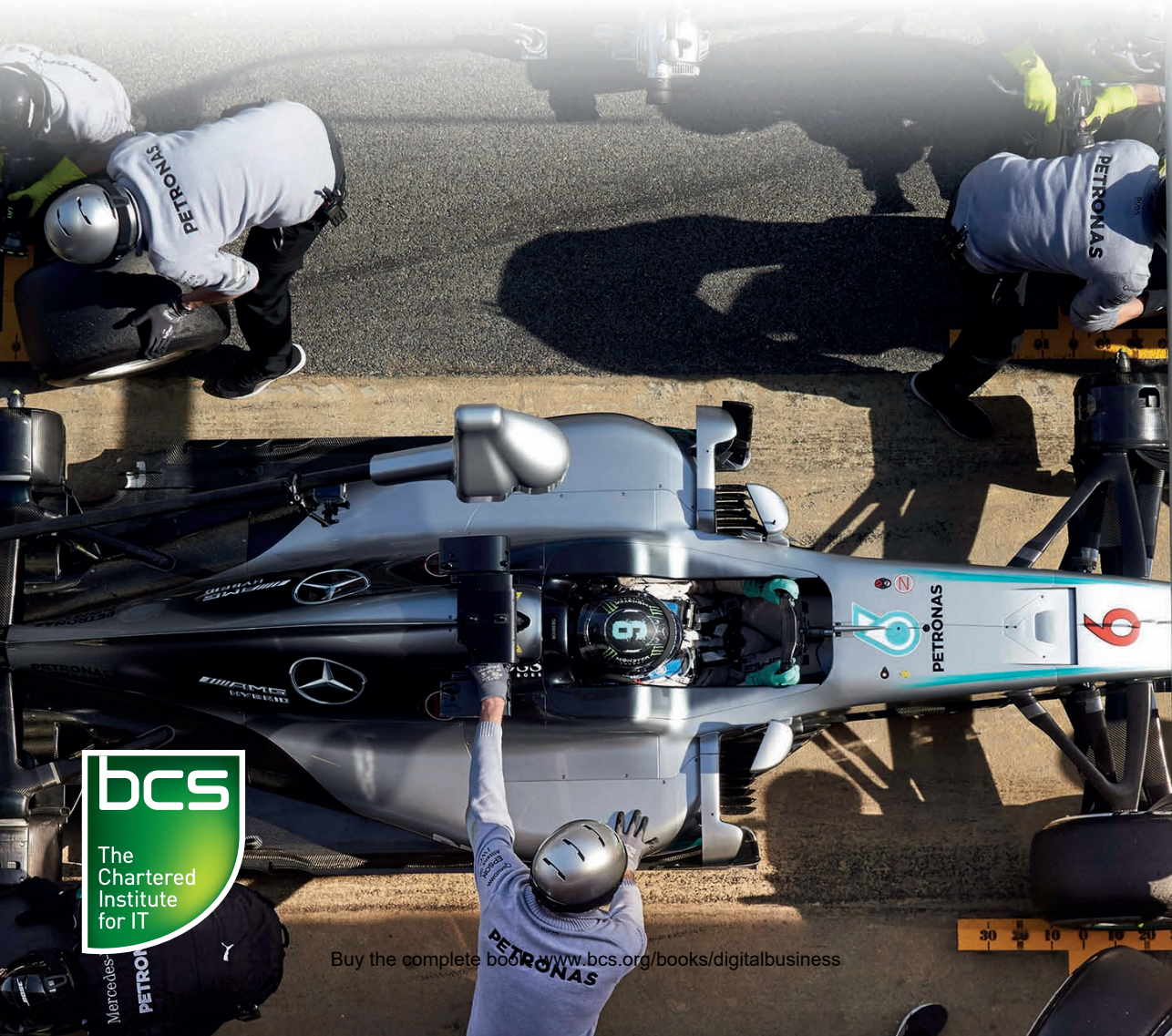
MASTERING DIGITAL BUSINESS

How powerful combinations of disruptive technologies are enabling the next wave of digital transformation

Nicholas D. Evans



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ADVANCE PRAISE FOR MASTERING DIGITAL BUSINESS:

'Nicholas Evans is a magician, weaving together the complexities of the digital world into a tapestry of opportunities for alert companies and managers. And like a good magician, he makes it look easy. Get started on your digital transformation with this book NOW.'

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'The digital transformation, based on vast data from cheap sensors and cloud intelligence, will enable new business models, new strategies, and new empires in all industries. Using insight and case studies, Mastering Digital Business does a superb job guiding us through the changes coming, and helping us think through not only new product and logistics strategies, but how management itself must evolve to thrive in the coming decades.'

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'By their very nature, transformations require disruptive changes. Digital transformations require companies to be in a state of constant change. Mastering Digital Business shows that successful digital transformation goes beyond leading edge technology to include disruptive business models, redesigned processes, and – most importantly – cultural change.'

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'Mastering Digital Businesses is a highly topical book and a must read for both business and IT executives looking to come out on top by leveraging disruptive technologies. Nick is a brilliant writer and in this book he combines case studies with in-depth analysis to provide valuable insights for digital leaders. The importance for traditional players to swiftly move towards a more agile and flexible digital environment while blending the "new" with the "old" can't be understated and Nick takes the reader through a straightforward thought process for how to do this successfully.'

Robert Eriksson, Head of Engineering, Digital and Transformation, Lloyds Banking Group

'Much talk is happening about digital transformation and innovation. Rarely does this talk cover pragmatic steps regarding how to "make sense" and "take action" on the new opportunities that today's most disruptive technologies catalyze. Nick's book does that – providing "blueprints for action" – helping those who take advantage of Nick's insights move from conceptual discussions to pragmatic action, with speed and scale. Of particular value is his distillation of patterns – or what he calls "palette" – of options of which technologies to use in which combination to take advantage of different business opportunities.'

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R. "Ray" Wang, Principal Analyst and Founder, Constellation Research

'Mastering Digital Business is a real wakeup call. For company leaders willing to see, react to and foresee the signals of change, this is a must-read manual.'

Sanjay Sarma, Professor of Mechanical Engineering, MIT

'In today's world, successful organisations recognise that technology is a force which makes scarce resources abundant. And those same organisations have put technology capability at the heart of business strategy. Nicholas D. Evans' book goes beyond the theory of the digital disruption which is impacting our lives, and provides business leaders with compelling, practical advice for redesigning our organisations, strategies, environments, and workforce to not only compete but to thrive in an age of ever increasing complexity and technical innovation. Read it. Then share it with your team!'

Stephen Foreshew-Cain, COO, Co-op Digital and former Executive Director, UK Government Digital Service

'Nicholas has managed to take the world of innovation and digital transformation and make it simple enough to understand at all levels within the business, which is no mean feat. The book covers a number of insights and strategies that will allow c-level execs and techies alike to decode the transformation of businesses in the digital age.'

Matt Harris, Head of IT, Mercedes AMG Petronas Formula One Team

'Mastering Digital Business is fundamentally about innovation. Whether you want new products, services, processes, or business models, this book can help jump start business growth through tapping into the power of digital business.'

Soren Kaplan, bestselling and award winning author of *The Invisible Advantage*

'Digital disruption is THE business issue! Leaders need to be armed with how to think about this to succeed in the future. Evans provides straightforward recipes to navigate through this important transition.'

Mark Sherman, Managing Director, Telstra Ventures

MASTERING DIGITAL BUSINESS

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To my wife, Martha

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NICHOLAS D. EVANS is a Vice President and General Manager within the Office of the Chief Technology Officer at Unisys. One of *Consulting Magazine*'s 'Top 25 Consultants', and one of *ComputerWorld*'s Premier 100 IT Leaders, he leads the Applied Innovation program for the company, an internal and client-facing worldwide initiative.

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Mr Evans has over 25 years of consulting experience in all aspects of practice leadership and solution delivery in a wide variety of industries. He is the author of several books on digital business including titles from the BCS (*Mastering Digital Business*), Financial Times/Prentice Hall (*Business innovation and disruptive technology: harnessing the power of breakthrough technology...for competitive advantage* and *business agility: strategies for gaining competitive advantage through mobile business solutions*), Microsoft Press and Powersoft Press.

He has shared his perspectives in leading publications such as *Fortune*, *Time Magazine*, the *Financial Times*, *CIO Magazine*, *Computerworld*, *Optimize*, *Internet Week*, *RFID Journal* and *Washington Technology*, as well as broadcast media such as CNBC Squawk Box, Discovery Channel and The History Channel.

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Finally, I'd like to thank my family for your patience as always as I worked on the material over the course of several months in 2016.

ABBREVIATIONS

5D	five dimensional
AI	Artificial intelligence
API	Application programming interface
AR	Augmented reality
B2B	Business to business
B2C	Business to consumer
BWV	Body worn video
CDO	Chief digital officer
CEO	Chief executive officer
CIO	Chief information officer
CMO	Chief marketing officer
CPS	Cyber-physical production systems
CTO	Chief technology officer
DCX	Digital customer experience
EDH	Enterprise data hub
FTE	Full-time employee
GDP	Gross domestic product
GDS	Government Digital Service
GDSS	Group decision support software
GPS	Global Positioning System
HD	High definition
IaaS	Infrastructure as-a-service
ICT	Information and communications technology
IDS	Intrusion detection system
IoT	Internet of Things

IP	Intellectual property
ITSM	IT service management
MPS	Metropolitan Police Service
NFC	Near field communication
OBD	On-board diagnostics
PaaS	Platform as-a-service
R&D	Research and development
RFID	Radio frequency identification
ROI	Return on investment
SaaS	Software as-a-service
SDDC	Software-defined data centre
SDN	Software-defined network
SMAC	Social, mobile, analytics and cloud
SME	Subject matter expert
SIAM	Service integration and management
SOA	Service oriented architecture
UAV	Unmanned aerial vehicle

INTRODUCTION

Today, chief executive officers (CEOs) worldwide are applying digital transformation to re-think and re-design their traditional, existing business models and processes in the context of new disruptive technologies, digitally savvy consumers, ubiquitous computing and our globally connected society. This notion of digitisation is now affecting all aspects of business operations from innovation within and around actual products and services, to customer engagement, to the digital workplace, to business models and processes – and no industry is exempt.

The goal of this book is to provide a strategic guide for business and IT executives, applying today's most disruptive technologies (including social, mobile, analytics and cloud (SMAC) technologies, plus wearables, intelligent automation, robotics and the Internet of Things) in powerful combinations, together with platform business models, a mastery of digital services and leading practices in corporate innovation, to help you develop and execute your digital strategies for competitive advantage.

The issue for business and IT executives is that 'digital disruption' is here, and is impacting all industries. The challenge is how will you respond – both today and tomorrow?

The **big idea** is that the book introduces a **reference model and blueprint for decoding how leading players – including Uber and many others – have launched new digital disruptions within their target markets** by applying eight powerful combinations of disruptive technology underpinned by the power of the platform and a mastery of digital services.

It then shows how to apply the model towards **four key transformational business objectives:** enhancing the digital customer experience, transforming the digital workplace, gaining insights from analytics, and optimizing digital infrastructure and simplifying management – with a futuristic vision for each.

MASTERING DIGITAL BUSINESS =

> Function of (Disruptive Technologies + Platform Business Models + Digital Services Mastery)
>
> Accelerated by (Leading Practices in Corporate Innovation)

THE BUSINESS NEED

The book aims to provide a fresh, new approach to digital business strategy and execution, which describes how the next wave of emerging and disruptive technologies can be applied in *powerful combinations* to establish an agile new platform ecosystem for digital business.

This new platform enables organisations to create a highly virtualised, highly distributed, ecosystem of on-demand services providing a palette of options for specific digital business outcomes. Organisations can select the appropriate sub-set of building blocks, in the form of disruptive technologies, based on their target business outcomes.

While many books on 'digital business' focus solely on the digital customer experience, this book aims to provide a more in-depth, well-rounded picture with strategies and techniques for how to re-think and re-design business models and processes, how to transform the digital workplace by 'instrumenting the human' and 'socializing the machine', how to leverage insights from analytics to improve operational efficiencies and competitive advantage and how to apply intelligent automation to optimise infrastructure and simplify management.

The book goes beyond the commonly cited examples of tech giants such as Amazon, Netflix and Uber, and beyond the commonly cited business scenarios for each disruptive technology, to explore and unlock powerful new forms of business value in the years ahead. It provides a reference model for decoding how leading players have launched new digital disruptions within their target markets at the industry level, business model level and process level by applying powerful combinations of disruptive technology – with clear examples of each. In addition, it provides an actionable roadmap in terms of how to time your move, based on technology maturity, and how to take an agile journey to the future platform for digital business.

Another unique aspect of the book is that it explores how leaders can utilise the latest corporate innovation techniques to spur collaboration and prioritise opportunities based on business impact and ease of implementation. It shows precisely how existing corporate innovation programmes can be adapted and fine-tuned to most effectively support digital transformation both now and in the years to come.

The net result is that you will have a **strategic guide for the next wave of digital transformation**, which will help you to develop and execute your digital strategies for competitive advantage using the most advanced approaches to innovation and the latest disruptive technologies where the sum is far greater than the parts.

While many have written about discrete technologies, this is the first book that truly decodes digital business at the strategy level and which shows how powerful combinations of disruptive technologies, together with platform business models and a mastery of digital services, are enabling breakthrough results.

STRUCTURE OF THIS BOOK

The book provides a four-part framework from strategy to execution with unique, new reference models and blueprints, together with industry case studies, and practical

advice gained from innovation sessions and workshops conducted with hundreds of major corporations around the world and a 25-year career working for the world's foremost consulting organisations helping global clients apply the latest emerging technologies for business advantage.

The book's approach takes the reader from **insight**, by introducing the reference model and blueprint, to **planning**, by showing how to lead and organise for digital transformation, to **action**, by showing how to apply the model towards four key transformational objectives – with a vision for each – and finally to the **roadmap**, by showing how to take an agile journey to the new platform while preserving existing investments.

In this book, you'll learn strategic approaches to:

- Design your digital business strategy and vision.
- Re-think and re-design your business models and processes.
- Maximise the potential of today's disruptive technologies for digital business.
- Organise and adapt corporate innovation processes for digital transformation.
- Identify and prioritise digital transformation opportunities with innovation workshops.
- Time your move based on the three waves of disruptive technology adoption.
- Transform the digital customer experience and the digital workplace.
- Gain competitive advantage from analytics.
- Pursue an agile journey to the new platform for digital business.
- Master the digital services lifecycle and speed time-to-market.

Here's a quick summary of the book's four-part structure:

Part I: Insight – Setting your Digital Transformation Vision introduces a reference model and blueprint for decoding how leading players have launched new digital disruptions within their target markets by applying eight powerful combinations of disruptive technology, together with platform business models.

Part II: Planning – Leading and Organising for Digital Transformation shows how to lead and organise for change, including precisely how existing corporate innovation programmes can be adapted and fine-tuned to most effectively support digital transformation.

Part III: Action – Digital Transformation Strategies for Specific Target Business Outcomes shows how to apply the model towards four key transformation objectives, including enhancing the digital customer experience, transforming the digital workplace, gaining insights from analytics, and optimising digital infrastructure and simplifying management with a vision for each.

Part IV: Roadmap – Taking an Agile Journey to the New Platform Ecosystem provides an actionable roadmap in terms of how to master the digital services lifecycle and take an agile journey to the future platform for digital business while preserving existing investments.

CONVENTIONS

In terms of conventions, there are a number of techniques used in this book to help you quickly find information, examples, case studies and key takeaways. Tables are frequently used to provide key facts, definitions of terms, concise examples of business benefits and industry scenarios. Company examples and case studies are provided within the main text of each chapter, in the context of the discussion, to help illustrate the points being made. In-depth case studies, which can be considered 'feature' case studies, are labelled 'Case study' and are highlighted within a shaded text box to make them clearly visible. These are typically self-standing and can be read at any time. Key takeaways are presented at the end of each chapter to help summarise the key points and lessons learned within the chapter, and to highlight any key approaches, techniques or models that might be useful in your own planning.

TARGET AUDIENCE

The target audience for the book is business executives and leaders, in both large and mid-size organisations, wishing to **exploit disruptive technologies** together with **leading innovation management approaches** within their business for digital transformation, continual growth, profits and relevancy, and to keep ahead of the competition.

The book is particularly suited for executives and leaders – from the C-suite to managers – who need a strategic guide to help shape and inform their digital business vision and direction. This applies equally well to any leader or manager who wears a strategy 'hat' in his or her role – including line-of-business leaders in areas such as product and service development, marketing, customer service and support, supply chain and operations, as well as IT leaders – and those in dedicated strategy positions within the organisation.

The secondary audience is technology providers, start-ups, professional services companies, venture capitalists and investors, government policy makers, educational institutions and students, industry analysts and industry associations.

PART I
INSIGHT – SETTING YOUR DIGITAL TRANSFORMATION VISION

1 DESIGNING YOUR DIGITAL BUSINESS STRATEGY AND VISION

> Software is eating the world.
>
> Marc Andreessen[1]

In this chapter, we'll explore the art of the possible with regard to digital business, why it's so disruptive to traditional business models, and how to prepare for disruption in your industry. We'll also look at some industry examples, such as smart parking, where new digitally based business models can not only disrupt their target markets but can be quickly expanded into market adjacencies.

In terms of the art of the possible, due to the 'digital medium' these new business models are designed to operate in, they have the intrinsic potential to be more transformative than they would appear from the outside. By digitising a traditionally analogue business model or process, we're effectively turning it into bits and atoms and enabling an infinite variety of possibilities.

In terms of exploring why digital business is so disruptive to traditional business models and traditional notions of industry competition, we'll analyse the situation by looking at Porter's model of the five forces of industry competition and exploring how digital business is impacting each of the various forces.

Finally, in terms of how to prepare for digital disruption, we'll explore some of the signs to watch out for and how to prepare your response. By its very nature, a disruption is extremely hard to predict. Still, with careful analysis of industry trends, a keen grasp of the art of the possible and observations of recent 'seismic activity', you can get a sense of what to prepare for and how to react.

THE ART OF THE POSSIBLE: THE HIDDEN DISRUPTION OF DIGITAL BUSINESS MODELS

Digital transformation is being applied by CEOs worldwide to re-think and re-design their traditional, existing business models and processes in the context of today's disruptive technologies, the consumerisation of IT, ubiquitous low-cost computing and our globally connected society. It's my belief that many of these new, social-, mobile-, analytics- and cloud-enabled (that is, SMAC-enabled) digital business models have the intrinsic potential to be more transformative than they would first appear from the outside.

One of the interesting questions often raised in regard to digital transformation initiatives is actually how 'transformational' the initiative really is.

Does the initiative truly create transformational change to the business model, process, product or service, or is it more of an incremental value-add?

First, this is a great question to ask of all of your digital initiatives. In essence, it is a litmus test to uncover the degree of change that's anticipated, or already experienced, from deployment of your digital initiative. As the sponsor behind the initiative, or perhaps one of several stakeholders, you'll know right away from your digital strategy the degree of change you're aiming for. As you look across your portfolio of projects, it's likely that some will be closer to the 'transformational' bar and others will be deliberately more 'incremental', but still intended to yield specific forms of measurable business value.

This 'degree of transformation' discussion is very much akin to the kinds of discussions I have with customers when conducting innovation workshops. In our particular form of these workshops, we encourage innovative ideas of all kinds: from strategic, and highly disruptive, 'change the business' types of ideas all the way to more tactical, incremental ideas. The idea with these particular workshops is that all ideas, from strategic to tactical, have initial merit and should be captured. As long as they're aligned with the key focus areas of the workshop, determined ahead of time with the workshop sponsors, and are intended to add business value, then let's go ahead and capture them for subsequent discussion and prioritisation.

As a sponsor or stakeholder you likely know the degree of transformation inherent in your initiative based upon your strategy, but what about the outside industry observer, customer or partner? As highlighted earlier, it's my belief that due to the 'digital medium' these new business models are designed to operate in, they have the intrinsic potential to be more transformative than they would appear from the outside.

As discussed, by digitising a traditionally analogue business model or process, we're effectively turning it into bits and atoms and enabling an infinite variety of possibilities. The rules can be whatever you want them to be – with the market being the petri dish to determine if the new rules are viable and can lead to adoption and growth.

CASE STUDY – STREETLINE

A smart parking example

A good example of the hidden disruption of digital business models – in terms of the hidden degree of transformational change – is smart parking. At first glance, it's just a way to find a parking spot. Wireless sensors are embedded in parking spaces to detect whether the space is occupied or not. Data from each sensor is relayed to the cloud and then real-time parking data is published via a mobile app on the smartphone, so drivers can find open parking spots and gain access to additional data and analytics.

In terms of enabling technologies for digital business, it's a great SMAC example, because it has all the elements of social, mobile, analytics and cloud. But is it really

doing anything more than giving directions to drivers on their mobile device so they can find open parking spaces in the city? Surely that's just an incremental value-add, and hardly transformative. It's just going to save me a few minutes in finding a parking spot.

When you take an in-depth look at smart parking, however, you'll find some truly transformational aspects to the digital business model – what you might call some 'hidden disruptions'. First, smart parking has obvious benefits for drivers, but it also has transformational aspects for cities and also for the transportation industry as a whole.

In addition to being a $25 billion industry that's seen little innovation in decades, parking is essentially a real estate play for cities. It's typically the second or third source of revenue for the city as a whole. Any business model or process change that can improve parking revenues, reduce time spent looking for parking, reduce traffic congestion and reduce pollution can yield substantial benefits to the local city and economy.

Table 1.1 Transformational aspects of smart parking

Key facts	Benefits	Transformational aspects
• 2 billion parking spaces in the United States • 70 million hours spent looking for parking each year representing a $1B loss to the US economy • 30% of city drivers looking for parking adding 10% to average vehicle's CO_2 emissions	• Increase city revenue by 20–30% with an ROI in 1–2 years • 30% reduction in greenhouse gas emissions • 10% reduction in traffic • 2% increase in local GDP	• Extensions of the smart parking business model into smart cities, intelligent transportation networks, and connected cars • Opportunities for smart city operations and services to become highly responsive, pro-active, and even predictive based on digitally observed changes in the real-world environment

Today, according to Streetline,[2] there are approximately 2 billion parking spaces in the US. A total of 70 million hours are spent each year looking for parking, which represents a $1 billion loss to the economy. In addition, 30% of city drivers are looking for parking and this adds about 10% to the average vehicle's CO_2 emissions.

Smart parking systems enable cities to better understand parking behaviour and make policy changes that can improve conditions. This might include changes such as parking hours of operation, parking time limits or even demand-based pricing. The result is that smart parking can enable cities to increase revenue by up to 20–30% and cities can achieve a return on investment (ROI) in one to two years.

Recent case studies have shown that sales tax revenues increased by 11.9%, a 30% reduction in greenhouse gas emissions, a 10% reduction in traffic, and an increase of 2% in local GDP. Reducing traffic and parking congestion improves commerce by making cities more accessible for all involved.

In the UK, Streetline is working with major cities such as Birmingham and Manchester. The City of Birmingham, which has over 1 million residents combined with 160,000 commuters, is using Streetline wireless parking sensors and applications to see trends including hourly occupancy, occupancy by block and parking duration. Manchester City Council has collaborated with Streetline to launch the motorist guidance app Parker™ in Manchester's vibrant Northern Quarter and Chinatown areas to prevent circling and increase foot traffic to local merchants.

So today, I'd argue there's a strong business case for smart parking with transformational levels of benefit – that is, beyond single digit percentage improvements and into the 10%-plus range. When we look ahead to extensions of this business model into smart cities, intelligent transportation networks and connected cars, that's when things get even more interesting. Is smart parking really just about parking or is it about digitising and connecting the physical world to enable a wide range of new business models and associated services? That is, the start of an Internet of Things (IoT) play.

What happens when smart parking systems get integrated into an ecosystem of other IoT devices within a city, such as air quality, lighting, water pressure and even garbage cans?

The result is opportunities for smart city operations and services to become highly responsive, pro-active and even predictive based on digitally observed changes in the real-world environment. Sensors used for one purpose may also be re-tasked or multi-tasked to serve other city purposes as well. For example, smart parking sensors that include temperature sensors can be used to measure road surface temperature and pro-actively know when salt trucks or snow removal trucks should be dispatched.

What happens when smart parking systems get integrated into the connected car?

In the near future, the result may be that your digital assistant, accessible from any device including your car, can share your schedule with relevant merchants via the smart parking ecosystem so they can reserve prime parking for you a couple of minutes ahead of your scheduled arrival time. This and hundreds other personalised services that you'll access via your mobile and your connected car will make this intelligent ecosystem very 'sticky' in terms of the services provided. Early entrant service providers and merchants will build highly personalised and curated experiences for their customers, which may be hard for later entrants to unseat.

Just as Amazon digitised the book selling industry and Netflix the movie rental industry, transportation is an example of one of the next, many industry areas to go digital. When the IoT is part of this business model as well it opens up even more possibilities for hidden disruption, since we're digitising the physical world and instrumenting people,

assets and infrastructure. This has the potential to radically change how people work and live, since it moves us into an era of instant digital experiences, interactions and transactions underpinned by intelligent consumption of resources.

In summary, digital business models are highly attractive because they have so many future directions they can take and the opportunity for business model and business process innovation is wide open. The potential for transformational change is particularly strong when going from a totally analogue business model to a highly digitised one.

ANALYSING THE DISRUPTION: HOW DIGITAL DISRUPTS THE FIVE FORCES OF INDUSTRY COMPETITION

Exactly why is digital business so disruptive to traditional business models and traditional notions of industry competition?

A useful way to analyse the situation is by looking at Porter's model of the five forces of industry competition and exploring how digital business is impacting each of the various forces.

In one of his landmark books, titled *Competitive strategy*,[3] Michael E. Porter describes the five forces of industry competition as the entry of new competitors, the threat of substitutes, the bargaining power of buyers, the bargaining power of suppliers, and the rivalry among existing competitors. The Five Forces Model has long been used by corporate strategists to think about the rules of competition and the respective headwinds and tailwinds produced as a company operates and produces products or services in this external environmental context.

Traditionally, strategists would develop approaches to minimise the headwinds and maximise the tailwinds associated with each force. For example, the threat of new entrants could be minimised by creating strong barriers to entry in terms of patents and other rights, large economies of scale, product differentiation, strong customer loyalty and high switching costs. As another example, the threat of substitute products or services could be minimised by creating a higher level of differentiation or better price performance when compared to competitive offerings.

Digital business is impacting each of these traditional forces and essentially levelling the playing field to the point where new entrants can rush in with far fewer barriers to entry. In fact, these new players may well have a competitive advantage over incumbents, even from day one, simply by having a digitally based business model.

In some cases, not only is digital disruption coming to various industries via the free market economy, it is also being regulated into effect. Take for example, the Revised Directive on Payment Services (PSD2) which is designed to create safer and more innovative European payments. PSD2 is having a highly disruptive effect on the financial services industry because it requires banks to open up access to customer's online accounts and payment services to third party providers. Banks are therefore

being forced to re-think their business models and the very ecosystems in which they operate.

Table 1.2 provides a listing of the traditional five forces together with a summary of how the new digital threat (i.e. the threat of digital disruption) is impacting these traditional forces – creating both threats and opportunities – and the rationale for how and why digital is making such a transformational impact.

Table 1.2 New digital threats impacting the Five Forces Model

Traditional force	New digital threat	Rationale
The entry of new competitors	New entrants from outside your industry, equipped with new digitally based business models and value propositions.	• Digital business changes the rules by lowering the traditional barriers to entry. • A digitally based business model requires far less capital and can bring large economies of scale.
The threat of substitutes	Purely digital substitutes, hybrid digital/physical substitutes and digital services wrapped around a physical product.	• Switching costs are low and buyer propensity to substitute is high.
The bargaining power of buyers	Bargaining power lays out a new set of expectations for the digital customer experience and is the biggest driver of digital business.	• Instant access to information as well as insights from social media. • Price sensitivity and low switching costs via digital channels. • Access to substitute products and services with greater ease of use and convenience.
The bargaining power of suppliers	Suppliers can accelerate or slow down the adoption of a digitally based business model, based upon how it impacts their own situation.	• Use of APIs within digital ecosystems can streamline ability to form new partnerships and manage existing ones. • Bargaining power can also slow down or dispute the validity or legality of the new digital model.

(*continued*)

Table 1.2 (Continued)

Traditional force	New digital threat	Rationale
The rivalry among existing competitors	Entry and exit barriers are going down due to the comparative low cost of digital business models.	• New entrants do not even need to own physical assets or infrastructure. • The 'platform' model is seeing success by connecting stakeholders and providing services that enhance the customer experience.

1. The entry of new competitors

There's no doubt that digital business is changing the nature of competition. Today, it's not just traditional industry competitors you need to worry about, but new entrants from outside your industry, equipped with new digitally based business models and value propositions.

This is often tech giants and start-ups that have envisioned and built a new business model from the ground up, powered by a new platform ecosystem for digital business. They're leveraging the familiar SMAC technologies, but are often adding in personas and context, intelligent automation, the IoT and cyber security to further enhance the value proposition of their platform.

In effect, tomorrow's leader may not be someone you know. We often think of industry competition as a perpetual battle between the same set of incumbents, but in reality things are far more dynamic and transitory. As an example, whereas 89 per cent of the Fortune 500 went out of business between 1955 and 2014,[4] in recent years, according to R. 'Ray' Wang of Constellation Research, 52 per cent has been merged, acquired, gone bankrupt or fallen off the list since 2000.[5]

Why can new entrants move in so easily? Digital business changes the rules by lowering the traditional barriers to entry. A digitally based business model requires far less capital and can bring large economies of scale for example.

2. The threat of substitutes

The threat of substitutes has to do with the threat of substitute products or services. In terms of digital business, this can come from a purely digital substitute or a hybrid digital/physical substitute. Taxi services, such as Uber and EasyTaxi, for example, provide a hybrid model via a digital app for consumers and taxi drivers, coupled with the physical taxis.

Digital services wrapped around a physical product are another example and can range from one extreme such as the Industrial Internet, to another such as home automation technologies or personal fitness products. In addition, the long-term revenue stream from the digital services may be worth far more than the one-time sale of the physical product.

The threat of substitutes is high in many industries, since switching costs are low and buyer propensity to substitute is high. In the taxi services example, customers can easily switch from traditional models to the new model simply by installing an app on their smartphone.

Propensity to switch from the traditional model is high due to consumer wait times for taxis, lack of visibility into taxi location and so on.

3. The bargaining power of buyers

Perhaps the strongest of the five forces impacting industry competition is the bargaining power of buyers, since the biggest driver of digital business comes from the needs and expectations of consumers and customers themselves.

This bargaining power lays out a new set of expectations for the digital customer experience and necessitates continual corporate innovation across business models, processes, operations, products and services.

Customers and consumers have amassed far more bargaining power today due to instant access to information, insights from social media (including access to reviews and feedback), low switching costs via digital channels, price sensitivity, access to substitute products and services with greater ease of use and convenience, as well as increased industry competitiveness as a result of the other forces.

4. The bargaining power of suppliers

Suppliers can accelerate or slow down the adoption of a digitally based business model, based upon how it impacts their own situation. Those pursuing digital models themselves, such as using application programming interfaces (APIs) to streamline their ability to form new partnerships and manage existing ones, may help to accelerate your own model.

Those who are suppliers to the traditional models, and who question or are still determining their new role in the digital equivalent, may use their bargaining power to slow down or dispute the validity or legality of the new model.

Good examples are the legal and business issues surfacing around the digital-sharing economy (i.e. ride-sharing, room-sharing etc.), where suppliers and other constituents work to ensure that the business model and process innovations still adhere to established rules, regulations, privacy, security and safety. This is a positive and needed development since, coupled with bargaining power of buyers, it can help to keep new models 'honest' in terms of how they operate.

5. The rivalry among the existing competitors

Finally, existing competitors are all looking at digital business – trying to understand the disruptions occurring and prepare their response. The responses can range all the way from defensive to offensive measures, and even a first-mover attack. This rivalry among competitors is always in play, but in recent years digital business has added fuel to the fire, just as the ebusiness era did many years ago.

The rivalry is heating up because entry and exit barriers are going down due to the comparative low cost of digital business models, and in many cases new entrants do not even need to own physical assets or infrastructure. In particular, the 'platform' model is seeing considerable success in the marketplace by simply connecting stakeholders and applying a set of peripheral services to enhance the customer experience.

By doing so, platform operators are moving to the forefront of service delivery and getting closer to the customer without even owning assets or having employees working in that particular industry. According to a recent article in *The Guardian*,

> Today, any service provider, and even content provider, risks becoming hostage to the platform operator, which, by aggregating all those peripherals and streamlining the experience of using them, suddenly moves from the periphery to the centre.[6]

Overall, as you prepare your various digital business initiatives, the five forces framework can be a useful way to think about the various headwinds and tailwinds acting on your envisioned model and how various constituents may react. In combination with the usual value chain analysis, it can help to inform your strategy and provide some useful insights into what you may encounter along the way.

PREPARING FOR THE DIGITAL DISRUPTION THAT'S COMING TO YOUR INDUSTRY

Whatever your business, significant disruption is either already occurring or on the way. Much of this is due to the latest wave of emerging and disruptive technologies that are serving as foundational building blocks for new, digitally based business models.

In talking with a number of CEOs and business leaders, all of them are keen to glimpse around the corner to prepare for what's ahead. Even if your business is going strong right now, you should be doing the same. To help you in this task, here are a few thoughts that arose from those discussions.

Understanding the disruption

By its very nature, a disruption is extremely hard to predict. Still, with careful analysis of industry trends, a keen grasp of the art of the possible, and observations of recent

Figure 1.1 Preparing for digital disruption

'seismic activity', you can get a sense of what to prepare for in terms of 'who', 'what', 'where', 'when' and 'how' (Figure 1.1).

1. Identify the likely players and their tactics

This is not always as easy as it sounds, since a competitor can come out of nowhere. Take as an example Apple Pay and its effect on the mobile payments industry. This was a case of a technology giant leveraging its cash flow and vast customer base and using disruptive technologies to poach on territory where it had never before set foot. Apple's limited industry knowledge was offset by its millions of customers, its eagerness to partner with major industry players to become relevant in the industry and its ability to continually turn on new services for customers.

Here's the thing, though: if you're in the payments industry, you've known for a long time that digital payments were coming. Your preparation for that day should have included the recognition that a company like Apple, with a mastery of digital services, could make a play. In Chapter 2, 'Re-thinking and re-designing your business models and processes', we'll take a more in-depth look at the digital business strategy moves behind Apple's entry into mobile payments via its Apple Pay service.

2. Understand the magnitude

A disruption can happen at the industry level, the business model level or the process level. But be aware that a process disruption can bubble up in scale and affect both business models and entire industries. Just think of what happened to travel agents when a process change (booking travel on the internet) nearly eliminated their role. We'll also explore this aspect in Chapter 2 in terms of the various pathways for re-thinking and re-designing business processes for a more agile enterprise and a transformed user experience.

3. Have a vision for what the disruption may look like

The disruption could be a technology-driven disruption such as 3D printing, or a competitive disruption in the form of new entrants with digitally based business models, processes, products or services. Within the transportation industry, for example, 3D printing is expected to threaten up to 41 per cent of air cargo and up to 37 per cent of ocean container shipments[7] as the technology starts to enable locally manufactured products and lessen the need for shipments overseas. Chapter 3, 'Maximising the potential of today's disruptive technologies for digital business', explores the various emerging and disruptive technologies that are coming together to serve as the foundational building blocks for disruptions in the form of new, digitally enabled business models, processes, products and services.

Another way to get a sense of what future disruptions may look like is to craft a vision for your industry or to look at those already under development. The German 'Industry 4.0' vision for the future of manufacturing is an example, as is GE's vision of the Industrial Internet. Chapter 4, 'The new platform ecosystem for digital business', explores how the visions of Industry 4.0 and the Industrial Internet are built upon the new platform for digital business (i.e. the foundational technology building blocks) and additionally explores the impact of digital business ecosystems and platforms, which are fast becoming the dominant go-to-market business model.

4. Have a sense of the disruption's timing

To prepare your response and time your move, it's key to estimate when these events will affect you. Is this something you need to act on immediately or something you should continue to monitor closely? Either way, it's good to have a strategic plan and weigh all the response scenarios.

Having a good sense of the timing of these disruptions is important not only to help you respond accordingly, but also to help you understand how technology maturity can enable different business opportunities. As emerging technologies are adopted in the enterprise, much like surfing, there are generally three waves you can catch along the way. A particular trend in pioneer or early adopter status needs to be handled quite differently from when it has progressed into the early majority, or even the late majority. The kinds of benefits you can expect to obtain are quite different as well.

If we take blockchain technology as an example, with blockchain (the distributed ledger technology behind Bitcoin that lets people who do not know or trust each other build a record of who owns what at any point in time) currently in the first 'emerging wave', there's strong potential for business model transformation for pioneers who are willing to take the risk. If your organisation is more conservative, you can wait for the second 'differentiating wave' to extract competitive advantage as an early adopter, or the third 'business value wave' to extract proven business value as part of the early majority. In Chapter 7, 'Timing your move based on technology maturity', we'll explore this topic in more detail so you have an in-depth understanding of the business benefits and the pros and cons of entering the market with these types of emerging technologies at different times as they mature.

5. Understand what the disruption can do to your industry's value chain

In most industries, a highly likely play will be to get closer to your customers by offering a radically different way of doing business that's faster, simpler and cheaper. In Chapter 8, 'Enhancing the digital customer experience', we'll explore some of the keys to success and the strategies around creating new, digitally based value propositions to get closer to the customer, and the importance of a seamless and compelling customer experience across all new digital processes, channels and devices.

Preparing your response

After understanding the disruption, it's time to formulate your response. Preparing your response requires strong alignment across the organisation from strategy to innovation to execution. Strategy can help to guide the innovation function in terms of strategic focus areas and help to direct innovation efforts and campaigns towards those initiatives that have the most strategic significance to customers and which are well aligned with the organisation's digital business vision, direction and capabilities.

Leading and organising for digital transformation

On the front-end, from a strategy perspective, it's important to conduct rigorous market research and put your innovation programme into overdrive. That means fine-tuning your programme across strategy and intent, people, process, technology and continuous improvement to maximise your organisational potential for digital business innovation. Chapter 5, 'Organising the adapting corporate innovation processes for digital

transformation', provides leadership guidance on how to change and fine-tune an existing corporate innovation programme to most effectively support digital transformation both now and in the years to come. We also explore the five critical pillars of innovation management capability, so you can ensure that your innovation programme has all the appropriate elements for ongoing success.

In preparing your response to digital disruption, as a key element in your innovation arsenal, it's also important to conduct frequent innovation workshops and talk to customers, partners and other industry experts — even outside your industry segment. Chapter 6, 'Identifying and prioritising opportunities with innovation workshops', explores how leaders can apply these highly targeted, event-based sessions to focus on innovation opportunity identification, categorisation, prioritisation and then the development of high-level business cases and roadmaps for the most promising opportunities identified.

Digital transformation strategies for specific target business outcomes

With your innovation engine fine-tuned and ready for action, you can now begin to craft and execute your response, whether it's a defensive or offensive measure, or a first-mover attack. You might simply optimise your current position in the value chain or change your position to get closer to the customer.

One strategy for getting closer to the customer is to apply big data analytics to understand your customers' preferences, needs, interests and behaviours far better than anyone else. Collecting information about your customers' usage of your products or services may enable you to monetise the data swirling around your product or service as well, by turning it into additional value-added services for your customers.

A key factor in improved digital customer experience is re-thinking how customers do business with you, much as Uber has done for finding a taxi. This is typically where SMAC computing comes into play, but disrupters may additionally incorporate IoT business models (such as our earlier smart parking example with Streetline) or even robotics business models (as evidenced by some of the recent robotic valets appearing in hotels such as the Japanese hotel Huis Ten Bosch and the Aloft hotel chain).

Innovation can also focus on a single, yet critical, business process such as usage-based insurance models. In the insurance example, technology comes in with intelligent sensors that measure things like acceleration and hard braking, letting the insurer offer incentives for good driving behaviour – and taking loyalty programmes to the next level, with incentives based on actual driving behaviour at a highly granular level, as opposed to simply on repeat business from month to month.

If you simply want to optimise your current position in the value chain, your initial focus might be on employee-centred improvements by transforming the digital workplace or on optimisation of your IT infrastructure and operations by enabling an industrialised software-defined data centre (SDDC).

If we look more closely at enabling the digital workplace, we can see how the foundational building blocks of digitally based business models can come into play. For example, wearables such as Google Glass can enable hands-free process optimisation in areas

like item picking in a warehouse. Recent trials, such as those conducted by DHL in their 'vision picking' pilots, have shown reduced error rates in the warehouse picking process and overall efficiency improvements of up to 25 per cent.[8]

Intelligent automation is another area of significant opportunity. We're already seeing the convergence of human–machine work processes, where humans are becoming increasingly instrumented and machines are becoming increasingly connected with humans to create an optimised blend of human–machine participation and interaction.

Cognitive systems and intelligent automation techniques are reducing costs and dependence on labour-based processes and optimising service efficiency. Advances in machine learning, expert systems and robotics are leading to automation opportunities in both virtual (that is, software) and physical scenarios.

A relevant software-based example is the emerging role of what are known as 'cognitive virtual agents' or 'virtual engineers' in the next-generation call centre. These agents interface on human terms in natural language. They think, speak and learn on the job – improving business processes and making better-informed decisions. A recent example is IPSoft's Amelia technology, which is being used to transform IT operations labour mix with digital labour, costing one-third of the typical human full-time employee (FTE) cost.

Chapters 8–11 take a detailed look at each of these target business outcomes around digital transformation, ranging from enhancing the digital customer experience, to transforming the digital workplace, to gaining insights from analytics and finally to optimising infrastructure and simplifying management. These areas represent some of the key value levers organisations can apply to get the most out of their digital business strategies.

Taking an agile journey to the new platform ecosystem

Going back to our value chain discussion, the business strategies and options regarding how and where to play in the future value chain are the same strategic decisions that organisations have needed to make for decades. What's new and different is the magnitude of potential business disruption and transformation via today's fresh new wave of disruptive technologies.

Your strategic response to digital disruption can make use of a rich set of foundational building blocks in the form of disruptive technologies – some mature, others emerging. Whatever your business strategy, you can select from these foundational building blocks and apply them in powerful combinations to enable your target business outcomes.

In the final chapters of this book, we'll explore how to execute your roadmap to digital transformation by mastering what it takes to manage the digital services lifecycle and in recognition that existing applications and infrastructure need to be carefully migrated or maintained.

KEY TAKEAWAYS FOR CHAPTER 1

- In terms of the art of the possible, due to the 'digital medium' new business models are designed to operate in, they have the intrinsic potential to be more transformative than they would appear from the outside.
- By digitising a traditionally analogue business model or process, we're effectively turning it into bits and atoms and enabling an infinite variety of possibilities. The rules can be whatever you want them to be – with the market being the petri dish to determine if the new rules are viable and can lead to adoption and growth.
- The five forces framework, together with our observations of how the new digital threat (that is, the threat of digital disruption) impacts these five forces, can be a useful way to think about the various headwinds and tailwinds acting on your envisioned model and how various constituents may react.
- In terms of understanding upcoming disruptions, with careful analysis of industry trends, a keen grasp of the art of the possible and observations of recent 'seismic activity', you can get a sense of what to prepare for in terms of 'who' (the likely players and their tactics), 'what' (a vision for what the disruption may look like), 'where' (where it can impact your value chain), 'when' (a sense of the disruption's timing) and 'how' (the magnitude of the disruption).
- Some of the key value levers organisations can apply to get the most out of their digital business strategies include enhancing the digital customer experience, transforming the digital workplace, gaining insights from analytics, and optimising infrastructure and simplifying management.

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MASTERING DIGITAL BUSINESS

Nicholas D. Evans

A strategic guide for the next wave of digital transformation

Today, companies worldwide are applying digital transformation to redesign traditional business models and strategies in the context of new disruptive technologies, digitally-savvy consumers, and our globally connected society.

This strategic guide for business and IT executives focuses on how today's most disruptive technologies (including social, mobile, analytics, cloud, wearables, intelligent automation, robotics, and the internet of things) can be applied in powerful combinations, together with platform business models, mastery of digital services, and leading practices in corporate innovation, to help you develop and execute your digital strategies for competitive advantage.

- **Maximise the potential of today's disruptive technologies to enhance digital business**
- **Re-think and re-develop your business models, processes and strategy**
- **Organize and adapt corporate innovation processes for digital transformation**
- **Transform the digital customer experience and digital workplace**
- **Use analytics to gain competitive advantage**

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Nicholas Evans is a magician, weaving together the complexities of the digital world into a tapestry of opportunities for alert companies and managers.

Henry Chesbrough, author and Professor at UC Berkeley Haas School of Business

A highly topical book and a must read for both business and IT executives looking to come out on top by leveraging disruptive technologies.

Robert Eriksson, Head of Engineering, Digital and Transformation, Lloyds Banking Group

Nicholas has managed to take the world of innovation and digital transformation and make it simple enough to understand at all levels within the business, which is no mean feat.

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