which technique is used, competitor research is more effective when the target customers for a new digital business idea are defined precisely. Many digital entrepreneurs create a persona, or brief sketch, of their target customer which includes both a biography and a statement of the goal they are trying to achieve [14]. The biography and the goal combine the two main aspects of customer identification: demographics and psychographics. By focusing on the goal to be achieved or the problem to be solved, the digital entrepreneur can pay more attention to the proposed benefits to the consumer or the customer value proposition rather than the technical features of the product.

The same channels used for customer acquisition—search and social media—can be the starting point for competitor research. For search, think about the phrases your target customers would use to achieve their goal (or ask them!). Do similar searches on the most relevant social media sites. Try to find social media profiles that are potential competitors for customer attention, but also could be role models for how to attract and engage a following in your space.

New digital business ideas can be too unfocused in the beginning. They might target too large an initial market,

not appreciating the power of digital technology to make even the most highly specialized niche a potentially viable business. Attracting digital customers is often a winner-take-all game; consumers rarely look beyond the first page of search results or outside of their existing social networks. Dominating a niche, even a very small one, is often a better initial strategy than being merely okay in a larger market.

The end result of a quick online competitor search is sometimes a decision to change an idea or to focus even more intensely on a smaller niche. Once a new digital business is successful in its niche it will be better equipped to tackle larger markets as its search reputation and social media following grows.

Revenue Models

A thriving revenue stream is not always required in the experimental first phases of a new digital business, but trying to raise revenue is a powerful method for testing a proposed business idea. The digital world opens up a whole new set of potential revenue sources. Advertising and affiliate marketing allow any specialized content or conversation to be monetized. Transactions, subscriptions, and donations are all potential online revenue sources, but each with their own challenges, especially at the beginning. Digital entrepreneurs can also use the more traditional revenue model of selling a product or a service. Another option is to not raise revenue directly but instead focus on activities that will lead to revenue later. Generating customer leads is a prime example of this indirect revenue model.

There are few universal rules about which revenue models are best. Some factors may encourage a

particular revenue model. An advertising revenue model works better with more users rather than less, all things being equal. Building a high amount of trust with customers makes payment models such as transactions more likely to succeed [15]. Table 2.1 contains preliminary suggestions for which revenue models may be more likely ('+') or less likely ('−') to work with different types of digital businesses, but these are suggestions based on experience rather than research results. Part of what makes digital entrepreneurship new is the ability to easily shift between different revenue models.

Advertising and Affiliate Marketing Revenue Models

The rise of advertisement publishing networks such as Google AdSense has made publishing advertisements on a web site as easy to use as cut and paste. Advertising networks can select from an inventory of millions of advertisements to find the ones most likely to generate revenue for your business. A digital business can earn revenue from displaying advertisements, but more revenue might come from the higher rates offered for

Table 2.1 Matching Revenue Models to Digital Business Types

	Content	Community	Store	Matchmaking	Promotion
Ads/Affiliate	+	+	−	+	−
Transactions		+	−	+	
Subscriptions			+		
Sales	+		+		
Donations		+	−		
Indirect	+	+	−		+

advertising clicks (the 'pay-per-click' model) rather than views, particularly for smaller businesses.

The advertising revenue model is convenient. It is a relatively easy way to monetize any content, but for advertisements to generate substantial revenue either the user base needs to grow or the content has to be well targeted at topics that advertisers are willing to pay higher amounts for, yet at the same time does not face excessive competition from other publishers. Some digital entrepreneurs worry that advertising revenue can be fragile, in the sense that it is not as sustainable as revenue models built on unique and durable assets such as customer lists, products, or experiences [16].

An affiliate marketing revenue model—also known as 'performance marketing'—is similar to an advertising model, but instead of being paid for advertisement clicks or displays, a publisher earns revenue only when a customer clicks through to another site and buys something. Each purchase earns a flat commission or a percentage of the sale. The largest affiliate marketing program in the US, Amazon Associates, starts their payments at around 4% of sales value with higher rates for more volume and special product campaigns. A digital business can sign up for a particular affiliate program or it can use an affiliate network to draw upon a larger inventory of advertisements.

In general, affiliate marketing revenue works better if content is directly related to a product purchase decision. An all-encompassing affiliate program like Amazon's makes it easy to find products for sale that match any digital content. Be careful not to be tempted by affiliate marketing programs with very high commissions for promoting questionable products.

Transaction Revenue Models

A transaction revenue model charges a flat fee or a percentage of total sales every time a transaction is successfully completed. Transactions work well with matchmaking businesses, because a successful match can create substantial value that a consumer is more willing to pay for than other kinds of online purchases. For example, consumers are very willing to pay 6–25% for a successful online room booking or 20–25% for a car sharing ride, not to mention 5–6% to buy or sell a house.

The transaction revenue model is more appropriate when consumers are accustomed to paying for services in your market. Because transaction fees may not be visible to the typical consumer, as when a traveler books a hotel room on a major travel site, your customers may be resistant to a separate transaction fee. Completing the transaction also needs to be convenient enough or provide enough additional value through guarantees or additional services that customers will not be tempted to finish transactions outside of your business.

Subscription Revenue Models

A subscription revenue model commits the consumer to regular, recurring payments. Product and service subscriptions are always popular with digital entrepreneurs because they offer a consistent, steady stream of revenue that has stickiness—consumers have to take action to stop sending you money. Subscriptions can work well for services delivered digitally, such as tutoring. Subscriptions to carefully chosen sets of products can be effective for consumers who enjoy discovery and variety. A common variant is a 'freemium'

model, where a free level of service is offered to attract customers with the hope of upselling them to paid services with additional benefits.

One area where subscriptions have struggled is with content businesses. Unless the content is very unique or specialized there are likely to be many competing digital businesses offering free online content.

Sales Revenue Models

The classic revenue model of selling a product or service is easier than ever to implement online. Payment methods have become easy for digital entrepreneurs to sign up for, with transaction fees not much higher than traditional credit cards. For products and services that can be delivered digitally, such as an e-book, sales fulfillment is easy. Even for physical products there are many services available to make order fulfillment easier, or an entrepreneur can start by fulfilling orders on their own.

The main challenge of the sales revenue model is the amount of competition for online sales, both from specialized small businesses and from the giant platforms such as Amazon. The price competition for products that are available elsewhere can be quite intense, and dynamic pricing means entrepreneurs need a sophisticated strategy for monitoring price changes and responding to competitor moves [17].

A popular variant on sales revenue is the 'in-app purchase model'. For example, a mobile game could be downloaded and played for free but additional purchases in the game would add to a player's capability and enjoyment. This model is being tried in other contexts, such as paying to highlight comments in a community site or promote classified ads or news feed items. Like the

'freemium' model, only a small percentage of free users may convert to paid customers, requiring large numbers of users for the model to work.

Donation Revenue Models

Asking for donations has been a popular funding mechanism for small-scale digital projects, particularly when projects offer a community benefit such as free software. Donations are a tough sell for for-profit businesses unless they can be tied to some future consumer benefit, as with recent 'crowdfunding' models that offer early access to future products.

A great use of digital business is to raise money for a not-for-profit organization. A business could solicit donations directly or, if the target not-for-profit has its own online payment mechanism the digital business could forward potential donors to the not-for-profit. A digital business could experiment with new ways of attracting potential donors or new forms of engagement that will increase the likelihood of successful donations.

Customer Leads and Indirect Revenue Models

The revenue model for a digital business is *indirect* if the business does not generate revenue on its own, but instead creates actions that will lead to revenue elsewhere. A typical example of an indirect revenue model is generating new customer leads. The more complicated a sales process, the less likely that a visitor will arrive at a site and buy immediately. As an example, the sales process for a consulting firm might have multiple steps where a potential customer first seeks out background information, client testimonials, and maybe a personal discussion or consultation before

agreeing to become a client. For these complex sales processes, particularly in a business-to-business (B2B) context rather than consumer sales (B2C), a successful digital business finds customers and moves them through the sales process rather than makes sales directly.

An indirect model is well suited for a promotion business where seeking new customers is the main objective. A challenge for indirect revenue models is the problem of testing a new digital business idea. If the indirect activity is closely connected to a sale, such as a request for a consultation or an appointment, then it is easier to tell if a digital business idea is effective. If the indirect activity is too far removed from a sales transaction it can be difficult to know whether activities such as information downloads or content shares truly lead to revenue. The more data there is on the entire sales process, the more effective an indirect model can be.
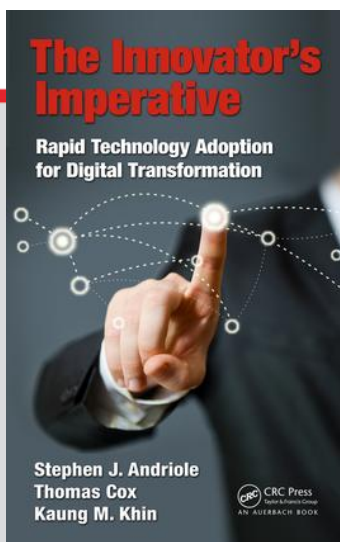
No matter which digital business type is chosen, and which revenue model, the more important issue is to get started. The next step will be to create a digital business design, a single page statement of how your proposed digital business will work.

TECHNOLOGY ADOPTION AND DIGITAL TRANSFORMATION

1

TECHNOLOGY ADOPTION AND DIGITAL TRANSFORMATION

The results reported in this book are based on 5 years of research conducted at the Villanova School of Business, University in Villanova, Pennsylvania. The overarching hypothesis was that companies no longer adopt technology in any sort of phased way and the days when anyone worried about *crossing the chasm* are long gone. We also learned that digital transformation and rapid technology adoption are perfect partners.

We learned that companies have abandoned their obsession with *requirements* and have endorsed a *technology-first/requirements-second* approach to technology adoption. We learned that companies focused on digital transformation often adopt emerging technologies immediately. We learned that technology is driving business strategy and that companies are rethinking and reorganizing their technology organizations, especially the governance that determines how and why technology investments are made.

Phase 1 of the research was conceptual and described in *Ready Technology: Fast Tracking New Business Technologies* (Andriole, 2014a). The concept was simple: companies no longer conduct elaborate requirement analyses as part of the technology adoption process. Instead, companies immediately pilot and deploy emerging technologies without knowing exactly what problems the technologies might solve.

Phase 2 of the research involved collecting data about the technology adoption process to test the hypotheses generated in Phase 1.

They too were confirmed.

Here's what the data revealed:

- Companies have thrown the old technology adoption models and processes out the window.
- The whole notion of *technology adoption categories*—such as innovators, early adopters, early majority, late majority, and laggards—is obsolete: those who worried about *crossing the chasm* appear to have no knowledge of what that even means.
- Companies adopt technology because they are afraid of the competition, need to save money and want to digitally transform their tired business rules, processes and models, which explain why there's so much emphasis on digital transformation.
- *Shadow IT* spending *won* the spending war because it's no longer possible for enterprise *IT* to control technology spending—because cloud delivery has made it possible for business units to rapidly deploy and pilot emerging and disruptive technologies independently with no coordination with corporate or enterprise IT.
- Companies believe (in 2017) that there's platinum in analytics and cloud computing, gold in BYOD, wearables, e-Payment systems and e-Learning technologies but only silver in Internet-of-Things (IoT) and digital security.
- Companies are cautious about automated reasoning.
- Companies no longer embrace predominant technology development models similar to the system development life cycle (SDLC), which they've replaced with a variety of development and deployment models with no names.
- Companies now have as many federated, decentralized and *other* governance structures as centralized ones—a major change from the twentieth century and after the effects of both the dot.com bust and great recession of 2008/2009.
- Companies are finally *professionalizing* emerging/disruptive technology adoption and creating formal innovation labs, though it took them a long time to get there.
- Companies are rushing their pilots even if it means failing to measure success or failure: less than 30% even have return-on-investment measurement processes in place around their pilots.

- Due to the pace of technology change, fear, cost pressures and on-going commitments to digital transformation, technology adoption will continue to occur at an increasing rate.
- Technology and business architecture consultants will exploit trends toward *technology-first versus requirements-second* emerging technology pilots.
- The health care and financial industries are leading the adoption of emerging/disruptive technologies, but over time nearly every vertical industry increases the number of emerging/disruptive technology pilots.
- Rapid technology adoption will become a way of life for twenty-first century companies; the professionalization of technology adoption will increase dramatically over the next 5 years.

The following data also suggest that these changes are well underway and the old ways of doing things are all but gone:

- The data suggest that the combination of digital velocity and transformation are tightly coupled and that the slow, careful and methodical adoption process will not enable meaningful transformation quickly enough for companies to stay competitive.
- Nothing is off-limits. Governance structures are changing. Adoption processes are changing. The list of technology targets is (constantly) changing.
- The companies that throw the old technology adoption and systems development methodologies playbooks out the window will win; those that insist on requirements *discipline*, *process*, *standardization*, *validation* and *repeatability* will lose.

The purpose of this research was to understand *how* companies identify, pilot and deploy specific emerging or disruptive digital technologies.

We asked the following questions:

- Are you still anchored in *requirements-first/technology-second* technology adoption processes? Why?
- What would happen if you threw the SDLC out the window—and just brought all kinds of new technologies into the company and started to pilot them?

- What examples do you have of successful and unsuccessful emerging technology pilots and deployments?
- In your view, are technologies/platforms/devices such as iPads, social media and analytics *ready to go*?
- What worries you about early/almost immediate technology adoption?
- How much Shadow IT is there at your company? Does Shadow IT fuel emerging technology adoption? Should you shut it down? Or should you let it go?
- What new/emerging/ready/disruptive technologies are high on your list? Which ones do you think have been overhyped?
- Do you think that the era of huge, proprietary platforms—such as ERP, CRM and DBMS platforms—is over? That it's now possible to integrate *pieces* of applications that used to be in a single platform through cloud SaaS providers?
- Do you think that *consumerization*—the adoption of emerging technology by consumers—has forever changed the business technology adoption process?

We received the following answers to these questions:

- Are you still anchored in *requirements-first/technology-second* technology adoption processes? Why?

  No—most companies have abandoned the requirements-first/ technology-second adoption process. Why? Because companies want to stay agile and competitive, and want to transform their companies with digital technology.
- What would happen if you threw the SDLC out the window—and just brought all kinds of new technologies into the company and started to pilot them?

  Not much: The SDLC has already been replaced by other develop- ment models (such as Agile) and more importantly companies do not develop nearly as many applications as they did in the twentieth century.
- What examples do you have of successful and unsuccessful emerging technology pilots and deployments?

> *Many: Companies adopt emerging technologies including devices, enterprise applications and especially mobile applications at an incredible pace. Failures are fast and inexpensive largely because of cloud delivery.*

- In your view, are technologies/platforms/devices such as iPads, social media and analytics *ready to go*?
  Yes: Easily ready for immediate pilots.
- What worries you about early/almost immediate technology adoption?
  Organizational roadblocks and outdated governance structures.
- How much Shadow IT is there at your company? Does Shadow IT fuel emerging technology adoption? Should you shut it down? Or should you let it go?
  Shadow IT has been with companies for decades. It's now an immediate adopter of emerging technology. Shadow IT should not disappear: it should be legalized.
- What new/emerging/disruptive technologies are high on your list? Which ones do you think have been overhyped?
  Cloud and analytics stand out; automated reasoning does not—yet.
- Do you think that the era of huge, proprietary platforms—such as ERP, CRM and DBMS platforms—is over? That it's now possible to integrate *pieces* of applications that used to be in a single platform through cloud SaaS providers?
  Cloud delivery of large enterprise software is keeping old and big platforms alive—for now; without cloud delivery, very few companies would embark on expensive, multiyear implementation of big software projects.
- Do you think that *consumerization*—the adoption of emerging technology by consumers—has forever changed the business technology adoption process?
  Without question—and the trend will continue.

Our research suggests that emerging technology is now perceived as a digital weapon and therefore must be immediately piloted and then deployed by companies that want to improve their competitiveness through digital transformation.

Emerging Technology and Digital Transformation

The most important driver of immediate technology adoption is the commitment many companies make to digital transformation. Every board of directors and senior management team aspire to the efficiencies and competitiveness that digital transformation might deliver. But the path to transformation—as we all learned in the 1990s when *business process reengineering* was all the rage—is mined with explosives. Digital transformation, similar to all major corporate initiatives, must be well planned and exquisitely executed.

Everyone wants to transform their business, *and everyone knows that transformation primarily depends on leveraging the right digital technology at the right time on the right processes at the right cost* (Andal-Ancion et al., 2003; Agarwal et al., 2010; Lucas, 2014).

But what *is* digital transformation?

Jason Bloomberg (2014) talks about digital transformation *ignorance* in no uncertain terms:

> Altimeter Group released their new report on The 2014 State of Digital Transformation by Brian Solis earlier this week. The central conclusion of the report, which is available for free download: only one-quarter of the companies we surveyed have a clear understanding of new and under-performing digital touchpoints, yet 88% of the same cohort reports that they are undergoing digital transformation efforts. In other words, the vast majority of people Altimeter interviewed for this report claimed they are undergoing Digital Transformation, even though most of them don't know what it is.

According to Wikipedia (2016), let's think about digital transformation like this:

> Digital transformation refers to the changes associated with the application of digital technology in all aspects of human society. Digital transformation may be thought as the third stage of embracing digital technologies: digital competence → digital literacy → digital transformation. The latter stage means that digital usages inherently enable new types of innovation and creativity in a particular domain, rather than simply enhance and support the traditional methods. Digital

transformation affects both individual businesses and whole segments of the society, such as government, mass communications, art, medicine or science.

With all this in mind, there are at least five steps to successful digital transformation. The steps are based on the data we collected at the Cutter Consortium and Villanova University. The steps also dovetail with the results of our technology adoption research.

Note that the best practices described here do not begin with long lists of emerging technologies that everyone's talking about, as potentially disruptive as they might be. Obviously *digital* transformation assumes the optimization of *digital technology*, but before companies cherry-pick technologies from pundit-pruned lists, they must conceptually under-stand what the technologies do, how they do, what they do and the degree of possible optimization-through-transformation—regardless of the transformation approach. *In other words, digital transformation is most effective when there's an objective and in which baskets of technologies are linked to the objectives. This means that digital transformation is most effective when it's at least semi-focused*.

Figure 1.1 shows the general roadmap that emerged from the data. Let's look at the five steps in some detail. Note that the steps comprise
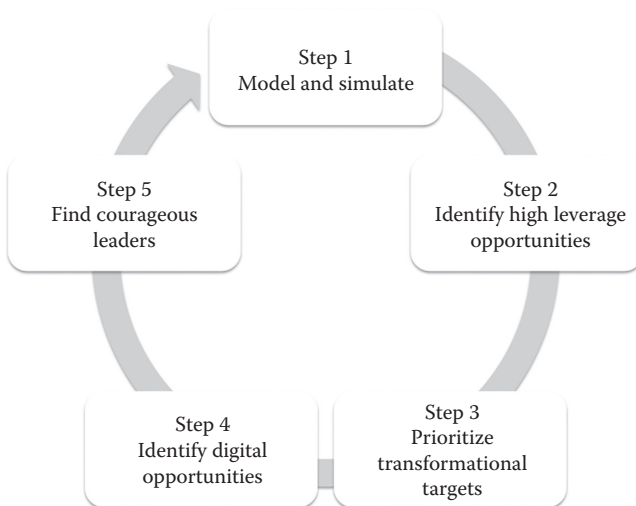

Figure 1.1   The digital transformation process.

a framework, not a blueprint. Individual companies will architect their digital transformation projects according to their market positions, budgets and objectives.

Step 1: Model and Simulate

To initiate any transformation process, it's necessary to formally model corporate business processes and models with tools—such as business process modeling (BPM) and business architecture (BA) tools—that enable creative, empirical simulations. If companies cannot model their existing business processes and overall business models, they cannot transform their business. To map processes *objectively*, companies should use external vertical industry consultants to model the processes and invite internal subject matter experts (SMEs) to participate in the development of transformation hypotheses. They should run the hypothetical models over and over again by changing the variables that predict to transformational outcomes.

Modeling and simulation require SME, discipline, tools *and objectivity*, which is why external consultants are often best suited to modeling and simulation. The models are the infrastructure on which digital transformation is built. If the infrastructure is weak, the digital transformation process will collapse.

BPM/BA efforts can also be expensive, time-consuming and iterative, so companies should not expect transformation results overnight, or even a transformation plan, until all of their business processes are identified, described, cataloged and simulated. If the digital transformation and senior management teams are unwilling or are unable to accept the size and persistence of digital transformation investments, digital transformation initiatives should not be launched.

The message here is that digital transformation requires some verifiable knowledge about the business rules, processes and models companies want to transform. This obviously requires domain expertise and the ability to model, simulate, test and transform impactful changes.

Step 2: Identify High-Leverage Opportunities

Some corporate processes are broken. Managers and executives have known about them for years. But the cost/benefit calculations around

replacement have always been challenging. So nothing changes. But following a serious, formal BPM process followed by simulations of alternative processes, there's an opportunity to identify the processes likely to have greatest transformational impact. This should be the outcome of Step 2.

Companies should identify these leverage points in their business models and processes. Companies should do this by collecting data about the costs and benefits of the existing processes and models, and through *what-if* simulations of alternative improvements.

Companies should also look at what their direct competitors are doing as well as companies in adjacent industries. If simulation results fall short of measurable meaningful transformation, they should stop testing. *More heresy: not every company, process or business model will benefit from transformation.*

The outcome of this step in the transformation process is a list of high-leverage opportunities for transformational change. Since this list will be *political*, companies should use as many outsiders as possible to develop the initial list.

Here are some examples:

- We need to transform the sales process
- We need to improve innovation
- We need to improve quality
- We need to up-sell and cross-sell more effectively
- We need to develop new products and services

Step 3: Prioritize Transformation Targets

From the options list, companies should prioritize transformation projects. This step is complicated because it's the first one to address resource constraints. Some opportunities will not be pursued. Others will be placed on hold. The result of the exercise will be a short list of transformation targets.

Steps 1, 2 and 3 are about framing and anticipated leverage. They are necessary steps toward transformation and lead perfectly to the emerging technology adoption process.

Let's highlight Steps 1, 2 and 3 of the digital transformation process. We do this here because of the importance of executing these steps with care.

Careful Modeling   Process modeling is organizationally challenging. Yes, there are powerful methods and tools to assist you. There are experienced consultants who will work with you, and there are sincere (and insincere) internal champions of modeling efforts.

But there are political landmines everywhere.

Begin the modeling process with a *consensus test*, which identifies process areas—such as supply chain or inventory management—in which there's relative consensus about inefficiencies. CRM could be another area, or even billing. Do not model processes that are measurably *OK,* or processes that the competition is modeling unless their problems are also your problems.

Next, measure the internal *embarrassment quotient*. Who will be embarrassed by the results of the consensus test? Relative consensus about failed or broken processes notwithstanding, when a process is listed as *officially* failed or broken—and therefore the target of formal modeling—someone will be embarrassed. Make sure that any reputational damage to individuals and teams is managed and make sure that *accountability* is not used as a weapon to crush political enemies: be extremely careful if the broken process belongs to a member of the senior management team.

One way to accomplish this *part* of this goal is to emphasize the *quantitative-empirical over the qualitative-subjective. The data is the data* is a good phrase to repeat while always avoiding phrases such as, *it's all Tom's fault*! But regardless of how hard you try to avoid innuendos and implications, Tom may still get blamed for making the transformational list. You have to deal with Tom—and his enemies (that you're modeling work has empowered).

Another way to accomplish the modeling goal is to *emphasize SME*: make sure that the modeling team is substantively credible beyond reproach. This is not the time to hire horizontal consultants who are fresh out of graduate school to lecture the team on *Porter's 5 Forces*. Instead, hire consultants with deep experience in your vertical industry who can hold their own with longstanding, well-respected industry veterans—*and anyone in your company who claims to know it all.*

Begin the modeling process with simple models about which there is relatively little disagreement. For example, begin the BPM process with straightforward *descriptive* models of the processes in question, such as inventory management, CRM, sales or marketing. These

descriptive models should be industry-validated *before* turning to the *prescriptive* models intended to improve the failed/broken processes under scrutiny. Although it will be challenging to forge agreement about how current processes actually work, it will be much more difficult to achieve consensus about how the failed/broken process should be remodeled: *the pivot from descriptive to prescriptive modeling is the most challenging part of the BPM process. Anticipate it, manage it and optimize it—or the whole BPM exercise will collapse.*

Tools are always important. There are many tools out there that will do the job. Make sure you select a tool that enables quick answers to *what if* questions and one that empirically describes, explains and prescribes outcomes. Do not select an overly complicated tool with features that will never be used, and make sure the displays these tools generate are easily comprehensible to BPM novices. If someone says, *I have no idea what this display is telling me,* find another tool.

Leveraging → Prioritization   As we said:

> Following a serious, formal BPM process followed by detailed simulations of alternative processes, there's an opportunity to identify—with empirical evidence—the processes likely to have greatest transformational impact … do this by collecting empirical data about the costs and benefits of the existing processes and models, and through "what-if" simulations of alternative improvements … (but) if simulation results fall short of measurable meaningful transformation, stop testing: not every company, process or business model will benefit from transformation.

Forging consensus about which processes are failing or broken and which improved ones can generate the greatest impact requires every soft skill you can find. But it also requires as much real data as possible. This is the middle ground that every transformation manager must find. But at the end of the day, the prioritization process is political, though informed—*but not decided*—by BPM data.

We remember well a large BPM project implemented at Shire Pharmaceuticals. There was initial consensus about the approach and ultimate value of BPM, but when the results were released there was nothing short of disinterest among the stakeholders. The modeled processes were absolutely *broken* but not so much as to threaten the

company's primary revenue stream. Even the leader of the business unit processes most in need of *transformation* supported the BPM project through a series of politically correct interviews and round-tables. Everyone was excited that the process owner was participating personally in the effort to improve *her* processes! Her agreeing that *her* processes were absolutely broken did not necessarily mean she intended to make major changes. She happily participated because she understood that improving even broken processes would have little impact on the price of the stock, the size of executive bonuses or the long-term viability of the business. So rather than upset any apple carts, she punted.

So what to do?

Start small by gathering as much support as possible. Make sure that everyone keeps the transformational goal in sight. As we said:

> Is it to save money, increase market share, increase profitability, retain employees, disrupt a company and industry … what? You must know where you're going to get there. You also need to reality check your prioritized objectives according to budget, time, talent and market constraints: use outside consultants who have no vested financial interests in their recommendations to screen transformation alternatives. Never rely on internal professionals to adopt or reject transformational options. Their recommendations will be influenced by too many vested human and financial interests. From the options list, identify and integrate specific transformation projects to be led by outsiders: insiders may sabotage transformation processes.

Said differently, find a savvy HR professional, a psychiatrist and maybe even a soothsayer to help you manage the BPM process. Watch for landmines and backstabbers while you find and value legitimate partners. Emphasize wherever and whenever you can *the quantitative-empirical results* of your BPM analyses.

Keep IT Real   You still need to match all this with the right digital technologies and find senior leadership that will stay with your BPM projects before, during and after good *and* bad results. As we've said:

> The number of corporate executives, especially in public companies, who really want to transform their companies is relatively small. The major

exception to this rule is the strong correlation between the desire (D) for transformation and falling revenue and profits (FP), or D + FP = DT. Digital transformation … is slow and iterative: industries do not transform themselves overnight.

Steps 1, 2 and 3 of the transformation process must be implemented carefully and thoughtfully. Failure in the beginning will result in failure at the end.

Step 4: Identify Digital Opportunities

This step begins with the identification of emerging operational and strategic digital technologies and the roles they might play in the transformation process. *This is precisely where technology adoption models scream.* When business process reengineering was all the rage in the twentieth century, companies developed detailed requirement models of specific processes they were trying to improve. The devil was definitely in the details, which often undermined serious reengineering projects. *Today, companies committed to transformation are far more likely to pilot emerging technologies without requirement details. This is the essence of our emerging technology adoption findings.*

Once companies identify the emerging technologies that might enable the prioritized transformational projects, as part of the adoption process, they should simulate the current and expected technology capabilities with reference to the prioritized transformational functions. Companies should find the smartest consultants they can find to describe future technology capabilities. They should bet on a suite of transformational emerging technologies. Step 4 is the essence of what most professionals think digital transformation actually is, and most of them believe that digital transformation leverages emerging technologies.

A great deal of transformational leverage still comes from operational and strategic technology rather than from emerging technology. This is because many business models and processes are antiquated, as evidenced by the relative ease with which, for example, *Uber* replaced taxis and *Airbnb* replaced hotels. Of course, there are countless ways through which emerging technology can improve—and even disrupt—processes and even whole industries, but real leverage often lies with emerging technology.

Does this mean that there is no possibility for true *disruption*? No, it does not, but it does mean that true disruption is less likely to occur in established companies with consistent revenue streams. Emerging and especially disruptive technologies are used by start-ups to disrupt well-established markets. The reasons for this trend are many, but suffice it to say that established companies are *established* because they've reached some level of revenue generation driven by relatively well-understood processes that together comprise an ongoing business model. They are therefore unwilling to disrupt much of anything. Start-ups, on the other hand, are completely unencumbered by revenue streams—*usually because they have no revenue*. Their mission is to invent, so they're much more likely to disrupt old processes and models or create whole new ones with emerging and truly disruptive digital technology. *Similarly, early stage and midsized companies—and larger companies with sputtering business models—will pursue transformation through the immediate adoption of emerging and hopefully disruptive technology* (Andriole, 2017a).

Step 5: Find Courageous Leaders

The search for courageous leaders could easily have been the first step in the digital transformation process. One could argue that without courageous leadership it makes no sense to take any steps at all. At the same time, the business case for digital transformation—and emerging technology adoption—is generally what leaders need to see before they agree to support a serious transformation initiative. So, the search for courageous leaders could certainly begin before, during or after transformational program planning.

The number of corporate executives, especially in cash-rich public companies, who really want to transform their companies, is relatively small. The major exception to this rule is where there's a strong correlation between the desire (D) for transformation and *falling* revenue and profits (FP), or $D + FP = DT$.

The whole idea of *disruption* is an external abstraction: how many companies have we seen that have—*without market duress*—successfully transformed their business models? Change is expensive, time-consuming, inexact and painful. It's also a political target: despite what best-selling business books and *pundits speaking for huge lunch time fees* tell us, most human beings despise change, which means that

transformation is constrained. The most grandiose disruptive digital transformation (D²T) will likely come from start-ups and failing, vertically *established* companies. Grandiose *corporate* transformation is as unlikely as grandiose *industry* transformation is likely.

There's a nagging requirement to disrupt everything all the time, if only *Blockbuster* had become *Netflix* and *Borders* had become *Amazon*. Digital transformation is slow and iterative: industries do not transform themselves overnight. *Facebook* was founded in 2004, *Airbnb* was founded in 2008, and *Uber* was founded in 2009. (Whole industries are seldom transformed by established market leaders either.)

Step 5 of the process is the key to successful digital transformation. It's also where immediate emerging and potentially disruptive technology adoption occurs.

Digital transformation and immediate emerging technology adoption are inseparable partners. Our findings are interesting as stand-alone insights into the technology adoption process, but they're much more important to the success—or failure—of the digital transformation process. Hopefully, the research described here will inspire more—*and more aggressive*—digital transformation.

One more thing: successful technology adopters and digital transformers *speak digital*.

Digital is a new language. *Information Technology* (*IT*) was an old, difficult language that no one actually spoke except around data centers and help desks. It was confined to technologists who lived and breathed bits, bytes and lights. Every so often the technologists were required to speak to their bosses (and their bosses' bosses) about technology. We've given—and witnessed—many of these *briefings* in which most of the briefing content flew right over the heads of *management*. Depending on the briefer, some of it generated hostility from managers and executives who felt that the technologists were arrogant, condescending and, worst of all, incomprehensible.

Back in the twentieth century, management was at a comprehension disadvantage: it literally had no idea what their techies were saying about server farms, data extraction, transformation and loading (ETL) or help desk ticketing. So, they nodded as though they understood what the techie was saying. But the language was as baffling as the nodding.

Digital is different. It's quickly becoming a universal language. This is because of the following reasons: (1) technology has consumerized,

because (2) technology is now covered extensively by the popular media and (3) because managers and executives increasingly came of leadership age with PCs, cell phones and e-mail. *The techie who thinks he or she can deceive an executive about business technology with deliberately obtuse language should be coached in another direction.*

So, how should technologists speak *digital*? There are five steps that can help:

Profile the Audience   First, technologists should profile their managers and executives to determine how just wide and deep their digital knowledge is. Some managers are near-techies themselves. They have their own personal technology infrastructures: their own *Dropbox* accounts, multiple e-mail accounts and *Twitter*, and *Facebook* and *Instagram* accounts. Everyone has a *LinkedIn* profile, a smartphone and a tablet. *Fewer and fewer managers and executives actually use PCs, because they can manage their personal and professional lives with other tools.* These managers and executives are technologically savvy and more than that capable of holding their own in conversations about mobility, infrastructure and cloud delivery. Although they may not be able to debate strengths/weaknesses/oppurtunities/threats (SWOTs) around alternative cloud architectures, they usually fully understand the concepts around cloud hosting, multilevel authentication, social media and mobility, among other key digital concepts, tools and processes. On the other hand, there are managers and executives that are only *users* of technology and have limited knowledge of how anything really works. Speaking digital to each type is different—not to form, but to content: users need more information than aficionados. *But unlike in the twentieth century, digital technologists can build on a generalized technology knowledge base that accelerates its understanding.* It's important to always realize that managers and executives grew up with technology.

Stick to the Business   Digital technologists should only talk about technology in the context of business models, processes and problems: digital is a vitamin pill, and should be described as such. Twentieth century technologists spoke about technology as painkillers that had to be tightly managed. These were unhappy discussions that everyone dreaded and often ended with some executive complaining about

the cost of technology *and not what technology could do for the business*. Digital technology is a business solution, not a problem, and should be presented that way. Digital technologies that fall into the pain-killer-versus-vitamin-pill trap will quickly discover just how skeptical some (especially older) executives can be about the cost-versus-benefit of digital technology—even today. Digital technologists should also appreciate the importance of bottom lines. Business managers and executives need to understand how digital technology will help or hurt the business not just in terms of costs versus business benefits, but also in terms of risks. Note that managers and executives are now keenly interested in digital security because breaches threaten their companies and their careers. Speaking about digital requires a new interpretation of traditional SWOT analyses.

Executives also crave information about so-called disruptive technologies, especially the ones their rivals are deploying. *Digital technologists should be executive spies. They should be business consultants with deep industry domain expertise. They should be digital saviors.*

Clarity—at 500 Feet   Unlike IT, *digital* technology requires relatively little precision. Since we've moved to cloud delivery, we no longer need to know who made the servers that host our applications or how often they need to be replaced. Such details are meaningless today. Twentieth century techies were obsessed with server vendors, maintenance, backup and recovery; no one cares about such things when digital transformation is a business goal.

Speaking digital is purposeful dialog focused on business processes and objectives. Fortunately, this means that deploying a new application no longer requires long discussions about software development methodologies or whether the programmers can handle requirements, especially when they're offshore. Debates about cloud security are appropriate and necessary, but should be more about industry *compliance* than security *technology*. Cloud delivery has forever changed the nature and level of technology conversations because the cloud itself provides the technological plumbing necessary to enable and optimize business processes. Although we agonized in the twentieth century about plumbers and plumbing, today we can focus on business architects and strategists without the drag of leaking pipes. *Speaking digital is all about speaking strategically.*

Consistent, Relevant, Templated Agenda   Digital technologists should focus on new technology, new technology delivery and the strategic role that technology can play in competitiveness and profitability. The discussion agenda should align with all this by identifying macro and disruptive technology trends. Although the list will change over time, there is a set of technology opportunities that should be on every digital technologist's communications list. Think of them as talking points:

- Business processes and business models
- Disruptive technologies
- Competitor technology pilots
- Business agility
- Cloud delivery
- Digital security

Managers and executives should hear about these areas every time digital technologists brief them.

Partners, Never Students   Digital technologists should never lecture. Lecturing is something that twentieth century technologists often did to educate technologically ignorant managers and executives. It was fun to feel superior, though it usually backfired. Speaking digital is about communication with partners, never with students, and because all communication is relationship-based, digital technologists should develop as many relationships as possible across the organizations, especially with colleagues throughout the business. This requires technologists to become highly credible SMEs. It also requires them to demonstrate real empathy for the competitive and profitability pressures that business professionals experience every single day. Conversations about digital technology should never be framed around *listen to me, let me tell you how all this works,* or *leave it to me.* Instead, the conversation should be framed around *let's solve this* and *let's see if this technology helps you increase market share.* As *technology* has ascended to the cloud anyway, it's now time to speak a language that assumes purpose and outcomes.

A Growing Threat

There's a growing threat lurking around all digital transformation projects and especially the rapid adoption of emerging and disruptive technology. It's important for all business technologists to appreciate

the nature of the threat before they embark on any transformation projects with any kind of technology. The reference here is to the digital crime wave that's already on us.

Look at the following technology trends:

1. Cryptocurrency
2. Cloud delivery
3. Self-driving cars, planes and ships
4. Military, industrial and personal drones
5. Medical wearables
6. Personal and professional robots
7. Digital home automation
8. Networked devices via the Internet-of-Things (IoT)
9. Location-based services
10. Automated reasoning
11. Digitally managed digital infrastructures
12. Digitally managed physical infrastructures
13. Robotic surgery
14. Augmented reality
15. 3D printing

If we were all cyber criminals, we'd be giddy. Although ransomware is a rising threat, it's child's play compared to what's coming. Hollywood screenwriters are overwhelmed with possibilities. Novelists are exhausted with plots. Social media is already describing scenarios of digital death, doom and destruction. So, what *is* the state of risk that the industry is creating? The cumulative effect is positively frightening.

There are significant profiles of each of the above trends. Hacking implanted medical devices such as pacemakers and insulin pumps have been analyzed. Johnson & Johnson recently warned its customers about the risks around their insulin pumps. According to Jim Hinkle (2016) reporting in Reuters this past October:

> Johnson & Johnson is telling patients that it has learned of a security vulnerability in one of its insulin pumps that a hacker could exploit to overdose diabetic patients with insulin, though it describes the risk as low.

Pacemakers can be hacked; electronic medical records can be hacked; robotic surgeons can be hacked.

We could cite similar risks in each of the aforementioned 15 areas. We could easily increase the number of targets and risks. We all can imagine countless threat/risk scenarios. Some of them are just annoying but many are disastrous.

We can be confident that the number, nature and severity of cybercrimes will dramatically increase. We can also be confident that criminal creativity will boggle our minds and that we will look at simple credit card number theft as Cybercrime 101. We will see the rise of digitally organized crime and the need for as many digital cops as there are cops on the street. We will see countries increase their digital military budgets while reducing their budgets for tanks and fighter aircraft: dueling intelligent machines will fight wars. If you think all this is science fiction, focus on the aforementioned list of 15 areas and the digital science around all this—and then check your insulin pump, your pacemaker, your home HVAC system, your car, your surgeon and, of course, your credit card and passwords. The number of local, regional and global cyber detectives will explode—as will cybercrime budgets. The legal system will play continuous catch-up to deal with what cybercriminals do.

Everyone is now taking Cybercrime 101. The good guys will learn about risks and risk mitigation. But the bad guys will learn about vulnerabilities, tools and methods. It's like sending the world to a gun safety course and expecting everyone to only learn about safety while promising to never use guns to do anything wrong. A digital crime wave is coming and it's coming fast. Watch the companies most vulnerable to the digital crime wave and the companies that respond to digital crimes. They will have to be smarter and faster than the cybercriminals. Are they up to the task? Will the government under- or overregulate? Will insurance companies come to the rescue? Will Internet providers cleanse their pipes? Will the FBI help? Will the military play a role?

It's important for us to acknowledge the nature and depth of the threat that surrounds the adoption of all technologies, especially emerging and disruptive technology.

Digital transformation with emerging and disruptive technology can occur faster with rapid technology adoption. But it can also hemorrhage. Sometimes the risks are organic and sometimes the risks are

created by outside parties. Cybersecurity risks cannot be separated from technology adoption or the digital transformation it enables.

Although it may be disheartening to end this chapter on a threatening note, it's essential we appreciate the breadth and depth of the threat to our digital infrastructures and applications. Rapid technology adoption and digital transformation can—and will—proceed, but we must understand that the success of these efforts increases personal and professional digital security risks. These concerns should provide context to rapid technology adoption and digital transformation—just like the list of side effects that pharmaceutical companies are required to disclose about their drugs.

DIGITAL PUBLISHING COMES OF AGE

MICHAEL N. ROSS

DEALING WITH DISRUPTION

LESSONS FROM THE PUBLISHING INDUSTRY

A Gower Book

This chapter is excerpted from

Dealing with Disruption

by Michael N. Ross.

Learn more

Chapter 1

Digital Publishing Comes of Age

When clouds appear, wise men put on their cloaks;
When great leaves fall, the winter is at hand;
When the sun sets, who doth not look for night?
Untimely storms make men expect a dearth.

　　　　　　　William Shakespeare, Richard III, *Act II, Scene III*

While most businesses must change over time to stay relevant and continue to grow, few businesses, especially if we include most forms of text-based media (newspapers, magazines, trade books, and reference works), have undergone as much change in both production methods and paths to market as the publishing industry has in the last 15 years. Better, more cost-effective technology has been central to all of this change since the turn of the 21st century. Continually improving digital tools have made production processes much more efficient. Composition, design and page-layout software have greatly improved the pre-production steps in publishing. At first, these tools only made it easier and cheaper to produce the same type of finished product—a physical book, magazine, or newspaper, for example. The real disruption, however, came when the end result was no longer a physical entity but a digital one, consumed in bytes on electronic devices (computers, tablets, and smartphones) rather than ink on paper. Once the finished product could be delivered over the Web in a digital rather than physical form, the entire publishing ecosystem changed and we saw the emergence of new players—amateurs and professionals—reaching many more customers through new distribution channels and at much lower costs than in the past. How we respond to disruption—and its social and economic consequences—is what this book is about.

We are all aware of the dramatic changes in the music industry since the early 1980s and the introduction of the compact disc. The evolution of the formats for delivering music, starting with LPs and culminating today with digital downloads and streaming, has caused long-lasting disruption in all aspects of this industry and has forced significant changes in business models. Manufacturing and distribution changes have not been trivial and have caused

many long-time players to exit the business as the industry has contracted and moved to the Web. Traditional revenue streams have dried up as record labels have lost the influence that they used to have and the once-ubiquitous retailers have almost completely disappeared from the landscape. Technology has precipitated these changes, and as market forces embraced the products and services that have emerged as a result, rapidly advancing innovation in technology continued to defeat older, inefficient models. Consumers benefited by having greater access to the products that they wanted and at lower prices.

The change in the music industry that caused the greatest disruption and also the greatest benefit to consumers—by providing easy access to an almost unlimited amount of music—was the file-sharing of digital music. Prior to file-sharing, first introduced by Napster in 1999, the only aspects of the business that changed were the formats in which music was produced and consumed. The distribution channels for these formats did not change. The wholesaler or retailer could easily adjust to the different formats; they could swap one for another and stay in business. The same distribution channel that traded in LPs stayed relevant by moving, as technology and trends evolved, to eight-track tapes, to cassette tapes, and then to compact discs. But the emergence of digital downloads and, in particular, file-sharing, which later led to streaming, eliminated the need for the traditional bricks-and-mortar retailer and changed the way music is consumed today. Everyone involved in the music industry, from the artists and producers to the distributors, has had to alter the way they generate and share revenue. The demise of most bricks-and-mortar music outlets has forced artists to take more direct control over the business aspects of their craft, especially in regard to how they market and sell to consumers. Some markets, such as Japan, for a variety of social and cultural reasons, have resisted the temptation to embrace fully digital downloads and have remained loyal to CDs. Bricks-and-mortar retailers are still thriving businesses in Japan. But music industry experts generally believe that this is a temporary state and that the highly consumptive Japanese market, too, like most of the rest of the world, will eventually abandon CDs and switch to downloads and streaming.[1]

In this new digital environment, Apple is the largest player. In 2000, it introduced iTunes, an online music store where consumers could download single-track, multiple-track, or whole albums directly onto their MP3 player, which was more often than not Apple's own device, the iPod, which runs the iTunes player. Today, approximately two-thirds of all consumer music

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[1] See "CD-Loving Japan Resists Move to Online Music," *New York Times*, September 17, 2014.

transactions take place through Apple's iTunes store, which has been a major disruption to the traditional vehicles for music sales.

What iTunes did to the music industry and for the music consumer, Amazon did to the publishing industry and for the book buyer, also at about the same time (it went public in 1997). When Amazon made books available through its online store, the traditional bricks-and-mortar stores found it very difficult to compete. Some stores introduced coffee bars and tried to become more of a destination for meeting friends, studying, working, or relaxing. The original purpose of the in-store cafés was to encourage book sales. In theory, if people came to the stores to buy a cup of coffee, they would leave with a book or two in their hands. But this didn't really happen, at least not regularly enough to keep bookstores relevant for their original purpose. Coffee, or a place to hang out, became an end in itself. Now, with Amazon accessible to anyone with an Internet connection, consumers could buy the books they wanted much more easily, often at substantial discounts, delivered to them in a day or two. Convenient and cost effective, Amazon also ensured that you could get any book you wanted at any time. You no longer had to go to a bookstore to discover that the book you wanted was not available. Books were rarely if ever out of stock on Amazon's giant online store. Physical bookstores had no tangible advantage over the online alternative. And a cup of coffee was not an offering that bookstores could leverage as a consumer benefit, not with the large number of Starbucks, Costas, and other chains dotting the metropolitan areas.

In the late 1990s, Amazon may have been the new kid on the virtual block, but it quickly became a very disruptive fact of life for anyone trying to stay in the bricks-and-mortar book business. As a result, some well-known retailers went out of business, and even the biggest one, Barnes & Noble, drastically reduced the number of its stores. Within a few years of opening its online portal, Amazon was on its way to becoming the behemoth suggested by its name as the largest river in the world. By transforming the way people bought books, it created a never-before-realized revenue stream.

The existence of a massive online store, with virtually millions of books available for immediate shipping, may have had a profound negative effect on the traditional retailer, but it was well received by consumers and it was also good for most publishers. Now publishers could more effectively sell their backlist titles—older, slower-selling books that may still be relevant, but only to a small number of readers.

Slow sellers at bookstores, even when they were part of a store's inventory, were often difficult to find on bookshelves; they were hidden from view and therefore lost in a distribution model that favored best-sellers and popular publications. After a period of collecting dust on shelves or sitting in boxes in the store's backrooms, backlist titles were eventually returned to the publisher for full credit.

Merriam-Webster, which is a Britannica company, publishes the best-selling dictionaries in North America. When there were still thousands of retail booksellers in business, Merriam-Webster would receive orders for hundreds of thousands of dictionaries, from the collegiate level down to a child's very first illustrated dictionary. Periodically I would visit Merriam-Webster headquarters, in Springfield, Massachusetts, and the President of the company, John Morse, would show me stacks of boxes on the warehouse docks that had come back from various retail outlets across the country unopened. These were books that retailers had made a point of ordering, only to return them several months later.

Managers of bricks-and-mortar stores have always had a hard time deciding what to stock and were forced by economic and physical constraints to maintain a limited inventory. Even the largest stores have shelf-space limitations. Bookshelf real estate is a precious commodity and must be used for products that turn over quickly to maximize revenue per square foot. Store managers knew they could move best-sellers; for other categories, however, they had to decide which books to order from publishers by speculating as to what their customer base might have an interest in. They had to guess what people wanted, or wait for customers to request a title, and then artfully display the books so that other people might find such titles by browsing. Many customers, of course, enjoyed roaming through the shelves of a bookstore and discovering books they never knew they wanted. But it was not a very practical way to find a good read, a good book on fly fishing, or a book that they had vaguely recalled having an interest in, but didn't know the author or title.

The traditional distribution model of a bricks-and-mortar store was an inefficient vehicle for publishers to sell their backlist titles. Neither the publisher nor the bookstore owner benefited from the wasteful process of sending books from the publisher to the bookstore only to have them sent back again to the publisher unsold. The only entities that benefited from this economic yo-yo were the supply-chain shippers. But until Amazon arrived on the scene, no reliable alternative existed. The only partial, purely economic solution was for publishers to limit the number and kind of books they published and

for bookstores to limit their inventory. But this did not help consumers find the titles that they wanted or to make them aware of the scope and range of titles available.

Amazon provided publishers with a perfect solution to slow-selling backlist titles. Publishers no longer had to worry about placing inventory into a store, hoping that people would find their titles, or deal with returns when those books didn't sell through. Amazon could basically stock everything, since its customers were anyone who was online and in any location—not just someone who lived in the vicinity of a certain store. It could list all of its titles in its database, making them easy to find and buy, and eliminating returns as an economic burden for publishers. It could rely on its online systems to track demand and replenish inventory accordingly. It could order books strictly from the behavioral data of a large online customer base and actual sell-through. At least in this one area of publishing, Amazon could be a better partner for publishers than the traditional bricks-and-mortar retailer.

With Amazon, consumers could also save time, energy, and transportation costs. Unless someone had a personal preference for making a trip to a bookstore—perhaps he or she enjoyed the act of physically browsing, needed to kill time, or simply did not want to shop online for personal reasons—buying a book online was far more practical. You knew immediately that the book was on its way and did not have to wonder whether it would be in stock at a bookstore.

Amazon was disruptive to bookstores because it solved problems in the supply chain. Consumers could now find books that were difficult to find before, and publishers were able to continue to publish (or keep in print) books that had only a niche audience. For the publishing industry, this gave rise to the economic viability of the so-called "long tail." A term first introduced by Chris Anderson, editor-in-chief of *Wired Magazine*, the long tail refers to products that have a low demand or low sales volume and can only be kept from being phased out through the availability of a large enough distribution channel. Amazon could provide a single-source channel that the thousands of individual bookstores, dispersed over the planet, could not.

In publishing, the long tail is very long indeed, since most books sell in low volumes; best-sellers account for approximately 80% of all book sales, so any single bookstore that stocked a variety of books beyond the best-sellers would have a building full of niche, or long-tail, titles. However, since less popular books could now be searched for by consumers on Amazon, publishers could

have access to a much wider audience for slow-selling books. They could keep a small supply of these books in print for a much longer period of time, knowing that more people will find them among Amazon's giant, worldwide community. Sending books to a single distribution source and having people locate them over the Internet is a far better scenario than sending a mix of popular and slow-selling books to thousands of addresses around the world and hoping that people within physical range of these locations walk into the stores and find what they want. A large percentage of the books would end up coming back to the publisher even before they made it onto the stores' shelves. The new model, made possible by the Internet, is (show) *one to many, not* (send) *many to* (sell) *one*.

From today's perspective—taking the Internet for granted and with the enormous year-on-year growth of online shopping of all kinds—Amazon's strategy was a formula for success. But this wasn't so clear in its early years. Many people were skeptical of the online shopping experience. In 2001 at the Frankfurt Book Fair, the publishing industry's biggest rights and licensing event, I was talking to a German colleague, Peter Gutmann, who ran the international division of Bertelsmann, the largest privately held publisher as well as Random House's owner. He announced that he was going to try to buy a book on Amazon for the first time, as an experiment, just to see how it worked. He wasn't convinced that Amazon's strategy made any sense at all; his opinion was that people would insist on the non-virtual bookstore experience so they could actually thumb through a book before buying it—this being one of the quintessential pleasures of shopping for a book. His skepticism was shared by many others in the publishing industry. Traditionally the industry has been populated (and subsidized through low salaries) by people who love books. Perhaps Peter was naively channeling this love and missed the disruption that was right in front of him. Today, more than two-thirds of all book sales are made through Amazon. And books are only one of many product categories that Amazon offers.[2]

Amazon was not alone in selling books online. The largest U.S. bookseller, Barnes & Noble, also launched its website around the same time as Amazon launched its own. Others followed as well, including Waterstones in the U.K. and dozens of new startups in most major markets. But Amazon had the mind share and first-mover advantage, and remains the dominant player

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2   According to George Packer in "Cheap Words," *New Yorker*, February 17, 2014, Amazon's current revenue from book sales accounted for only 7% of the company's $75 billion in total annual revenue.

today. It initiated the disruption that changed the industry forever. While in theory Barnes & Noble (or any of the other book retailers or wholesalers) could have led the way in changing the model in favor of online selling over physical stores, it took an outsider, primarily a technology and logistics company, to force the change and to provide a better model for selling books directly to the end user. Further, as Amazon was creating a new business and investing heavily in its backend infrastructure, it, unlike Barnes & Noble or Waterstones, did not have a legacy business to protect.

Because of their origins as booksellers and not software providers, Barnes & Noble, Borders, Books-a-Million, Waterstones (the U.K.'s largest bookseller), and other prominent book retailers should not be faulted for not recognizing early on the threat that Amazon posed to their traditional business or foreseeing the huge industry disruption that would occur for both publishers and consumers. When Amazon came on the scene, the Internet was still new to consumers and was largely used as a medium for communicating through email. It was just emerging as a place to find information and was not yet a proven platform for selling anything, let alone books. Amazon was an Internet pioneer and, as we know, pioneers often end up with arrows in their backs. In Amazon's case, though, it was the successful settler who became the landed gentry of online selling.

The advantages of buying books over the Internet went beyond convenience, and Amazon quickly convinced consumers of other benefits: being able to find any book at any time; having access to books that constitute the long tail; saving time and money by staying home and shopping; and enjoying favorable pricing, which Amazon could offer by not having the overheads typically incurred by physical stores. These benefits provided consumers with a compelling incentive to transfer their loyalty from a bricks-and-mortar store to an online startup. Soon Amazon became the most popular place to buy books. The Internet is now a mainstream medium, and Amazon proved that its platform was an efficient means for publishers to sell all of their books, best-sellers as well as backlist titles.

Online bookselling has also been a boon to the sale of used books. Hundreds of independent online bookstores as well as individuals with websites are finding it profitable to sell used books. AbeBooks, an online marketplace that launched in 1996 as the Advanced Book Exchange, features new and used books, out-of-print books, and "cheap textbooks." It claims to have millions of books for sale through its site and to be the leader in rare and hard-to-find books. Originally started in British Columbia, Canada, with European offices in

Dusseldorf, Germany, AbeBooks also has websites in the U.S, the U.K., France, Italy, Australia/New Zealand, and Spain. Not surprisingly, it was purchased by Amazon in 2008. By acquiring what may have been the largest player in the used-book business, Amazon was quickly able to gain a stranglehold on this market, remove a competitor, and avert any disruption to its own growth and strategy.

Amazon transformed the way people would buy books. It had a better mousetrap, which comprised superior logistics, an engaging online user experience, and an efficient delivery process—and it was willing to make acquisitions to scale its business and maintain dominance. But it was not the only early adopter in the book industry to take advantage of the Internet. By 2000 or soon after, in addition to the other mainstream bricks-and-mortar retailers, publishers entered the game as well and began to establish a presence on the Web, not just to promote and market their books to distributors but also to sell them direct to customers. Today thousands of publishers, booksellers, wholesalers, and individuals participate in the Internet's vast marketplace.

Alibaba—the Chinese website that combines the features of a search engine, auction house, and e-commerce site for businesses and consumers (without actually carrying any inventory itself)—stormed onto the Internet scene in 1999. Although its revenue is still a fraction of Amazon's, it went public only one year ago—had one of the biggest stock sales ever recorded—and already has a higher valuation than Amazon based on the size and expectations of the booming Chinese e-commerce industry. Still, Alibaba probably owes its rapid ascent to Amazon having first paved the way.

Amazon not only caused disruption in the publishing industry by being a centralized distribution center for physical books; it can also be credited with creating the e-book market by producing an electronic device whose sole functionality was to display digital versions of books. With the introduction of the Kindle in 2007, Amazon made two things possible at once: it sold a device that was dedicated to and ideally suited for reading e-books; and it made it easy to download an e-book anywhere at any time for only the cost of that e-book (no delivery fee and sometimes no tax), which was often less than either the hardback or paperback edition of the book. In addition, it provided the Kindle customer with free broadband, with no monthly fee or cost of accessing the Internet to download an e-book. With these innovations—free Internet access, a device that made it easy to read e-books, and a virtual store that carried just about any book available in the Kindle format at a very attractive cost—Amazon created an e-book revolution. It proved that e-books were not

only a viable alternative to physical books, but that they could constitute a new market for people who didn't normally buy books or would buy fewer books if they had to visit a physical bookstore.

The Kindle, and rival e-book readers that were either in the market or were soon to enter the market, had other advantages as well. These devices could hold hundreds of books in memory, a clear advantage for people who were reading more than one book at a time or were traveling and didn't want to limit the number of books they brought along on their trips. Also, I often heard from Kindle users that they liked the fact that they could read books in public places on their devices without other people knowing what they were reading since the cover couldn't be seen. Apparently this particular feature caused a spike in the sales of Harlequin novels, where risqué covers that helped sell the books could be an embarrassment to people (mainly women) who wanted to read them on trains or buses. The e-book format has the benefit of keeping one's reading choices private.

The e-book market continued to grow rapidly after Amazon's release of the Kindle. Amazon continued to add books to its store and brought out a variety of Kindle devices. Demand continued to grow, particularly since both the Kindle devices and the e-book downloads were relatively inexpensive. Amazon's main competitor in the book market, Barnes & Noble, came out with its own device in 2009, the Nook; it was counting on both the strength of its brand as established purveyors of books and loyal customers to its physical stores to take sales away from Amazon. Then Apple released its first iPad in 2010, along with iBooks, its online bookstore, and the competitive landscape changed again. Although Waterstones doesn't have its own device, it too was selling books online and was relying on its strong brand as a premium bookseller to help sustain loyal readers in the face of global giants like Amazon and Apple.

Plenty of other companies compete in the e-book market, as online bookselling in general continues to show meaningful year-on-year growth. These include sites that sell both print and e-book versions of the same title, only print titles, or only e-books. Some of these sites, like bookstore.co.uk, are independent and global, while some are local. All of them are a result of the significant disruption in this market that, in the end, has allowed more people easy access to millions of books, many of which are finding an audience that they could never have reached without this disruption.

The e-book format has greatly expanded the overall sales of books. The Internet has made it possible to extend the reach of books in multiple formats

to people who could not or would not go to a bricks-and-mortar store. This is an excellent example of disruption that has very tangible results for consumers. However, not all businesses are able to respond well when this kind of sudden change in the market occurs. Barnes & Noble may have found a way to adapt its business strategy to remain relevant and viable, but it had to make many changes in order to survive. It could not have remained a viable business if it had stuck only to its bricks-and-mortar stores. It had to adapt; it had to make the transition from one type of business to another, from a primarily bricks-and-mortar business to an online distribution business of print and e-books.

Regardless of the industry and products, with the emerging market opportunities provided by the Internet, some businesses have not been able to adapt to a new way of marketing their products and move from an offline to an online business fast enough to continue to grow at the same pace as they had in the past. They could not adopt a new model even though their primary business model and sources of revenue were contracting. The video rental store Blockbuster is one example of a big brand company that, for whatever reason, stuck to one model for too long and missed the bigger opportunity online that would soon take over. Netflix, on the other hand, which never had physical stores, was able to respond to the rapid changes in the market, first with DVDs delivered in the mail and then through streaming over the Internet, which has become, along with cable and satellite, the preferred way to consume video content.

In the case of publishing, even as e-books have grown and expanded the book business, the sales of print books have not gone away and, in some categories, are also growing. Many publishers still publish only in print formats. Many others publish both print and electronic formats. Print may continue to thrive for many years to come, especially for certain kinds of publications—popular nonfiction, fiction, illustrated children's books, and some educational books. Still, market trends indicate that all publishers should be in some state of transition and should be asking themselves what the right balance is between an offline (primarily print) and an online business—if not for the present, then for the near future.

In fact, publishers have been forced to confront many questions with the emergence of e-books, especially since more and more readers prefer them: will the demand for the printed book decline dramatically and, if so, how fast, and how can this be managed? Will e-books cannibalize the sale of print and what will happen to publishing margins as a result? Are there certain genres that are better suited to e-books than to print? Are there consumer groups with

special needs, such as the site-impaired, which would benefit greatly from digital books that are audio-enabled and whose fonts can be adjusted for easier reading? Finally, can feature-rich e-books help to open new markets?

For now, and perhaps for the short term, both formats are in demand; at least there is enough of a demand for publishers to be able to produce both print and e-book products profitably. In a conversation I had with an executive at Follett, a major distributor of books to libraries representing more than 6,500 publishers, I learned that some publishers had their historically best print sales in 2014. The reality today for publishers and distributors is, as John Ingram, of the Ingram Content Group (the largest distributor of physical and digital content), described it to me at the most recent Frankfurt Book Fair: "It's not either/or, but either/*and*."

LAUNCHING A NEW DIGITAL BUSINESS VENTURE

This chapter is excerpted from

Digital Entrepreneurship

by Jonathan P. Allen.

Learn more

Launching a New Digital Business Venture

Highlights

Chapter 13 discusses four of the major issues faced by new digital businesses as they open their virtual doors to the world: legal and regulatory compliance, security and disaster recovery, technical performance, and custom development.

- Basic legal protections, such as terms of service and clear privacy policies, reduce the likelihood of legal problems. Intellectual property law, particularly copyright and trademark, are important issues for site content creation, user contributions, and domain name selection.

- Cybersecurity has become a critical risk for any digital business. No site can ever be completely secure, so the goal of security is to focus on the simplest, most effective means of improving security, while at the same time being prepared to restore from backup if an attack or ransom attempt causes irreparable harm.

- If the technical performance of a digital business site starts affecting customer behavior, there are ways to improve performance and options for more powerful deployment technologies as customer numbers grow.

- Digital entrepreneurs can seek out custom development of new add-ons, code, and mobile apps as business needs become more complex.

Launching a New Digital Business

With the heavy use of Minimum Viable Products (MVPs) and experimentation, the boundary can sometimes be unclear between an early business experiment and the official launch of a new digital business. Digital businesses signal this by labeling their products as early, unfinished prototypes, calling them 'alpha' releases or 'beta' releases [1], and sometimes closing the initial set of customers to those recruited by invitation only. Some digital products are kept in a kind of 'perpetual beta', as Google's Gmail product was for many years [2]. Eventually, with enough customers, and enough revenue or value being created, it is time to make a new digital business official.

A new digital business shares many of the same concerns as any startup in the physical world, including: assembling the right team, naming a business, deciding on ownership structure, paying taxes, hiring employees, keeping the books, raising money, building a brand, and promoting the business through offline channels. These traditional startup topics are well covered in existing guides [3]. The focus of this chapter is on four important topics where digital business startups face unique challenges and risks as they reach out to the wider world: legal issues, cybersecurity, technical performance and operations, and custom development.

Legal Issues

As soon as a new business begins to work with real customers or investors, legal issues should be on the mind of a digital entrepreneur. The discussion in this section raises relevant issues but is not written by lawyers and is not legal advice. The first two specialists any entrepreneur should hire are a good lawyer and a good

accountant [3]. In consultation with legal professionals, consider taking action in the following areas:

- Adding terms of service.

- Adding a privacy policy and implementing compliance with new European Union GDPR privacy regulations.

- Implement an intellectual property strategy, particularly for copyright and trademarks.

- Compliance with e-commerce and online selling laws, especially for online stores.

Terms of Service: Every digital business site should have a *terms of service* page. Though few people read them when signing up for a new service [4], they provide basic and necessary legal protections for the business. Free online templates and generators can be used as a starting point for building a terms of service page, as can the terms of service used by other similar sites. The use of some technologies requires additional language in a terms of service. For example, the Google Analytics terms of service requires notifying users that they are being tracked, and if demographics and interest information is being collected and used.

A basic terms of service document includes standard information about user rights and responsibilities, references to privacy and copyright policy, and disclaimers of liability. In the US context, it should be explicitly stated that unauthorized or illegal uses are prohibited. Special rules and regulations apply in the US if children under the age of 13 are allowed to use the site. If users are allowed to make comments and/or upload content, it can be helpful to have explicit policies for dealing with complaints and removing libelous or offensive material. Consider including a disclaimer that the business is not responsible for the accuracy or reliability of third-party statements [5].

Privacy Policy: Digital businesses that collect and use personally identifiable information are required by law in most jurisdictions to publish a *privacy policy*. In the US, the California Online Privacy Protection Act (CalOPPA) provides a standard baseline [6]. CalOPPA requires sites to have a prominent link to a privacy policy. A CalOPPA complaint policy includes:

- What types of personal information are collected, including browser cookies.

- How personal information may be shared with others.

- How users can see and edit their personal information.

- How the business responds to 'Do Not Track' requests from browsers.

- When and how the policy has changed over time.

Additional specialized requirements apply in the US at the federal level for specialized situations such as health care information (HIPPA), financial information, and for users under the age of 13 (COPPA). California has an additional 'Online Eraser' law that requires a mechanism for users under age 18 to delete all information and content they have posted on a site.

Many digital businesses around the world are making their privacy policies even stronger by conforming to the new European Union Data Protection Regulation (GDPR) [7]. GDPR privacy policy requirements include:

- Users must explicitly opt in to the privacy policy (not just have an available link to look at).

- Personally identifiable information should be collected for specific uses only. Users must be told why it is being collected and how long it is kept.

- Users being informed of their right to access data about themselves and to have their personal data removed (the 'right to be forgotten').

- Informing users of security breaches that expose their personal information.

- If information is sent outside the EU, specifying which countries are processing their information, and their level of data protection.

In certain circumstances, a digital business will need to appoint an independent Data Protection Officer (DPO) to monitor compliance with the GDPR. For example, Germany requires every organization with more than ten employees to establish a DPO [8]. For sites that use web analytics services such as Google Analytics, users need to be informed of the exact information being collected and be offered an opportunity to opt out of tracking. Some personal information such as exact IP addresses may need to be removed. Google Analytics provides additional language to include in a privacy policy and is making tools available that allow individual users to delete their data more easily [9].

For WordPress sites, newly created sites now include a draft privacy policy. New capabilities under the 'Tools' menu include the ability to export or delete information for individual users. Plugins are available for obtaining permission to use cookies, which is now required by the GDPR, and for adding opt-in checkboxes to contact forms and other requests for personally identifiable information.

Intellectual Property: Two immediate intellectual property concerns for new digital businesses are trademarks and copyright. A *trademark* is a name, phrase, or symbol that identifies the source of a product

or service in a marketplace. Trademarks that are similar enough to be confused by consumers with other businesses that sell similar products and services create a legal risk [10]. In the US, trademarks do not have to be registered, but registration makes legal enforcement actions easier, especially at the national or international level [5]. A trademark can also be applied for at the global level through the WIPO.

The main trademark issue for new digital businesses is the domain name [11]. Domain names that infringe upon an existing trademark are subject to anti-cybersquatting laws in the US. Though the likelihood of legal trouble might be low for a new digital business with little visibility, a trademark search on a proposed domain name at the USPTO database is a good idea. Be careful using the trademarks of other companies in site content without acknowledging their ownership. Parody site domain names are legally protected in the US ('walmartsucks. org') but be prepared for legal wrangling if it catches their attention.

Thinking ahead to future domain names that can be successfully registered as trademarks, names that are either totally invented (for example, 'fiverr') or have no meaningful connection with a product or service (for example, 'Rainbows and Unicorns Consulting', unless your consulting business is about rainbows and unicorns) are the safest, while generic terms and words that describe the product or service are the most difficult to trademark.

A *copyright* protects original works of authorship by giving the author exclusive rights to use and sell the content they create. As soon as a work is produced in fixed and tangible form, including publishing on a web page, copyright protections apply. In the US, copyright

registration is not required for protection, though some digital businesses put language at the bottom of their pages claiming their copyright. Reciprocal copyright protections exist between most developed countries.

Because a copyright is essentially a restriction on how others may copy and use original content, some businesses prefer to share their content more widely by relaxing or giving up copyright protections. Original content can be placed in the public domain for all to use without restriction. Or authors can use creative commons licenses to put some restrictions on reuse but allow more kinds of sharing which may get their content more visibility.

Creative commons licenses can restrict content to non-commercial uses only, allow or restrict changes, or simply insist that the original authors are given credit without in any way restricting their use [12]. One of their most interesting licenses is the 'ShareAlike', which is similar to the software license used by WordPress and other open source software. This license lets people use and modify content freely but requires that any changes or improvements must be shared with the world using the same license. This copyright breakthrough has made openness a fundamental part of our digital world.

Digital businesses that are community based, or accept user uploads, have to pay attention to the issue of copyright violations by their users. In the US context, sites are protected from copyright violations by their users in certain circumstances by the Digital Millennium Copyright Act (DMCA). According to the DMCA, sites are generally not held responsible for the copyright violations of their users, as long as a site clearly designates an agent who can accept 'takedown notices', or official requests by copyright owners to remove offending content, and those

requests are responded to promptly [13]. This 'safe harbor' protection is a lifesaver for community-based businesses but be sure to make the notification process for copyright violations clear and consistent with the DMCA.

E-commerce Law: Any business that buys or sells goods online is subject to e-commerce laws in the jurisdictions where transactions take place. In the US context, the Federal Trade Commission (FTC) requires business to have clear policies for shipping, returns, and any warranties or guarantees. Products that are offered for sale should be real—purchases must normally be shipped within 30 days [5]. US states can have more specific regulations. For example, California law states that if a return policy isn't posted, customers are entitled to a full refund within 30 days. In the US, truth in advertising laws require all business not to make false or misleading claims about their product, or to publish advertisements that make false or misleading claims.

Other examples of relevant e-commerce law in the US context include [14]:

- *Revealing paid endorsements or incentives*—bloggers and others who endorse products must disclose any gifts or incentives they receive for recommending the product, including affiliate marketing links, according to FTC Guidelines. The disclosure must be visible from the endorsement or purchase link, not in a separate 'About Us' or 'Terms of Service' page.

- *Opting out of marketing messages*—the CAN-SPAM act requires all electronic communications with commercial messages, including marketing emails, to provide a means of opting out of future communications. The message must also have a valid physical mail address, and the subject line of the message must reflect the content accurately.

- *Free speech in consumer reviews*—the Consumer Review Fairness Act prohibits businesses from including in their terms of service any language that would prohibit consumers from leaving an honest and truthful review of their business, even if it is negative. Consumers also retain the intellectual property rights to any reviews posted.

European Union e-commerce law includes requirements for making purchasing terms clear. All website purchases must be confirmed within 24 hours, and customers must be informed of their right to withdraw from any contracts within a 14-day period [15]. EU law also requires a posted cookie policy, in addition to its data protection policies under the GDPR as discussed above.

The legal issues associated with starting any new business should be addressed with the help of legal professionals. Legal issues mentioned here are meant to be helpful for planning and discussion purposes and are not a substitute for real legal advice.

Security and Disaster Recovery

Cybersecurity has become a critical risk that every digital business must manage. No site can ever be completely secure, so the goal of security in the early phases of a new business is to focus on the simplest, most effective means of improving security, while at the same time being prepared to restore an up-to-date copy of a digital business site elsewhere if an attack or ransom attempt causes irreparable harm.

For business prototypes built with freely available software such as WordPress, the most important cybersecurity activities include regular software updates, access control

and monitoring, and site backups. Security plugins are available that look for common security problems and make recommendations for fixes.

Regular Software Updates: Because of the popularity of WordPress software, WordPress sites are frequently the target of automated hacking attempts [16]. Attackers try to log on, gain access to, or modify thousands of sites with simple attacks, hoping to find a site with an obvious or fairly basic security problem. The popularity of WordPress software also means, however, that a large community is on the lookout for bugs or errors that can be exploited by hackers and is creating fixes for those bugs.

Perhaps the single most important security protection is to regularly update a site's software. If the core WordPress software is not updated regularly, hackers can take advantage of known security problems with older versions. Fortunately, WordPress now automatically updates its core software. However, there can be serious security problems with any plugin or theme, as these also contain software code that might have errors. Keep plugins and themes regularly updated as well. While the ability to add code to a WordPress site easily is a big part of its appeal, this division or *modularity* of software can cause problems when a software update in one part of the code causes it to no longer work with other software that has not been updated. Update headaches are yet another reason to stick with plugins and themes that are active and regularly updated.

Access Control and Monitoring: Denying unauthorized access to your new business is important. It is an eye-opening experience to see how many unauthorized users try to log into even the smallest digital business every day or try to enter some kind of

malicious information into forms or comments. Popular methods of access control include:

- Using strong passwords and non-standard account names (not 'admin') and requiring password changes on a regular basis.

- Monitoring login attempts, and limiting failed login attempts to a small number using a plugin. This will prevent most attempts to login with commonly used passwords.

- Using a firewall, either at the hosting service or with a security plugin, to block access attempts from particular IP addresses that are repeated sources of break-in attempts.

- Using SSL certificates and the 'https://' version of site URLs. While this is more of a tool for authentication, ensuring that users are not sent to a fake version of a business, it prevents a common attack that hackers use to obtain login information from unsuspecting users. Most web hosting will now include an SSL certificate by default.

Site Backups: If hackers do succeed at breaking into a business and infect it with malware or otherwise deny you access to your own business, having a current backup copy of your site and the ability to reinstall it will allow your business to get up and running again quickly. For a site made up of web pages, the pages themselves can be backed up in the cloud, or a usb drive, and later copied to a new server or web hosting account. Your business' domain name can then be pointed to the nameservers for the hosting service at the new location.

For WordPress sites, a full backup includes hundreds of files: web pages, added themes, added plugins, media

files, and user uploads. A WordPress site also includes a database which stores page and post content, user accounts, and other tables with information about the site. A good backup plugin such as 'UpdraftPlus' will automatically store all files and a copy of the database to a remote location. But just as importantly, a good plugin will easily reinstall the saved site at a new location.

Any entrepreneur who owns a digital business needs to be able to reinstall a backup copy of their site or hire someone who can. Rule number one is not to simply make site backups and hope that, when the time comes, the backup can be reinstalled. Practice reinstalling a backup before disaster strikes.

Technical Performance

As visitor numbers grow from the hundreds to the thousands, tens of thousands, and beyond, the performance of digital business sites can degrade to the point where potential customers are discouraged and disappear. Every extra second of page loading time increases the chances of a bounce and lowers the conversion rate.

A good first step is to evaluate the performance of your digital business. Loading speed problems are easily found by using the site, but the 'Site Speed' reports under 'BEHAVIOR' in Google Analytics provide more systematic data about which pages are the slowest. The 'Overview' report breaks down loading times into server connection and response times, and page download times. Server problems are addressed through your shared hosting provider, or by switching to a more powerful (and expensive) server technology. Page loading problems are more under your own control.

Web pages with many high-resolution images, and with many pieces of code that call other software services, are often the slowest. Large images can be resized to a lower resolution using freely available photo editing tools with little or no visual difference on typical screens. If many high-resolution images or files are needed, a specialized Content Distribution Network (CDN) can be used to speed up content delivery to users all over the world [17].

Sites built using WordPress and other content management software can be slow because each page is dynamically generated. A dynamic web page must be created by running software code and retrieving information from databases every time a user asks for it. To speed up response times, a page can be copied into a cache after it is generated. A cache is a short-term storage area. If the page has not changed since the last time it was asked for, the copy of the finished page can be sent without generating it again. Caching can make page speeds two, three, or even ten times faster. WordPress plugins such as 'W3 Total Cache' and 'WP Super Cache' are easy to install and activate.

After taking these steps, if performance still isn't fast enough, it may be time to upgrade the server technology. The shared hosting technology we have used for prototyping is cheap and relatively user friendly, but it is not high performance. Once a digital business goes beyond a few thousand monthly visitors, simultaneous user requests can really slow down a shared server, especially when the server is being shared with 50 or 100 other sites.

The next level up in performance is Virtual Private Server (VPS) web hosting. A VPS service shares a server with fewer other sites, speeding up performance [18]. An advantage is that many shared hosting services offer

an easy migration path to a VPS upgrade, taking care of many of the installation details. A downside is that VPS hosting often assumes that the account owner is comfortable with command lines and basic systems administration tasks. It is rewarding to learn some of this yourself, but with thousands of customers it could be time to call in some systems administration help. The next level up would be a dedicated server, devoted only to your business. Moving up to hundreds of thousands of users a month, a systems architect would connect additional servers that specialize in particular tasks: a load balancer to distribute requests among multiple web servers, along with specialized database servers.

A different pathway for server growth taken by many high-growth technology startups is to use cloud-based services. With cloud services, servers can be rented by the minute or hour, dynamically adjusting server capacity depending on demand. Amazon Web Services is the pioneer in this market, but other major players such as Microsoft and Google also offer the equivalent of a year's worth of free server time to new users. Cloud services have become easier to use over time, especially with the addition of cloud VPS services such as Amazon Lightsail. Setting up cloud services still involves a bit of command line work, so it hasn't been featured in this book for the non-technologist. We expect that within the next few years, cloud VPS services will become easy enough to use for entrepreneurial prototyping, even for beginners.

Custom and Mobile Development

The technology that entrepreneurs with no coding experience can use to prototype a new digital business is truly incredible. Simple services such as shared web

hosting and freely available software code such as WordPress allow beginners to create a sophisticated online presence. However, at some point, existing plugins and themes may not be enough. More complex automation, more sophisticated use of data, more sophisticated interfaces to other services such as machine learning, or the making of an iOS or Android mobile app all require custom coding. At this stage, it is time for the entrepreneur to either learn some coding on their own, bring in a technical partner, or explore hiring a freelancer for custom software development.

Mobile apps are often first on the custom development wish list. A WordPress prototype site uses standard web technologies such as responsive CSS to automatically adjust a user interface to different screen sizes, providing a mobile experience that feels somewhat like a native mobile app. Responsive mobile web sites may need additional customization but can provide a surprisingly good mobile device experience [19]. Mobile web sites are sometimes easier to find and start using than mobile apps because they don't require an app store download. A site optimized for mobile will also improve its search rankings [20].

The advantages of a true mobile app, if it is downloaded by a potential customer, are that it is likely be used more often and can take advantage of more information, features, and gestures available on a user's phone. Native mobile apps must be coded in either the Swift language for Apple iOS or the variant of Java used on Android devices. Services exist for converting an existing WordPress site into a mobile app; they are fairly basic, but if an instant mobile app is a must they can be useful.

A typical mobile app, however, will require custom coding. Software development skills can be recruited to the team via employment or an equity stake, but there is competition

for development talent. Or entrepreneurs can take advantage of freelancers. Many online marketplaces offer freelance technical services. General purpose sites such as Upwork allow entrepreneurs to search for freelancers themselves and make bids for projects. Services such as Toptal try to match a general description of the work needed with an appropriate freelancer. Some freelance sites are specific to particular technologies or platforms, such as Codeable.io for custom WordPress development.

In the search for a freelancer, look at their portfolio and testimonials from previous projects that are similar to yours [21]. Research their reputation and reviews beyond the freelancer site they are listed on. Some entrepreneurs will do a brief interview with technology specific questions, or if there's time engage a freelancer on a small test project first.

Before engaging a freelancer, it helps to be familiar with the basics of contract law and project management. Get everything in writing [22]. Be as specific as you can about the technical requirements of the project and try to anticipate problems before they arise [5]. Additional considerations for freelancer contracts include:

- Transferring ownership of any work to you, the entrepreneur. Make it clear that the work is 'made for hire' so that you own the intellectual property.

- Do not pay up front all at once. Have milestones and phase the payments. Include termination provisions that will cancel the contract if certain conditions are not met.

- Specify the project in as much objective detail as possible. Try to divide into smaller projects to keep the scope focused.

- Agree on what maintenance the freelancer is willing to do, if any.

The more an entrepreneur understands about the details of their own business and technology, the better their project management skills will be. If an entrepreneur or someone on their team cannot evaluate the technical quality of the work, it will be difficult to manage freelance work effectively.

Our Final Milestone: Launch

Congratulations on making it here! This has been a whirlwind tour of the digital entrepreneurship world. We have only barely scratched the surface of what it possible. Each one of the chapter topics could be a whole course by itself, or a whole career specialization. There are so many ways to develop your digital entrepreneurship skills further from here:

- Design: Learning more about how to generate great digital business ideas, find new customer needs, and how to turn ideas into specific design for testing.

- Coding: Getting stronger at building prototypes and apps by learning web design and new programming languages.

- UX: Learning more about UX—user experience, usability testing, use cases, and customer journeys.

- Analytics: Becoming an expert at web analytics analysis and implementation.

- Digital marketing: Building skills in customer acquisition and digital marketing—including search optimization, social media marketing, paid advertising campaigns, and email marketing.

- Expertise: Becoming an expert in a particular product market or subject area and translating that expertise into digital content that builds a professional reputation.

Hopefully, the act of launching your first digital business, even a small one, will make it clear how all these pieces fit together and give you enough of a taste to figure out what your next steps should be.

Don't worry if your first attempt at digital entrepreneurship isn't a billion-dollar unicorn. The entrepreneurial skills you learn are more important than your first project. Entrepreneurs are different than most other people in the way they embrace failure as a learning experience and as a natural part of risk taking.

In any new digital venture you launch, always have clear goals and performance expectations. Get a specific 'ABC' process up and running and know how it's doing. Constantly explore new products and services, new customer acquisition strategies, new user experiences, new revenue models, and new conversion goals, but always be able to compare them to what came before. Extreme experimentation and change, based on unique data, with an ability to scale up and down easily, is the new digital business reality. You can now be a part of it.

One last thing: If you find this kind of digital entrepreneurship at all interesting or useful, take a part of what you have learned and share it with someone else. For entrepreneurship and innovation to be truly inclusive in the new digital era, more people need to believe that they too can become digital entrepreneurs. The digital future should be for the many, not the few. Good luck to ya!

Additional Resources

https://termsfeed.com/blog/sample-terms-of-service-template/—terms of service template.
https://termsfeed.com/blog/sample-privacy-policy-template/—privacy policy template.

www.rocketlawyer.com/sem/website-terms-of-use.rl—terms of service generator for US-based businesses, a paid service but with free trial.

http://tess2.uspto.gov/—online US trademark search.

https://wordpress.org/plugins/updraftplus/—leading backup and recovery plugin for WordPress sites.

https://wordpress.org/plugins/w3-total-cache/—leading caching plugin for WordPress.

https://aws.amazon.com/lightsail/—cloud-based VPS hosting.

https://premium.wpmudev.org/blog/wordpress-site-mobile-app/—services for automatically creating a mobile app from a WordPress site.

https://codeable.io/—WordPress freelance developer marketplace.

Exercises

13.1.   Create a terms of service page and a privacy policy page for a digital business prototype site.

13.2.   Design a process for accepting intellectual property questions or complaints for your digital business. On the business prototype site, implement a means of contacting the person responsible for your intellectual property process.

13.3.   Discuss whether any conflict of interest or other disclosures are required on your prototype site. Implement any needed disclosures.

13.4.   Identify any barriers to automatic software updates on your digital business site, such as customizations, themes, or plugin compatibility. Describe how you will mitigate these concerns.

13.5.   Identify the two most important actions to be taken on your digital business site for reducing unauthorized access to your digital business.

13.6. Backup and restore your digital business site to another location.

13.7. Evaluate whether the performance of your digital business site is currently adequate.

13.8. Identify the two most important changes that will improve the performance of your digital business site. Implement those changes.

13.9. Estimate the number of visitors to your digital business site that will require a switch to different server technology. Find the monthly cost of that technology upgrade and discuss any barriers to making the transition.

13.10. Evaluate the quality of the mobile experience on your digital business site. Discuss whether any further actions to improve the mobile experience are required.

13.11. Create a proposal for a custom development or design project that will improve your digital business. Find at least two service providers online that might be appropriate for your project and estimate the time and cost.

13.12. Discuss whether your digital business would benefit from having a technical partner as a co-founder or employee. If so, discuss how easy or difficult it will be to find a suitable partner and how much of an equity stake might be required to attract their interest.

13.13. Present your completed digital business prototype, along with the digital business design and lessons learned from data and experimentation, to an investor or other person with experience in digital business. What is their feedback about next steps for the business?

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Key Terms

A/B TESTING—a simple form of content experiment, where visitors are randomly assigned to two variants of a prototype, A and B, and their performance is compared on some measure. Multivariate testing uses more than two variants in the experiment.

ABC PROCESS—the basic process of digital business design that attracts and satisfies potential customers, leading to a successful action that has business value; an abbreviation for customer Acquisition, customer Behavior, and Conversion.

ACQUISITION—the attraction of online customers to a digital business through one or more channels; the first step in the ABC process of digital business.

ADD-ONS—code available to be added to software platforms that provide new features or functions; also known as plugins or modules.

BACK-END FEATURES—software features that affect operations behind the scenes and are not normally visible from the user interface.

BEHAVIOR—actions taken by visitors at an online presence such as a web page or app; the second step in the ABC process of digital business.

BUSINESS MODEL—a short description of the basic components of a digital business, including the value proposition for customers and other key contributors, the resources required to fulfill the value proposition, and how those resources will be obtained.

CHANNEL—a source of online visitor traffic; search and social media are two of the most commonly used channels in digital business.

COMMUNITY BUSINESS—type of digital business that creates customer value through specialized content and conversations, which are contributed mostly by users.

CONCIERGE MVP—a Minimum Viable Product prototype implemented through manual activities behind the scenes before a full digital site or app is built.

CONTENT BUSINESS—type of digital business that creates customer value through specialized content authored or acquired by the business.

CONTENT MANAGEMENT SOFTWARE—software for easily managing and updating content-based web sites; the majority of web sites in the world now use content management software.

CONTENT STRATEGY—strategy for producing and maintaining the content for a digital business, including content creation, delivery, and maintenance.

CONVERSION—action taken by a visitor that creates value for a digital business and defines a successful visit.

CONVERSION EQUATION—target number of conversions per time period a digital business is trying to achieve; normally expressed as the number of visitors per month times a conversion rate.

CONVERSION GOALS—specific, measurable digital actions that reflect a conversion; examples include a 'buy now' button click, an advertisement click, or a 'submit contact form' button click.

CONVERSION RATE—percentage of conversions per time period; a measure of the effectiveness of the ABC process.

DIGITAL BUSINESS—a business that is created digitally, and whose activities are predominantly conducted by digital means.

DIGITAL BUSINESS DESIGN—a high level overview of the main aspects of a digital business, structured around the ABC process.

DIGITAL ENTREPRENEURSHIP—entrepreneurship that is affected by, or takes advantage of, the digital transformation of business and society.

DISASTER RECOVERY—ability to restart a digital business from backups, in case of loss or security breach.

DOMAIN NAME—an easier to remember name for an internet resources and services registered with the Domain Name System (DNS); examples include twitter.com and jpedia.org.

ENGAGEMENT STRATEGY—part of social media strategy that identifies the content and community interaction intended to encourage social behaviors such as liking, sharing, commenting, and reviewing.

FRONT-END FEATURES—software features that affect the user interface and customer interactions.

INDIRECT REVENUE MODEL—a revenue model where the digital business itself does not earn money but creates actions that will lead to revenue later or somewhere else; examples include generating sales leads and information requests.

INFLUENCER STRATEGY—part of social media strategy that identifies and attracts well-connected influencers.

INTEGRATION FEATURES—software features that allow a web site or app to connect to other Internet services.

MATCHMAKING BUSINESS—type of digital business that creates value for the customer by bringing together otherwise disconnected sets of people.

MVP—abbreviation for Minimum Viable Product; a prototype with the minimum functionality and content required to test whether a digital business design makes sense. The prototype is deliberately kept simple in order to speed up learning and avoid overinvestment in digital business designs that are not viable.

NAVIGATION STRUCTURE—organization of menus and other visual features that help visitors find the right content and functionality easily.

PRIVACY POLICY—published statement of what personally identifiable information is collected by a digital business and how it is used, shared and kept. Normally includes procedures for dealing with privacy requests and complaints.

PROMOTION BUSINESS—type of digital business that creates value for an existing business by attracting customers.

PROTOTYPE—an online presence such as a web page, a web site, or a mobile app, used to test a digital business design.

REVENUE MODEL—means of generating revenue for a digital business; examples include sales, transaction fees, advertising, and donations.

SCREEN LAYOUT—a standard format for how content is displayed on a web site, often defined by a template or theme.

SEARCH RESULTS—the most relevant sites returned for a search query, the specific phrase entered into a search engine.

SEARCH ENGINE OPTIMIZATION—strategy and actions taken to improve search engine results for a particular keyword or keywords.

SEARCH KEYWORDS—words used by potential customers to find your digital business through a search engine.

STYLE SHEET—document with rules written in CSS (Cascading Style Sheet) language that specify the look and feel of a web page.

TERMS OF SERVICE—published document that specifies legitimate access and use of a site, liability limits, and key policies.

URL—address that specifies the location of a particular web page or other resource on the Internet, along with the method used to access it; short for Uniform Resource Locator.

USABILITY—ability for visitors to achieve the outcomes they seek on a digital resource.

USABILITY TEST—a test of usability by having visitors try to complete tasks and observing the results.

USE CASE—a written description of how a user will perform a task on a website, beginning with a user goal and ending when that goal is fulfilled.

USER EXPERIENCE—the emotions and attitudes a visitor has about their interactions with a digital business, including their perceptions of how usable and efficient a digital business is.

WEB ANALYTICS—the measurement, collection, and analysis of web usage data, in order to improve digital business performance.

WEB HOSTING—a service that makes web sites available on the Internet.

WEB PAGE—document written in HTML (Hyper Text Markup Language) that is suitable for displaying through a web browser. Web pages can include Style Sheet Rules and other code.

Appendices

BUSINESS GOALS AND OBJECTIVES		COMPETITORS
Type of digital business: Business objective:		Closest competitor: How will you be different or better?
ACQUISITION Keyword search phrase: Visitors/month:	**BEHAVIOR** Available domain name: Most important use case:	**CONVERSIONS** Primary conversion goal: Revenue stream:
Social media platform: Content and frequency: Visitors/month:		
CONVERSION EQUATION Primary conversion goal: visitors/month * % conversion rate = conversions/month		

Digital Business Design Canvas v. 1.0 6/14/18 CC BY-SA 3.0 JP Allen
jpedia.org

The Road to the Prototype

Step	Task	Success Measure
1	Log on to web hosting control panel.	See your web hosting control panel on the screen.
2	Find the file directory that contains your publicly available web pages. (More advanced: set up an FTP client.)	See the contents of your public web directory on a screen (or using an FTP client).
3	Upload an image file to your web hosting account and make it available on the Internet at your own domain name.	View the image at your domain, using a web browser.
4	Upload a document, such as a PDF or Word file, to your web hosting account and make it available on the Internet at your own domain name.	View the document at your domain, using a web browser.
5	Create a web page document that includes the following html tags: title, list, link, and image. Upload the web page document to your web hosting account and make it available on the Internet at your own domain name.	View the web page at your domain, using a web browser. No broken link or image.
6	Add two style sheet rules (written in CSS) to a web page document. Upload the web page document to your web hosting account and make it available on the Internet at your own domain name.	View the web page at your domain, using a web browser. Style sheet changes are visible.

Step	Task	Success Measure
7	Install a new WordPress site on your web hosting account. Find its web address (URL).	View the new WordPress site using a web browser.
8	Log on to administrator control panel (Dashboard) of your new WordPress site.	View the Dashboard of your WordPress site in a browser.
9	Change title and tag line on WordPress site.	View site with edited title.
10	Add new content to WordPress site (one page and one post).	View page and view post in a browser.
11	Assign a category to content.	View page with all the content for a category.
12	Add an item to the main menu on WordPress site.	View changed menu in browser.
13	Set home page of WordPress site to be a page you create.	View new home page in browser at the site's URL.
14	Change the theme on your WordPress site.	View site in browser with new theme.
15	Add a new widget to your WordPress site.	View site with new widget.
16	Configure and activate a new plugin on your WordPress site.	View site with new plugin working.
17	Add a new user to your WordPress site.	View site with new user logged in.
18	Customize a style sheet rule on your WordPress site.	View site with customized style sheet rule.

Congrats! You now know just enough to be dangerous . . .

FORWARD GUIDANCE

This chapter is excerpted from

The Innovator's Imperative

by Stephen J Andriole, Thomas Cox & Kaung M. Khin.

Learn more

5
Forward Guidance

Our research suggests that emerging and disruptive technology is now perceived as a digital weapon. It's therefore often immediately piloted and quickly deployed by companies that want to improve their competitiveness through digital transformation.

We learned that digital transformation relies on the rapid adoption of emerging and sometimes disruptive technology.

Obviously *digital* transformation assumes the optimization of *digital technology*, but before companies cherry-pick technologies from pundit-pruned lists, they must conceptually understand what the technologies do and the degree of possible optimization-through-transformation. *In other words, digital transformation is most effective when there's an objective and where baskets of technologies are hypothetically linked to the objectives. As discussed, this means that digital transformation is most effective when it's semifocused—which is a departure from the requirements-first/technology-second approach practiced in the twentieth century.*

Enterprise IT—the organization and management of corporate-wide technology acquisition and management in a single enterprise office—*are dead*. The whole concept of one-size-fits-all or, worse, the idea that the *people-in-corporate* understand what business units need to compete is flat-out wrong. Technology-enabled business models and processes are free agents, not subservient to bureaucrats who report to the corporate establishment. *The death march actually began in the late twentieth century—just about the time when technology adoption processes began to change. The death march began when technology federated to business units.*

Many enterprise CIOs, CTOs, CFOs and even CEOs are tone deaf to the technology tornados around them. There's a huge disconnect

between corporate ascendency and technology trajectories. Put another way, technology moves faster than executives can climb the corporate ladder. So, by the time they get to the top, the technologies they're expected to optimize are as strange to them as the ten-mile run they used to do every day, so many decades ago. The rules that made them *Chiefs* have also changed, even if they don't always see IT that way.

This disconnect is lethal to digital transformation (though it's rapidly disappearing). Some of the very same chiefs often need courses in technology postmodernism and especially technology management just to communicate with their internal clients—who are now real *clients*, not *subjects*. Many of them still believe in standardization, centralized governance, TCO, internal software development and the SDLC. *These Chiefs are not the champions of immediate technology adoption or are likely to lead digital transformation projects.*

But their clients—and replacements—are.

Many have no idea how the business units see *participatory governance* or *digital transformation*. Exhausted from the climb, many CIOs and CTOs have no energy for personal or professional transformations. Instead, they try to wait it out, to just get out before the other shoe falls. As they leave, one by one, technology adoption accelerates and prospects for successful digital transformation skyrocket.

What's Happening?

Here are the overall trends:

- The whole notion of enterprise IT as an organizational asset is dying—except for the asset that delivers basic computing and communications services (most of which are already cloud-based commodities and therefore already out the door).
- Business units chase new strategic technologies that make them more profitable as voraciously as technologies will pursue—and redefine—new business models and processes: technology adoption happens here … disruption happens here … ROI is calculated here—not at the enterprise level.

- Business units couldn't care less about basic infrastructure services: they just want everything to work … they want to control the technology that keeps them competitive.
- The retreat from monster enterprise applications such as ERP and enterprise DBMS platforms that must be sold to everyone (to justify the staggering cost of monolithic applications and platforms) continues: one size never fits all—and in the early twenty-first century (and forever), it seldom fits anyone.
- Companies already drunk with enterprise ERP and DBMS applications and platforms are beginning the full migration to cloud-based enterprise applications where they can rent their way out over time: think of the migration process as parole when as companies plan for freedom.
- Concepts such as enterprise governance and standardization are already Old Testament and resurrecting them will only keep IT in the desert: companies are learning how to read the gospel from the business pulpit, not the technology trenches.
- The future is an unmanaged free-for-all: whatever remains of traditional *IT* will focus exclusively on keeping the lights on, which IT will do with a suite of cloud providers that IT will manage … beyond operational technology, business units will determine what technology they need, when they need IT and what they're willing to pay to rent IT: CAPEX is dead … long live OPEX.
- Immediate technology adoption will occur in the business units much more frequently than the enterprise.

These trends challenge technology management and especially technology optimization on every level. Although many companies assume that the chief-is-dead, many others are still fighting the trends flying away from standardization, centralized governance, TCO, internal software development, the SDLC, phased technology adoption and technology pilots that last for years versus months or even weeks. They refuse to see technology as holistic, shared and uncontrollable. They still want to govern IT (as if they ever really did, ignoring *Shadow IT* spending that's been rising for decades). Our data indicate that the concept of control is obsolete.

Enterprise IT Is Dying

If the list below were rank ordered, each item would be a *10*. IT is changing so quickly and thoroughly because it's being *simultaneously* challenged by at least seven macrotrends:

- Demographics are killing IT
- Consumerization is diluting IT
- Globalization is spreading IT
- New business processes are crushing IT
- Vendors are confusing—and forcing—IT
- Business units are leaving the building
- One-size-fits-all is inconsistent with innovation on every level

Millennials and generations Y and Z do not see technology at all the way baby boomers see IT. The challenge of course is that many chiefs are boomers or *old* millennials who see technology as tools or at best transaction enablers, not as the essence of business models, processes and purposes. They see corporate *strategy* at the center of business functions, while *technology* has already displaced strategy's central role in the overall business process.

Consumerization is now the driving force of corporate technology awareness, as the distance between *personal* and *professional* computing shrinks.

Let's also not forget that technology is now everywhere, all the time. But even more importantly, what we expect from technology is now *comprehensive transaction processing* that enables current, emerging *and unpredictable* business models and processes. The gang of vendors surrounding all this change is driving technology pervasiveness—for obvious financial reasons—as they create, deploy and support technology in always-on clouds that permit companies to try-before-they-buy *and deploy the next day*. Regardless of these drivers of change are business units that are simply leaving the building, going their own technology way. Shadow IT—along with immediate technology adoption—is now a way of life. Profit-generating business unit presidents don't even hide IT anymore. Finally, how does any monolithic approach to technology—unless it's restricted to infrastructure technology—enable innovation? *The relationship between monolithic IT and innovation is an impossible abstraction—and nothing more.*

Birth of Digital

So what should CIOs, CTOs, CFOs and CEOs do?

- Laser-seek the centers of corporate power … locate the business unit that generates the most revenue and profit—and therefore the most personal wealth for the senior management team (SMT) … befriend these people (especially the profitable BU presidents)—even if they're hateful and the biggest shadow IT spenders in the company: they are the new digital power centers and CIOs' new best friends—or worst powerful enemies.
- Discover and build new core competencies, including BPM, digital security, competitive analysis, disruptive business technologies, demos, executive briefings and personality, because CIOs, CTOs and even architects are now—actually always were—politicians.
- Absolutely and finally separate infrastructure from everything else—and then give IT away: IT's time, way past time.
- Go with the trends and stop fighting what cannot be controlled (even if you're close to retirement) … embrace and accelerate the trends … never, ever be perceived as begrudgingly acceptance of trends everyone believes you hate.
- Price digital technology on a pay-by-the-drink basis: those who use the most infrastructure technology should pay the most; business units should pay for their own strategic technology.
- Publically rebrand technology around the themes of transformation, competitiveness and profitability—never governance, standardization, TCO, or control.
- Objectively assess your (and your entire team's) ability to enthusiastically endorse and propel digital transformation—and do IT from the outside in: ask your vendors, consultants and especially your business partners if they see digital in you and your team … respond accordingly—and quickly.

Digital transformation lives at the intersection of technology trends, business processes and competition. The new competencies of disruptive business technologies, business process modeling (BPM),

and competitiveness analysis are essential to the digital transformation. If companies shortchange any of them, their transformation efforts will fail. There is no substitute for understanding business processes and models, and the models and processes of the competition. Subject matter expertise never dies and is now more important than ever. How else can the *right* digital technology be selected and leveraged?

The role that digital security plays in the digital transformation is undeniable and growing. CIOs should work with the business units and corporate audit to keep everyone safe.

It's also important to recognize the role that soft skills play in digital transformation. As governance is becoming increasingly distributed and shared, the need for communication, persuasion, trust and negotiation—among other skills—is spiking.

Demonstrations (followed by rapid pilots) are the weapons of modern corporate warfare. CIOs and CTOs must organize demo factories capable of testing new technologies in a matter of weeks. They must also be able to communicate test results with charts, graphs and terms that are meaningful to their internal business clients.

Digital Transformation Skills and Competencies

Business is changing but the ability to respond to shifting markets, demographics and aggressive competitors is constrained often because companies are not properly leveraging current, emerging and even potentially disruptive digital technology. So, their digital transformation projects are failing—and will continue to fail until they master the 15 technologies, best practices and soft skills described here.

If they've underinvested in these technologies, best practices and soft skills they will fail. Put another way, if they're overinvested in enterprise software development, help desk management and in-house applications support they've undermined their digital transformation possibilities. Remember, the role of *technology* has changed. The chances are good that a company's business-technology strategy is optimized for the twentieth century. *But today the successful technology organization is a management organization, not a development organization. It does not create. It applies, exploits and optimizes.*

There are at least 15 technologies, best practices and soft skills that are necessary to optimize the new business–technology relationship in the twenty-first century. They can be organized in three baskets: (1) technologies, (2) business–technology management best practices and (3) soft skills. If companies want to transform their business with current, emerging, or disruptive digital technology, they need to invest in all 15.

The list below actually presents *the short list* of must-have capabilities (the defined list appears as follows):

1. *Cloud computing*: As everything is moving to the cloud
2. *Analytics*: As descriptive, explanatory and predictive insight is transactional lifeblood
3. *Digital security*: As digital transformation can be derailed by data breaches
4. *Digital media*: As all content is digital, especially social content
5. *Emerging technologies*: As your next disruptive technology is already here!
6. *Project and program management*: Since you must know how to size, scope and watch
7. *Vendor management*: As Request for Proposal (RFPs) and Service Level Ageements (SLAs) are now a way of life
8. *Digital security management*: As security vendors and auditors are your new best friends
9. *Business analysis*: As requirements always change and *the business* is tech's only client
10. *Metrics*: As everyone needs to measure—and know—everything.
11. *Written communications skills*: As you need to write clearly and purposefully
12. *Verbal communications skills*: As they will listen if you're coherent-with-style
13. *Collaboration skills*: As no techman or techwoman is an island
14. *Persuasion and negotiation skills*: As everyone disagrees until persuaded otherwise
15. *External presentation skills*: As techies need to be housebroken before leaving the office

Digital Transformation Readiness

Figure 5.1 describes five steps companies should take to assess their transformation readiness. Digital transformation projects include those projects that represent change through the application of existing, emerging and disruptive technology. They include improvements to customer acquisition processes, customer service, supply chain planning, digital media integration, analytics-driven management, and location-based services, among other business processes that might be transformed with digital emerging or disruptive technology. Emerging and disruptive technologies enable transformation, such as the use of augmented reality to improve education and learning, the use of location-based services for real-time cross-selling and upselling and the application of automated reasoning to transaction processing.

Best practices *enable* the optimization of digital transformation; the right soft skills *sustain* digital transformation.

Skills and Competencies for Digital Transformation

The 15 technologies, best practices and soft skills necessary for successful digital transformation are defined in detail here (Andriole, 2017b).

The first set is about technologies:

1. *Cloud computing*: The focus here is on knowledge of, and experience with, all flavors of cloud computing, including all of the service models that cloud computing provides such as
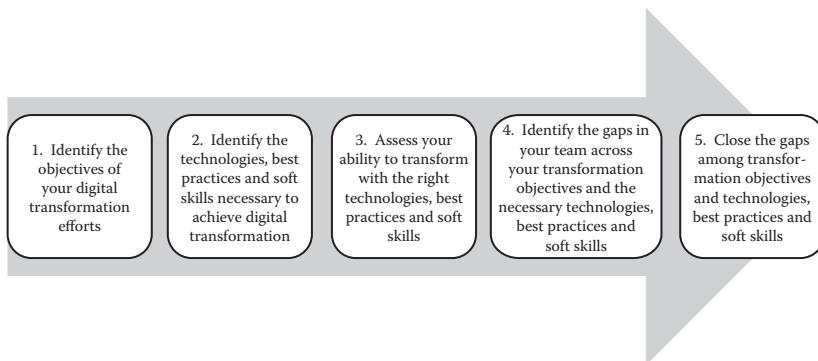

Figure 5.1   Transformation readiness steps.

infrastructure-as-a-service (IaaS), software-as-a-service (SaaS), platform-as-a-service (PaaS), security-as-a-service (SaaS), mobility-as-a-service (MaaS), analytics-as-a-service (AaaS) and even learning-as-a-service (LaaS). It's also about knowledge of, and experience with, alternative cloud delivery architectures, cloud service level agreements (CSLAs), cloud performance metrics and cloud virtualization (especially container) technologies.

2. *Analytics*: The focus here is on knowledge of, and experience with, structured and unstructured descriptive, explanatory and predictive analytics. It also includes knowledge of, and experience with, the major open source analytics platforms such as Hadoop and Spark, among others. It focuses on data science, data representation, deep learning, simulation and displays.

3. *Digital security*: The focus here is on knowledge of, and experience with, the variety of current and emerging security technologies, including technologies such as blockchain technology, multifactor authentication, application isolation, intelligent/automated security tools, mobile application wrapper technology, detection technologies, IaaS/SaaS device security technologies, automated testing and pervasive/IoT security technologies, among others.

4. *Digital media*: The focus here is on knowledge of, and experience with, all forms of digital media especially social media. As Wikipedia describes:

   Digital media can be created, viewed, distributed, modified and preserved on digital electronic devices. Computer programs and software; digital imagery, digital video; video games; web pages and websites, including social media; data and databases; digital audio, such as mp3s; and eBooks are examples of digital media … combined with the Internet and personal computing, digital media has caused disruption in publishing, journalism, entertainment, education, commerce and politics.

5. *Emerging technologies, especially potentially disruptive technologies*: The focus here is on knowledge of, and experience with, emerging technologies that might disrupt the business

rules, processes and models of specific vertical industries and companies. The focus assumes competency in competitive technology intelligence. It also assumes wide and deep knowledge of, and experience with, the adoption of disruptive technology. Of special importance are emerging/disruptive technologies such as virtual/augmented reality, automated reasoning, cashless payment systems, real-time analytics, e-Book technology, simulation/gaming technology, location-based technology and disruptive interface technologies such as intelligent speech, among others.

Best practices are also grouped into five areas and are defined as follows:

6. *Project and program management*: The focus here is on knowledge of, and experience with, project and program management tools, techniques and best practices. It assumes knowledge of, and experience with, project and program management of small and large-scale technology projects and familiarity with the array of tools available to professional project and program managers. This assumes the ability to manage projects and programs cost-effectively and within task-defined timelines. Project and program managers should be professionally certified (by organizations such as the Project Management Institute [PMI]).

7. *Vendor management*: The focus here is on knowledge of, and experience with, technology vendor management best practices. This assumes knowledge of, and experience with, the development of requests for information (RFIs), requests for proposals (RFPs) and requests for quotes (RFQs), including automated tools to develop and compare these documents. This also assumes the development of detailed service level agreements (SLAs) and management tools for measuring SLA compliance. Communications and negotiation skills are also part of this management area. Finally, it's essential to demonstrate knowledge of, and experience with, RFI/RFQ/RFP/SLA-based cloud vendor management.

8. *Digital security management*: The focus here is on knowledge of, and experience with, security challenges and processes, including security policies and the adoption of best practices,

compliance with industry standards (such as ISO27002), regulatory compliance across the entire university, vulnerability assessment/remediation, penetration testing, incident response, network and systems monitoring, forensic analysis, security awareness and training, backup and recovery, among others. The focus should be on audit-approved security-as-a-service, not on in-house security delivery core competencies.

9. *Business analysis*: The focus here is on knowledge of, and experience with, BPM, requirements identification, modeling and validation and digital transformation. It also assumes the ability to model existing and future business processes and whole new business models, ideally within BPM tool sets. This area also assumes knowledge of, and experience with, requirements matching with external vendor capabilities and specific transformation programs and projects.

10. *Metrics*: The focus here is on knowledge of, and experience with, operational, delivery, organization and financial metrics, including metrics around online cloud application performance, cloud application availability, delivery incidents, SLA adherence, project performance (especially satisfaction), personnel performance reviews, budgeting and resource costs. Knowledge and experience here also refers to the tools available to track, measure and report technology performance metrics.

Finally, there are five necessary *soft skill sets*:

11. *Written communications skills*: The focus here is on experience writing reports and creating presentations that are easily understood and therefore actionable. The key to communication is purposeful brevity: is the team capable of such (written) communication? Written communications skills should also be customized to specific audiences, such as executives, boards, internal auditors, sales and marketing professionals and customers, among others.

12. *Verbal communications skills*: The focus here is on experience making presentations that are easily understood and therefore actionable. The key to verbal communications is also purposeful brevity: is the team capable of such (verbal) communication? Verbal communications skills should also be customized

to specific audiences, such as executives, boards, internal auditors, sales and marketing professionals and customers, among others.

13. *Collaboration skills*: The focus here is on the ability to work productively with teams of all shapes and sizes. This ability requires experience and *soft* skills that integrate and optimize team contributions.

14. *Persuasion and negotiation skills*: The focus here is on the ability to persuade and negotiate in a zero-sum world. The most obvious capability here is with internal constituencies regarding budgeting. But the capability includes project prioritization and inter- and intragroup leadership.

15. *External presentation skills*: The focus here is on experience in presenting to outside constituencies and stakeholders, especially vendors, external auditors, customers and professional organizations. Senior members of the technology team must be *presentable* to a wider external audience. As the company's business–technology representatives—and as one of the principal spokespersons for digital transformation—the senior technology team (especially the CIO, CTO and CISO) must all be superb presenters.

These 15 technologies, best practices and soft skills should be used to assess digital transformation capabilities, which involve *objective* workforce assessment of the business–technology team. If gaps exist—*as they likely will*—companies must react accordingly.

Filling the Gaps

Digital transformation is complicated yet potentially extremely impactful, especially when transformation leverages emerging and disruptive technology.

There are three options: (1) repair, (2) rent, or (3) replace.

The repair option is often a good one: retrain and retool the willing keepers. Rethink how many full-time permanent technology professionals are necessary: *rent the others as consultants, contractors and long-term vendors*.

Unfortunately, companies may also have to replace some members of the business–technology team. Although this is always difficult, it's also expensive to keep the unsalvageables. The unsalvageables will also threaten competitiveness.

Digital transformation is challenging but continuously necessary. This is not the first time we've heeded the call to *reengineer* and it won't be the last. *Digital transformation* is today's unique call to action. It's *unique* today because of the trajectory of digital technology and the impact that current, emerging and disruptive technology has had on business processes and whole new business models. Industries and companies now live in fear of disruption because of what's happened to the travel, delivery, transportation, insurance and retail industries. The real estate, banking and election industries are next—and with a vengeance. Said differently, if a company is not a disrupter, it's disruptable. Digital transformation thus becomes a survival tactic *and* a long-term strategy.

So where do we go from here?

Good Technology Clusters

There are at least five technology clusters that enable digital transformation. The (in 2017) clusters appear in the following sections. Note the symbol $: the more, the better (Figure 5.2).
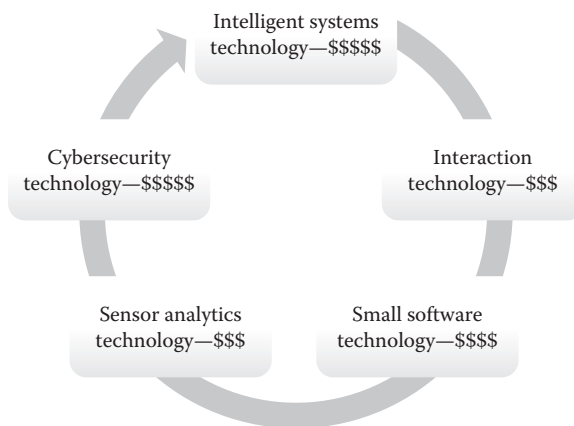

Figure 5.2   Good technology clusters.

Intelligent Systems Technology

Artificial intelligence (AI) is now embedded in a wide array of software applications, infrastructures, business rules, processes and even whole business models. IBM's *Watson* is the face of the popular media's *AI*, but intelligent systems technology encompasses so much more, including deductive and inductive inference, deep learning, machine learning and the tools and techniques used to represent and process data, information and knowledge (such as neural network modeling) as well as the applications of the technology to a host of problems such as conversational speech, language translation, predictive analytics, diagnostics, autonomous vehicles, network management, weapons systems and augmented and virtual reality, among so many other applications that will affect us all.

The development, embedding and application of intelligent systems technology are accelerating and will continue to do so in 2017 and well beyond.

Interaction Technology

The way we interact with all things digital—and physical—is changing. We see and experience content virtually and through augmented reality. We use wearables to track ourselves, our heath, our friends, our transactions and just about everything else we do, see and hear. We allow location-based services to track us around and we buy just about everything with applications on mobile devices. We converse with knowledge bases with relatively crude tools such as *Siri*, *Alexa and Google Home*, but within a few years we'll be having *meaningful* conversations with increasingly intelligent assistants and—eventually— managers. In addition to voice interaction, we're well on the way to gesture and other controls that mimic the way we interact with humans. Most of this is offered—not created—by users, but companies will avail themselves of the emerging and disruptive interaction technology that can improve productivity and cost-effectiveness.

Small Software Technology

Small software delivered from the cloud is a major technology cluster. The age of monster software applications—such as huge multimodule

enterprise resource planning (ERP) applications—is over. Software is decoupling and shrinking. Even software that (stubbornly) hasn't decoupled (yet) is offered in pieces from the cloud to clients who can select the modules they need—and ignore the ones they don't. For those who want newer, smaller and cheaper packages, there are software vendors such as *Zoho* and *Zendesk* who have reduced functionality to its most diagnostic properties. The small software technology cluster will grow until software becomes Lego-like that can be assembled and disassembled at will. As the open-source application programming interface (API) world expands, small software technology will grow. The key trend here is the under-reliance on large integrated software applications and the adoption of smaller, more focused applications accessible on every screen (and from every voice) we have. Investors can exploit this trend (and perhaps make some additional money by shorting some of the software giants).

Sensor Analytics Technology

Ubiquitous sensors capable of tracking, analyzing and predicting all sorts of activities will soon connect everything. The Internet-of-Things (IoT) and then the Internet-of-Everything (IoE) will generate enormous real-time data/information/knowledge streams that must be managed and optimized. The ubiquity of sensors will change today's understanding of *analytics*. The deployment of sensors should be tracked as assiduously as we track advances in data science and analytics. The more sensors, the greater the analytical requirements and the greater will be the number of predictive and prescriptive opportunities. Companies should invest in expanded analytics with the assumption that data, information and knowledge will be continuously exploding and that *analytics* as we practice it today will disappear. It will be replaced by a larger, smarter integration across multiple technology clusters.

Cyber Security Technology

All of the technology clusters underscore the importance of digital security. There's the *business* of security—audits, compliance, policies and procedures—and the *security technology* itself.

The business side lags the technology side (which lags the device and applications sides). All security architectures must continuously adapt while recognizing that the security industry is essentially a reactive one destined to chase solutions to problems it had no idea existed an hour, a day, or a week ago. Several of the enabling technologies include the broad blockchain family. Although blockchain and similar technologies are here to stay, issues such as centralized versus distributed integration and legacy architecture compatibility will persist. There will be significant required cooperation among implementation parties for blockchain to become core to many flavors of transaction processing (beyond cryptocurrency). The business challenge for blockchain companies will be *market share*: will it be open and diffuse (*neutral*) or aggressively proprietary and *closed*. The cybersecurity technology cluster requires continuous attention, investment, testing and implementation within an array of clusters, including *and beyond* those discussed here. In fact, the cybersecurity technology cluster is the most interconnected cluster discussed here.

The clusters presented here exist in an endless world of interdependencies. The arrow that connects the clusters in Figure 5.2 is extremely understated in its importance. Not only do the clusters build on each other, they also depend on each other for implementation. For example, sensor analytics technology assumes the existence of massive amounts of real-time streaming sensor data and some intelligent processing as well as cybersecurity technology to keep it all secure. Similarly, small software technology requires advanced interaction technology to deliver functionality to consumer and corporate clients. There are also numerous technology standards around sensor interfaces and open APIs that will accelerate the adoption of disruptive technologies. The discussion around clusters here assumes that these (and other) standards will evolve.

There's at least one more investment opportunity: technology integrators. As always, technology integrators will benefit from the interdependencies among the technology clusters, so there may be some good opportunities in consultancies that understand technology clusters and how they work together. Companies that make it all work will do very well—assuming they have the necessary breadth and depth among the clusters to succeed.

Bad Technology Clusters

We looked at the technology clusters that will *enable digital transformation*. We discussed intelligent systems technology, interaction technology, small software technology, sensor analytics technology and cybersecurity technology. We identified these five as technology clusters that will enable the success of digital transformation projects. Although we're not clairvoyant, we suggested—based on technology trends research we conduct on an ongoing basis—some technology clusters that should yield solid returns over time. But the same research suggests there are some areas that will not enable impactful digital transformation. Said differently, there are baskets of technologies that will not likely yield *differentiated* digital transformation.

As suggested in Figure 5.3, there are at least five clusters that fall into this category.

Very Big Software

As we've said, *who in their right mind would undertake a five-year ERP software implementation project? Depending on whose study you read, the ERP failure rate is anywhere between 50% and 75%* (Standish Group, 2015). Big software from vendors such as SAP, Oracle, Salesforce, Microsoft and IBM may well see their enterprise software business units shrink. This is because of the changing business processes, cloud
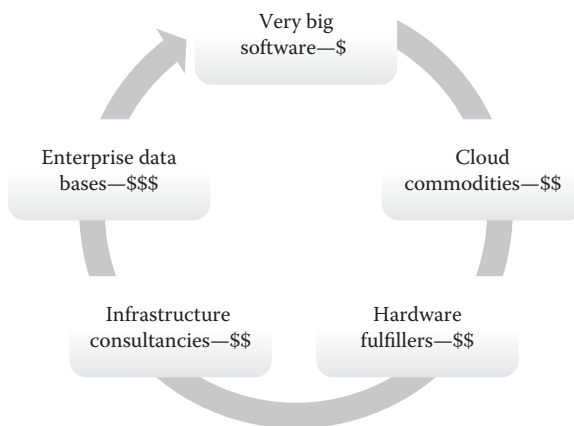

Figure 5.3   *Bad* technology clusters.

delivery, cost, complexity, governance and the constant need to digitally transform old business rules, processes and models. There's also the competition: companies can find lots of incredibly inexpensive alternatives from vendors such as *Zoho* and *Zendesk*, among many others. Many of these companies will grow—as will the incredibly inexpensive, cloud-based systems that scale and integrate right along with them. For big software vendors to survive, they must radically change their offerings, service models and software architectures (from monolithic to microservices-based) delivery strategies—and the management of all of the aforementioned as they turn their aircraft carriers around. Can they do it? Regardless, *monolithic architectures constrain digital transformation*.

Cloud Commodities

How many cloud providers can there be? Initially, the world was introduced to a handful of what we called *application service providers*, or ASPs. These were the trailblazers. Over time, cloud hosting and delivery from start-ups began to change the industry. Then the largest vendors began offering cloud services until—to close the loop—even the major software vendors became cloud providers. In the beginning, cloud vendors were mainly software-as-a-service (SaaS) providers, but in a relatively short period of time IaaS joined the repertoire. Now anyone can rent anything from the cloud. The trend is clear: cloud delivery adoption rates have sky-rocketed. CIOs just assume that applications, infrastructure and services will be cloud-based. Cloud delivery is commoditizing and the competitive advantages around cloud delivery are shrinking. Cloud vendor prices will therefore decrease as services increase. Partnerships between software vendors and cloud providers will also change as more and more applications and infrastructure services blur into integrated service models and container technology will reduce client loyalties. Commoditization, integration and blurring will all challenge cloud delivery as a digital transformation differentiator.

Hardware Fulfillers

The hardware industry comes in two forms: (1) consumer products and (2) consumer/business components. This is the classic razor versus razor blade business model. The consumer hardware space will

continue to be brutally competitive along two vectors: (1) coolness and (2) cost. The battle for coolness—such as the battle between *Apple* (*Macs; iPads*) and *Microsoft* (*Surfaces*)—will be decided by consumers voting with their money and ultimately by how innovative vendors are. Competition here will remain brutal across the consumer and professional markets. Scale will be increasingly defined around cost and coolness, but scale threatens profitability simply because the competition is so brutal. Exceptions, of course, include truly disruptive hardware (with innovative software) like what the *iPod* did for the music industry. But these disruption events have become few and far between as more and more vendors race to the profitable bottom of new markets, like what happened to the smart watch and larger wearable product markets. The good news is that all of these consumer and business products rely on computing and communications hardware. Digital transformers can expect fierce competition in the hardware cluster, but there's not a lot of competitive advantages to be found in hardware: everyone can buy the same toys.

Infrastructure Consultancies

In the twentieth century, many companies relied on *IT services* companies to define, deploy and support their computing and communications infrastructures. These vendors made fortunes running data centers, architecting networks, building database management platforms, selling servers and even *fixing* broken devices. They sold infrastructure management software as well. But consultancies who believe that infrastructure service is still a good business model will continue to lose market share to small software vendors, cloud infrastructure providers and consumerized solutions that used to be *centralized* in *enterprises*. Consultancies that fail to morph into cloud/analytics/intelligent device providers will continue to lose market share. Look no further than the old versus yet-to-be *new* IBM (Andriole, 2015). Older consultancies have a much more difficult time morphing than newer ones. Digital transformers can enlist any number of infrastructure support teams to achieve results. Infrastructure services—such as cloud services—are commodities. Although they must be leveraged carefully, they will not generally transform business rules, processes, or models.

Enterprise Data Bases

Remember when huge database management systems from IBM, Microsoft and Oracle ruled the digital world? Most of you probably don't because you're not that familiar with the twentieth century. But there was a time when the big three owned DBMS. Things are different now. Data is now distributed and unstructured, and while the old/new DBMSs can handle structured and unstructured data analytics, some companies are not as facile with unstructured data analytics, especially real-time unstructured data analytics as some of their younger competitors who rely on open source software like Hadoop. There's also the location of data, which is becoming increasingly cross-located, shared and even co-owned. Sensor-generated data will trigger new collection, cleansing, storage and processing methods and tools and techniques, which is why some of the larger vendors are snapping up IoT start-ups. As the old/new DBMS vendors try to cope with big data requirements, they will quickly find that enterprise-wide solutions will likely to fail. Even more threatening for traditional vendors is the (digital) intelligence that will extend the meaningfulness of *data*, which will become most valuable through inferences made about pieces—not whole databases kept in data centers under lock and key. Digital transformers should partner with data/information/knowledge→analytics vendors that treat big data differently from the old big three.

There are, however, several problems with lists similar to these. First, they're never exhaustive. They're also presented at high levels of abstraction. At the same time, they help us break free of bounded definitions of technologies that appear on everyone's *top 10* lists. The *good* and *evil* clusters discussed here are intended to change everyone's perspective on emerging and disruptive technologies from definitions and descriptions of individual technologies to how technologies form clusters that exist in an endless world of interdependencies. This perspective should change the way companies invest in emerging and disruptive technologies for digital transformation. It suggests that companies should step back from specific investments in individual technologies and invest in multiple technology clusters. It further suggests that those who champion specific technologies—such as *AI*, wearables and big data analytics—rethink their dedication to small

baskets of technologies and think about whole clusters of technologies and how the clusters are greater than the sum of their parts.

Transformation-Ready Industries

But what about old→new industries? Where are the opportunities for transformation the greatest? Where emerging/disruptive technologies should be immediately adopted? Here are five industries ready for transformation—five industries in the *technology kill zone*.

If your company is in one of the five industries discussed here, you already know you're in the kill zone. You know that technology will eventually maim and kill your industry though you may be in denial, just like the book, CD, music and taxi industries were in denial until their death (though they had to know deep down that death was inevitable). Protecting revenue streams—even if they're dying—is a form of dystopian art that's well practiced by those who manage the death of business models for a living. But eventually the revenue streams end and the business model dies.

So here are some questions about what's coming next:

1. Why are there insurance agents?
2. What value do realtors actually provide?
3. Why are there banks with drive-in tellers who actually exchange physical *money*?
4. Why are there still so many organic professionals?
5. Why are political elections physical?

Insurance

The insurance industry has already been attacked by digital agents, but the digital army is now poised for a takeover. Most millennials do not use home, auto and life insurance agents. In fact, around 67% of millennials purchase insurance directly from insurance companies and bypass *agents* altogether.

Why in the world would anyone with a computer or smartphone make an appointment with a human being and physically travel to an office? As IBM (2016) reminds us, it's worse:

> So, how are millennials shopping for insurance? Online! A little over half of UK millennials say that "comparison web sites" most influence their insurance buying decisions, while just under half say that "searching online" does. And, don't be surprised when online research doesn't include your website—at least, not at first. Millennials overwhelmingly don't trust insurance companies. An IBM Institute for Business Value survey reports that, "89% of millennial consumers believe friends' comments more than company claims," and "93% of millennial consumers usually read reviews before making a purchase."

Agents are paid conduits for insurance companies who use them as sales channels. They're willing to compensate agents who bring them business, but as buying patterns change, the value agents bring to insurance carriers will fall. More importantly, the value that agents bring to their customers is actually hard to define, especially because they make no coverage rules and essentially tell customers what's covered, what's not and how they should follow the carriers' rules. Agents have no financial incentive to challenge carriers on behalf of their clients. They're therefore not client advocates. The so-called independent agents are also stuck in the buttered–bread syndrome. If present trends continue, insurance agents will disappear about the same time we bury the last baby boomers.

Realtors

This industry is also under attack from companies such as *OpenListings* and the larger *for-sale-by-owner* (FSBO) community. But the traditional players have some powerful friends that lobby endlessly to keep their hold on how real estate is bought and sold. There are so many hands in the typical transaction that it's impossible to even identify all of the financial vested interests in real estate transactions—which makes the industry difficult to attack. Here's a point of view (Kasanoff, 2016):

> I'd like to suggest that 95% of a broker's role could be handled better by well-designed technology systems. Bidding, for example, could be handled by an automated system that includes legally-binding documents that would be instantly accessible to each party's attorney.

> Online bidding could enable buyers and sellers to learn much more about the others' interests and needs; in many cases brokers play games

with such information, either holding it back or deliberately distorting it to better produce the outcomes they desire.

For example, I'd like all potential sellers to know that I can be extremely flexible with my closing dates, should they still need to find a new property to buy. It would be great if they knew that up to a certain price point I can be a cash buyer, and that the absolute most I can pay is X.

The hardest broker role to replace is the one that adds the least value: letting buyers into a property. For obvious reasons, sellers do not want strangers walking around their homes alone. But the role of opening the door could be handled by a person earning perhaps $15 an hour, rather than someone who will take $50,000 from a $1 million transaction.

The fact is that one thing keeps the broker's role alive today: the regulations that govern the real estate industry. Once upon a time they might have been designed to protect consumers, but today they mainly protect realtors.

The disintermediation of real estate agents is more complicated than forcing cab drivers off the road. The buying and selling of property is a giant revenue stream for millions of players who all wet their beaks the second a transaction closes. There are regulatory constraints that make it difficult to disrupt the industry, but with the size of the revenue stream in play it's only a matter of time and initiative.

Banks

We have no idea why there are physical banks, human tellers, or what we carry around as money. Do you? According to Brett King, the founder of Moven (as reported by Eric Rosenbaum, 2015):

The biggest banks in the world in 2025 will be technology companies, and banks that grew through branch acquisitions in the '80s and '90s that grew by physical bank presence, will have a real problem.

The trends are clear:

Since 2011, 700 million global consumers have begun banking on their phone. The U.S. bank branch model, which peaks at a total of roughly 95,000 branches, is now down to 86,000 branches.

Money is also disappearing. *Way back in 2012*, Jacey Fortin reported that:

> In Sweden, monetary transactions made with physical cash are down to three percent of the national economy … in most Swedish cities, public buses don't accept cash; tickets are prepaid or purchased with a cell phone text message, reports AP. A small but growing number of businesses only take cards, and some bank offices—which make money on electronic transactions—have stopped handling cash altogether. This looks like the beginning of a global trend; people everywhere are noticing that physical cash is becoming less and less common.

Merryn Somerset Webb reported that Denmark quickly followed:

> The Danish government is concerned that cash puts too many "administrative and financial burdens" on shops and that it acts as a drag on GDP growth. So, as part of a wide group of proposals to boost economic growth, it is to allow shops to stop taking cash. This makes sense in all sorts of ways. As M&G's Jim Leaviss points out, handling cash is expensive—you have to process it, give people change for it, provide security for it, take it to the bank, etc. Cash is also a bore for governments because it is the main facilitator of the black economy—anything paid for via the banking system can be taxed; anything paid for in cash can be missed. Plus, physical cash often means physical crime, so getting rid of cash could mean less crime and less tax evasion.

The U.S. lags but it's only a matter of time and money, especially because of the control that cashless transactions provide governments and the financial gains banks accrue from closing their branches and going cashless.

Professionals

There's no need for so many physical, organic, living and breathing professionals in the digital era. Expertise defined around *rules* can be automated and distributed at the touch of a key, a verbal command, or a reasonably intelligent assistant. Automated reasoning will replace many lawyers, doctors, accountants, professors and engineers.

But it's not just knowledge-based professions at risk. Manufacturing, production and transactional professions are also at risk. According to National Public Radio (NPR) research as reported by Ben Snyder (2015):

Telemarketers' jobs have the highest chance of being automated … other positions with huge potential for being overtaken by robots? Cashiers, tellers and drivers, among others, according to this new NPR interactive. While telemarketers have a 99% chance of one day being totally replaced by technology (it's already happening), cashiers, tellers and drivers all have over a 97% chance at being automated. Many positions within the "production" category put together by NPR, including packaging and assembly jobs, tend to rank highly as well.

This means that technology will disrupt knowledge- *and* production-based professions and the fields that prepare and maintain these professionals. Note that trickle-down disruption will be much more impactful than first-order disruption.

Politics

Social media represents the tip of the political iceberg. Every time Donald Trump tweets something, and every time someone responds, there's someone in the media or academia that notes the importance of digital politics. But the long-term impact that digital technology will have on politics will be profound—and controversial. Imagine, for example, how registration/voting-by-phone would affect voter registration and election outcomes? The discussions about voter registration and voter rights would disappear—which is why there's a major clash between digital technology and democratic politics.

There are security issues that must still be resolved before universal, global Internet voting (regardless of the device used to cast the vote) becomes routine. But given the growing dependency on digital technology in all aspects of industry and government, it's impossible to believe that security concerns will prevent the consummation of politics and technology. The real constraints are likely to be political, not technological, though technology may well become the scapegoat to

objections to fully digitize the political process. All of that said, imagine the efficiencies around immediate communications, referenda and elections. It is inevitable.

So What?

We have seen whole industries disrupted by digital technology over the past two decades. But all of that disruption combined only represents Disruption 1.0. The five industries discussed earlier represent just the beginning of Disruption 2.0. Similar to the *iPhone,* there are likely to be many incarnations over time. As machines get smaller, smarter and cheaper, we'll see more and more industries disrupted by digital professionals and their digital tools. The implications of continuous disruption are extensive and unpredictable. The world as we think we know it will never be, just as it never was.

The Innovation Challenge

Everyone likes to talk about DARPA's approach to innovation (Dugan and Gabriel, 2013). DARPA brought us the Internet, drones, global positioning and a bunch of other very cool stuff that arguably enabled the entire digital revolution. For many of us, DARPA defines innovation excellence.

But are DARPA's processes easily replicable?

Not easily.

The innovation lessons one takes away from DARPA are nearly impossible for private corporations to implement: just too many things have to be true for corporate innovation to work—and they seldom are. Before we begin, let's exclude companies such as Apple, Google and Samsung where innovation is a well-funded core competency.

The aspects of their innovation processes and culture are DARPA-like. But when most companies try to innovate, they fail miserably and almost always tend to eventually be disrupted by start-ups, such as LegalZoom, Amazon, or Uber (which themselves eventually face innovation challenges). This is an ongoing threat to successful digital transformation.

We focus here on companies that already have market share, already make money and already believe that they're *good* companies

destined for continued greatness. Many of the executives and share-holders of these companies are already rich and (therefore) risk averse. The innovative teams that made them rich are long since gone. Autopilot is a good way to think about many companies—until their revenue and profit falls. Some examples? JC Penny, Sunoco, Research in Motion, Red Lobster, McDonald's and Major League Baseball. These companies often try to innovate but end up following rather than leading especially when it comes to digital innovation.

So let's start with motivation.

DARPA program managers are motivated by *before-and-after*-fame and *after-cool-fortune*. Really smart people are given big budgets to do amazing things. They perform because (1) they're taxpayer funded, because (2) there's a world-class DARPA ecosystem (DARPA, its DOD test clients and its industry and university partners) that rewards cool stuff and (3) because once the ecosystem nods approval, DARPA professionals get to monetize their success with university positions, university grants, high paying industry positions, and if they choose, other government positions with greater budgets and power. It's a well-understood motivational model—with minimal risk to the innovators or the sponsors.

If their ideas actually turn out to be cool, there's a lot of personal fame in the process too. Many DARPA program managers love tech-nological fame, and there's no shortage of fame to go around.

Implied in the DARPA innovation model is the acceptability of failure, because, let's be honest, it's taxpayers' money and because no one gets it right every time. So failing is acceptable, not just because it's part of the culture, but because failure is a non-zero-sum game: blowing a few million on a failed project doesn't take a nickel out of my—or my boss's—pocket. If the program manager loses $25 million, the same thing is true—but not in industry: everyone notices a $25,000,000 write-off—and if someone does it a few times, *they're* written off (unless they're someone's best friend, of course).

Motivating beyond the obvious—compensation and stock—is tough for most companies to understand. It's also tough for companies to actually approve *failure, even though they usually state* for the record *that they're willing to risk millions on innovative efforts—even if they fail. Corporate innovators are financially and politically constrained from the moment they get the innovation assignment.*

Motivation and money are intertwined. Money creates freedom. At DARPA, ideas must be pitched to office directors and the director of the agency. The working premise is that there's always money to pursue what a very small number of people believe are good ideas. The nonsense we hear all the time that funding follows good ideas is ridiculous: *the best innovation cultures assume the opposite, that there's a pile of cash just waiting to be spent, that will be spent on something, that there's no groveling for pilot project funding that may or may not lead to Phase 2.* No SWOT charting, please. Such tools are designed to reduce risk, not to innovate: if your company passes ideas through elaborate SWOT filters, it's not innovating. Put another way, innovation is not reactive, staged or managed. It's proactive and unwieldy with poorly defined and ideally unanticipated, though impactful, outcomes, if you're lucky. Yes, *lucky*. Never discount the role that luck plays in the innovation process, though *luck* is an expensive attribute of innovation.

Most companies have a really tough time prefunding ill-defined innovation. Most companies want to manage *innovation the way they manage the construction of a new factory. It seldom, if ever, works. Most companies despise the idea of investing in luck.*

At DARPA, really smart people rotate in an out of the agency. Typically, they're already part of the DARPA ecosystem. They've generally proven their value from high profile scientific, engineering, or technology projects—their passport into the ecosystem. If you turn out to be *relatively* unintelligent at DARPA, you're marginalized. You can fail, but you must be smart. Many companies, on the other hand, frequently reward style over substance, relationships over performance. Sometimes the innovation *assignment* is even given to longstanding corporate cronies. The idea of taking the best and brightest salespersons, supply chain managers, or customer service experts, and giving them a DARPA-like 2-to-3 year assignment to just think about new ways to do old things worries stock chaperones to no end. So, the in-house corporate innovation team is often mediocre and therefore destined to fail.

Most companies find it difficult if not impossible to grant sabbaticals *to groups of* hi-po's (*high potentials*)—*or even lo-po's, for that matter. They want to keep them on-the-line generating profits when it's precisely the best and the brightest that should own innovation.*

DARPA loves small teams, sometimes comprised of a single scientist, engineer, or technologist (with some supporting members from the ecosystem). Big companies love big teams with explicit governance about who gets to say and do what/when/where. Many DARPA professionals are intellectually arrogant. In fact, they paid to misbehave. Discussions where geniuses crush merely intelligent people happen all the time. Most companies don't like this kind of dialog—at least face-to-face: most corporate battles are fought behind the scenes where clever people leverage their tenured relationships and personal styles to get what they want. DARPA is much more of a meritocracy than most companies, regardless of how companies might perceive or describe themselves. In fact, the assumption at DARPA is that individuals can often carry the innovation load all by themselves, though obviously the DARPA ecosystem is continuously leveraged.

Most companies would never trust a huge innovation budget with one person, regardless of how smart, glib, or connected they were. Most companies would never allow innovation efforts to just float out there over long periods of time with no governance. Companies need to control budgets, people and processes—which is why they usually fail so spectacularly at innovation.

Innovation is not a set of activities; it's an attitude, a culture, supported by a set of loose processes and even less-defined outcomes. Most corporate cultures are therefore, by definition, anything but innovative. In fact, corporate cultures are designed to be repeatable, consistent, predictable and profitable. They're also designed to be scalable, but only within limits.

Self-disruption is not a competency many companies have, which is why most innovation is de facto or de jure outsourced to those with separate vested financial interests. It's also nearly impossible for successful *companies to cannibalize their revenue streams, even if there's consensus that the streams are not permanent. Print media, for example, still double downs on print-driven business models, while just about everyone knows that the death of print media correlates perfectly with the rising death rate of today's consumers of print media.*

So, how many innovation consultants can one company hire?

Can they survive in corporate cultures that talk one innovation game but play another?

The argument here is simple. Successful companies become successful because they optimize routines in relatively stable markets, not because they continuously search for new ways to replace old, profitable processes or when they should eliminate profitable SKUs because *it's time*. The financial corporate structure is biased against innovation. They're convinced that they can *reengineer*, *reinvent* and *innovate* at will when nothing could be further from the truth. They almost always need a lot of outside help to change processes, products and services, and even when there's help, they usually fail.

Very few will ever become DARPA-like.

Wake up, Smell the Technology and Transform

We conclude this book with a discussion around innovation challenges. Although DARPA-like innovation structures and processes are hard to replicate, they're precisely what *ideal* digital transformation requires. Our data suggest that companies are modifying their structures and processes already—which is a huge step in the right direction. DARPA-like innovation assumes speed and discovery. Corporate digital transformation through rapid technology adoption assumes speed *and* discovery. Although (DARPA) government and corporate motivations are different, they're ultimately about competition. DARPA worries about *global* adversaries, whereas companies worry about disruptive *corporate* adversaries.

The key is commitment. Companies that think proactively–that try to anticipate futures–will commit to transformation and adopt emerging and disruptive technologies opportunistically—and quickly. If they lag—such as the *laggards* of the twentieth century—they will fail. But if they're proactive, their transformations will be significant.

GET WITH THE PROGRAMME

This chapter is excerpted from

Get Fit for Digital Business

by Rob Laurens.

Learn more

Get with the programme

Time to get in shape – the complete get fit for digital business programme
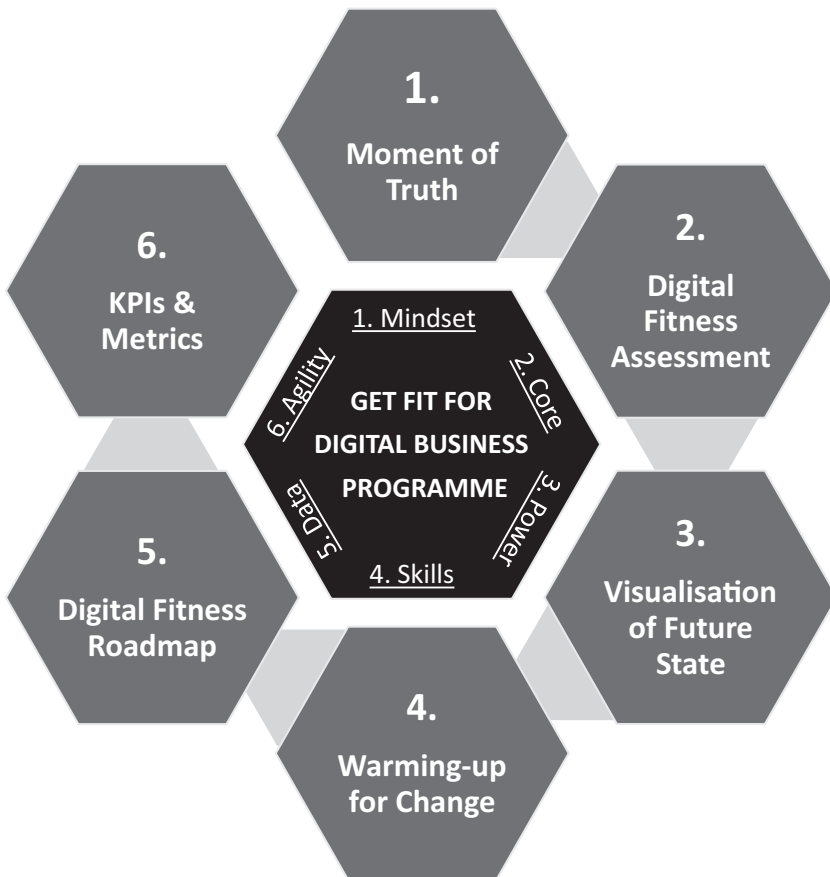

Figure 20 Get fit for digital business programme

[A digitally fit business: a collaborative, connected, flexible and future-ready organisation, where skilled and agile cross-functional teams work in harmony with digital technology to develop customer experience superpowers.]

The digital world really took off in 1990 when computer scientist Tim Berners-Lee invented the World Wide Web. In the intervening thirty years, digital adaptation has been enough to keep many businesses in the game. But that phase is coming to an end.

We've seen it before in business, working to a similar timescale, with another game changer – electricity. Thomas Edison built his first generating stations in London and New York in the early 1880s. There were some early adopters, but it took another forty years or so for electricity to supplant steam as the most prevalent power source in manufacturing and to become fully integrated into peoples' personal and working lives.

There were good reasons for this. It took time for the infrastructure to develop and costs to reduce, of course. But perhaps the biggest reason was that it takes time for businesses to work out how to fully harness new technology and apply fundamentally new operating models across their entire value chain. When businesses fully evolved in the early twentieth century, electricity produced some dramatic increases in productivity. Not only that, but it greatly improved working conditions, and therefore the well-being of employees. Gone was the heat and pollution generated by gas lighting, along with the significant fire hazard.

Digital is like electricity. It didn't take long for organisations to connect to it. But it will only begin to deliver significant gains in productivity and what we could call organisational well-being, when the majority of businesses have moved on from adaptation – where digital is deployed tactically as a way of doing the same old things in a faster, cheaper way – to evolution, where digital is used to fundamentally change the way business is actually done.

Getting fit for digital business is a process. It takes time and as a result can't be left on the back burner any longer. "Those who think they have not time for bodily exercise will sooner or later have to find time for illness". Edward Stanley's words should resonate in the minds of SME business leaders today. If they are serious about growth, productivity and ultimately long-term survival they must become proactive. Otherwise, like an out of shape human body, their enterprise is likely to face health challenges down the track.

Like a jigsaw puzzle, digital transformation doesn't make much sense when the pieces are tipped out of the box and scattered over the table. It's only when leaders have a framework that progress really begins. After all, puzzles are best solved frame first, working towards the centre, because it

helps to make the process of finding the right combination of pieces much easier.

The get fit for digital business framework supports a balanced, holistic and human approach to change, designed not only to improve business performance in a digital world, but also to improve the overall well-being of an organisation. Of course, it is not an "out of the box" answer to everything.

There can never be a one size fits all digital transformation recipe. Organisations come in too many shapes and sizes for that. Each will have unique requirements, challenges and opportunities, depending on scale, location and whether they are B2B or B2C, retailers, distributers, manufacturers, fundraisers or professional service providers.

But the framework and key components remain constant. People are people after all. Sometimes in the rush for short-term profit, it's easy to forget that most organisations essentially consist of humans working to create value for other humans. Getting fit for digital means putting people first: you, your colleagues, your supply chain partners and the people who buy your products and services.

Digital technology simply bestows extra power to help us to become more superhuman in the way in which we find and serve our customers. It has already changed how, as producers, we can create value and, as consumers, how we perceive it and even participate in its creation. But the tech alone will never be a silver bullet to competitive supremacy. The future must be bionic, an integration of humans and technology, using the best of both to deliver the goods.

As the number of face-to-face interactions in business dwindle, we need to work harder to humanise our relationships with our customers. We need to think about sales, revenue, costs and ROI, of course. We have to make a profit. But we also need to think more about what Ted Rubin called the "return on relationship", both for our staff and our customers.

Counter-intuitively perhaps, technology can help us to humanise and deepen those relationships. It can also provide extra horsepower, but, like the famous tyre manufacturer said, power is nothing without control. Leaders won't get control by micro-managing in a digital business. There are too many moving parts for that now. It will just slow things up. They must coach more and play less. They must use technology to remain in control at a distance, having set the conditions for success by developing the organisation's core strengths.

Those core strengths are the vision, the culture and the strategy. They are the deep understanding of customers and their journey to purchase; a recognition that the customer experience reaches far beyond the product or service itself. Leaders must show a clarity of purpose and an inquisitive mindset, always seeking opportunities to innovate and get more of the right things done better and faster.

For many companies, the sales and marketing function is likely to be in the vanguard of their digital evolution. But digital affects every function across an organisation because everybody has an influence on the customer's experience of interacting with you. Business has always been a team game, but in a digital world the need for everybody to work together is magnified. Marketeers can't be left to obsess about the customer on their own.

Now everybody in the organisation must join them. That includes Angie in accounts and David in dispatch. If that refund isn't processed or that item doesn't arrive on time, your perceived value will be negatively impacted, just as much as when your shiny new website is too slow or too difficult to use, or your disconnected services suffer from customer amnesia. It's all part of the customer experience and those customers are now very demanding. They expect everything to be easy, and there is nothing that requires more thought and planning than easy.

Leaders must be fully committed and ensure that they acknowledge the real fears and inertia that are typical, when change is perceived as a threat to power bases and even livelihoods. They must expend as much energy into warming up a team for change as they expend on the search for, and technical implementation of, new tools. More than that, change must be framed in a language and context that everyone within an organisation can relate to and buy into.

Getting fit for digital is a process that recognises that mindset is more important than a rigid plan, as long as the business core is strong and well-defined. It acknowledges that closer collaboration and new skills are necessary to get the digital power down effectively where the rubber meets the road. It means that flatter, less hierarchic team formations are required to reduce drag. It is essential that those closest to the customer in an organisation are empowered to take decisions, based on easily accessible, relevant and accurate data.

That doesn't negate the need to make good technology decisions. It's technology that helps us ordinary mortals to become bionic business superhumans. So, business leaders must keep in mind that the key elements of a modern technology strategy are cloud-hosted, mobile-first, insights-driven and for many, loosely coupled. Those are the ingredients for the creation of a winning customer experience platform that delivers across every device and screen size. They are the building blocks for building an agile culture where continuous innovation, driven by data, becomes part of an organisation's DNA.

Over the years I have seen how digital has made organisations of all types and sizes become better places to buy from, work with and work within. I have also seen how outdated management structures, old school

skills and analogue mindsets, inhibit the pursuit of greater productivity. I have learned that the struggle to fit the square peg of traditional business practices into the round hole of a new digital business context is doomed to fail.

Not every business is experiencing the heat yet. Some do not feel that they are standing on a burning platform. It is taking longer for new business or operating models to become pervasive in some market verticals, particularly those where a major disrupter has yet to come knocking, with a threat to blow the house down.

Like getting physically fit, unless you face an existential threat, there are always plenty of good reasons to put it off. But time is beginning to run out for those who have yet to get to grips with the impact that digital will have on their livelihoods in the coming years. It's time for all business leaders to put the periscope up, take a good look at the horizon and get their organisations fully fit for digital business.

Digital should be the catalyst for a business reboot. Done in the right way, with proper planning, it doesn't have to hurt. In fact, it can be an extremely positive process that leaves your people feeling energised, focused and motivated about your new digital business blueprint. Tackling issues head-on, unblocking log-jams and having a clear vision breathes fresh air into organisations. In a digital world that's advancing every day is there really a choice? Just get started and trust the process. You'll know when you've arrived because new agile ways of working become a business habit, a muscle memory, helping your team to react effectively to any opportunities and challenges that come your way. As Jack Welch said, "If the rate of change on the outside exceeds the rate of change on the inside, the end is near".

Need-to-know workout tips: ten benefits of getting fit for digital business

1   Look better: become more attractive to customers and employees.
2   Feel better: reduce stress and create a better quality of working life.
3   Stay mentally sharp: improve customer focus, prioritisation, innovation and competitiveness.
4   Be more productive: increase revenue, ROI and profit.
5   Develop faster reactions and increased agility: seize opportunities and overcome challenges.
6   Improve circulation: improve business flow with better processes.

7 Boost balance and co-ordination: more collaboration and less siloed activity.
8 Help to control weight: stay lean and efficient.
9 Strengthen the immune system: improve resilience, security and business health.
10 Combat the effects of ageing: stay relevant to your connected audiences.

In sum, live better for longer: survive and thrive as a digitally fit business growing revenue and profit while improving organisational health and well-being.