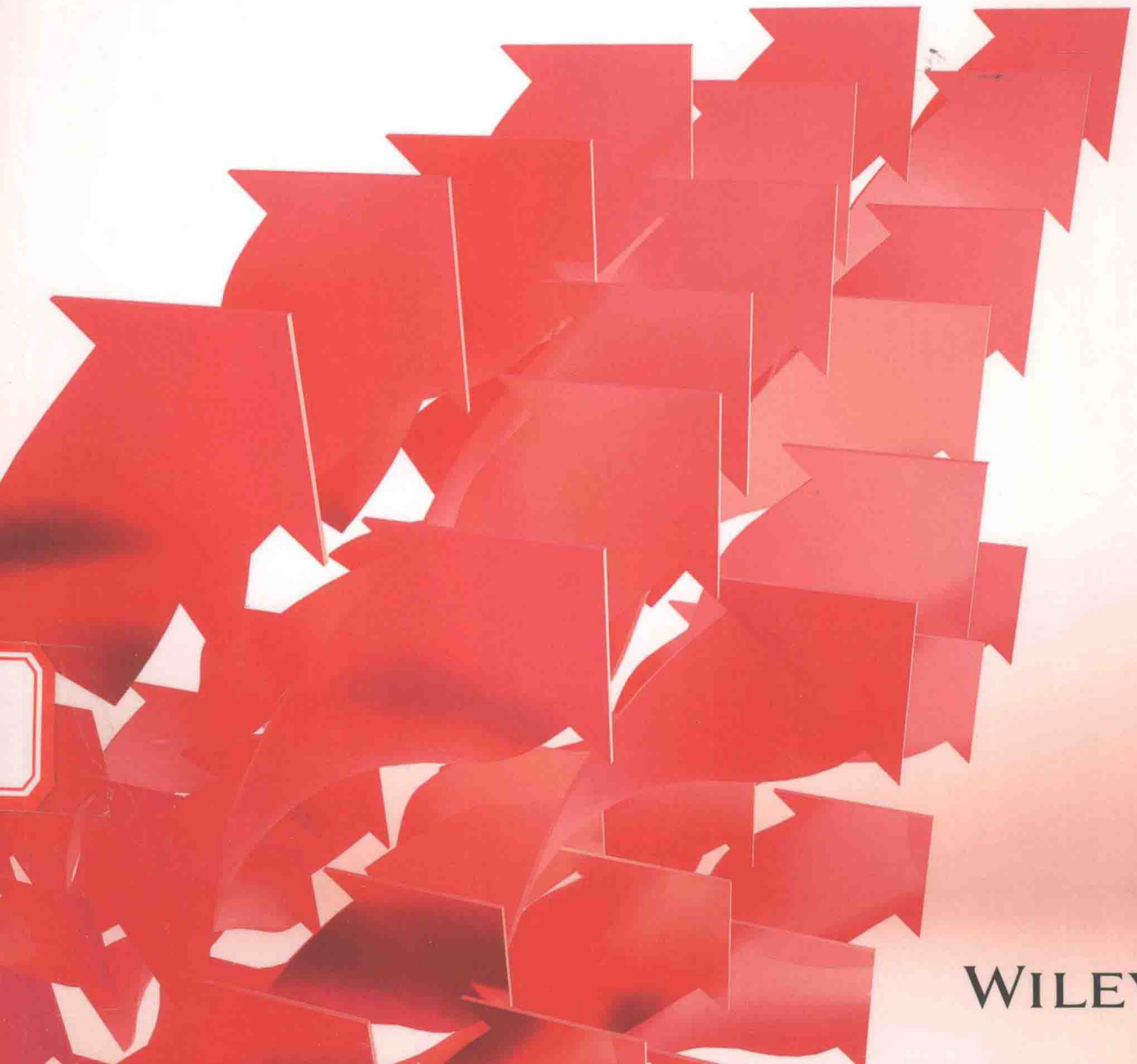


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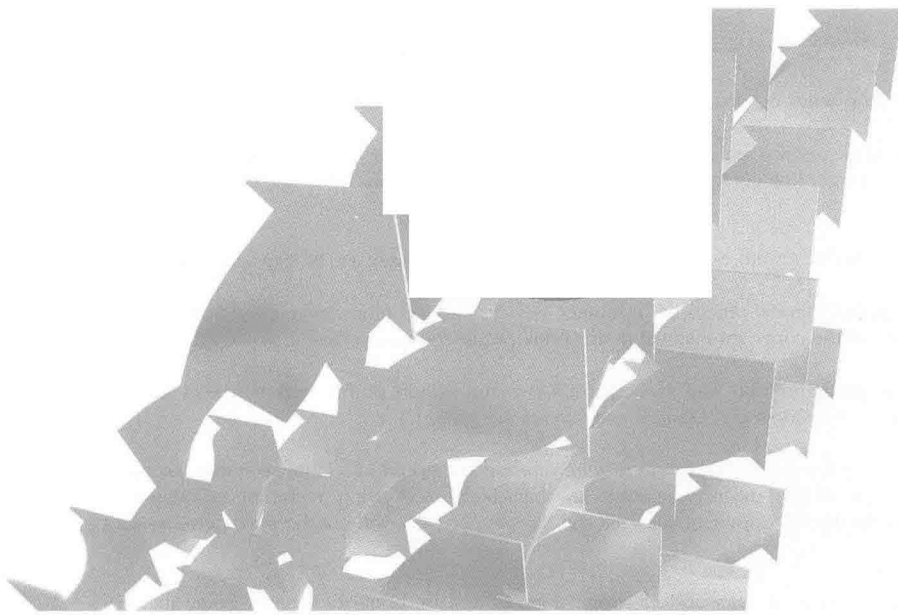
THE STRATEGIC MANAGEMENT OF INFORMATION SYSTEMS

Building A Digital Strategy

Joe Peppard and John Ward



WILEY



THE STRATEGIC MANAGEMENT OF INFORMATION SYSTEMS:

Building a Digital Strategy

FOURTH EDITION

JOE PEPPARD

AND

JOHN WARD

WILEY

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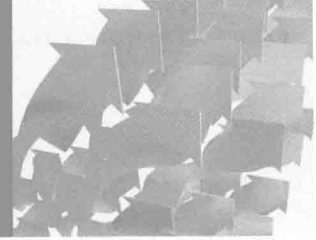
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PREFACE TO THE FOURTH EDITION



Without doubt, information technology (IT) is one of the greatest disruptive forces confronting organizations today. Organizations of all sizes from every industry, including the public sector and not-for-profit, are being impacted by the inexorable advances in technology according to research from the likes of IBM, McKinsey, Deloitte, PwC, Roland Berger and BCG.¹ While it might be legitimately argued that these all have a vested interest in promoting this view, the impact of technology is visible for all to see, not only in business but in the daily lives of the majority of people across the world.

Over the last decade we have seen technological innovations fundamentally redefine industries such as gambling, music, media, retail, travel and insurance. They have also created new industries just not possible or commercially viable without technology such as global auction sites (e.g. eBay – a globalized version of the car boot sale), marketplaces for perishable services such as flights, hotel rooms and restaurant reservations (e.g. Lastminute, Laterooms and TablePouncer) and daily deal coupons with Groupon and Citydeals. New ‘platform’ companies like Uber, Airbnb and Alibaba have harnessed information in novel ways to enter established industries and carve out significant positions. Owning no taxis, real estate or merchandise, they are now respectively the largest taxi company, accommodation chain and retailer in the world. Uber and Airbnb are examples of organizations shaping the so-called ‘sharing economy’. Technology has also created new ways of competing in established industries, such as betting exchanges in gambling, and enabled new business models in industries from aerospace to energy and automotive.

Actually, this journey of industry transformation began over 40 years ago – industry leaders have always exploited opportunities provided by IT – but this has probably accelerated since the turn of the century. Customer interactions and experiences are increasingly shaped by technology. Business processes and supply networks continue to be digitized. Companies are actively seeking out opportunities to harness so-called ‘big data’ and social media, deploy mobile apps, create new business models and ‘informatise’ their products and services. The public sectors of most countries are being similarly transformed as more and more services are being delivered through digital channels, taking out significant costs as well as improving their availability and access to citizens. Indeed, citizens are increasingly likely to judge public sector service performance against customer-centric commercial experiences and channels.

‘Digital’ is now an issue on the agendas of most Boards of Directors, chief executive officers (CEOs) and their leadership teams, although they differ in how they deal with it.² It is not the first time IS/IT has held this pole position: in the last 40 years it has happened several times, in waves, but each time executive interest waned quite quickly. The first wave of interest was probably during the 1980s when some organizations

began to look for opportunities to gain a competitive advantage from IT. The business re-engineering boom of the early 1990s also elevated IT as a means of taking out significant costs and improving efficiencies. The commercialization of the Internet later in the 1990s saw another wave, particularly for developing websites and e-commerce strategies and building electronic channels to customers and suppliers. The impending 'doom' that Y2K threatened also ensured that IT attracted serious, if negative, attention in the years leading up to the new millennium. More recently, big data, the cloud, social media and mobility, together with the Internet of Things and perhaps even the revelations about NSA snooping, have again elevated information technology to the top of the agenda. The challenge is to now keep it there.³

At the same time there have been mixed messages regarding the competitive potential of IS/IT. Nicholas Carr's 2003 article 'IT doesn't matter', published in the influential *Harvard Business Review*,⁴ had a devastating impact on business management interest and involvement in IS/IT. Carr argued that investment in IT, while profoundly important, is less and less likely to deliver a competitive edge to an individual company. 'No one would dispute that information technology has become the backbone of commerce,' Carr says, but 'The point is, however, that the technology's potential for differentiating one company from the pack – its strategic potential – inexorably diminishes as it becomes accessible and affordable to all.' We would agree with him that IT *per se* doesn't really matter, but how an organization chooses to harness it is critically important. But this is not how the argument was presented or, indeed, interpreted by many business leaders and it gave them the justification they needed to take it off the agenda.

It is now 14 years since the third edition of this book appeared. And while many things have changed, many others have stayed the same.

For one, we have changed the title of the book from *Strategic Planning for Information Systems* to *The Strategic Management of Information Systems*. We flagged this possible change in the concluding paragraph of the previous edition as it reflects more accurately what is required to successfully leverage information systems and technology (IS/IT). Success with IS/IT is only partly about having a comprehensive, coherent IS/IT strategy and a plan for its execution. Success also requires a sustained, strategic approach to managing all aspects of IS/IT from devising the strategy, through investment justification, to implementation and then using information, applications and technology effectively and beneficially. Even if an organization does not intend to seek any competitive advantage from IS/IT, it will still require a strategic approach to the management of IS/IT, if only to avoid being disadvantaged by the actions of others.

On many occasions over the years, we have been asked by our academic colleagues when the 'new' edition is to appear. One of the reasons frequently given for the question is that the references have become dated! We cannot deny it, but are also somewhat concerned when we hear it. Take the discipline of mathematics; some of its fundamental theorems and principles date back centuries, yet are as valid today as when first derived. Similarly, some of the seminal models and frameworks that we present in this book may date back decades, but just because they are seemingly 'old', this does not make them irrelevant. Sometimes the language needs to be modernized, but many of the basic messages and prescriptions remain as valid as ever. You will see many examples of such proven frameworks, findings and ideas throughout the book, as well as newer ideas and concepts.

Others have pointed to the enormous advances that have been made in IT since the last edition, especially for personal or social uses. We agree that the technological innovations have been impressive: cloud computing, analytics, social media, machine learning, the Internet of Things (IoT) and mobile are just some examples. But these are just technologies; for most organizations this is not where the problems usually lie. The challenge is, as it has always been, to harness these technologies in support of enterprise objectives and to create new strategies. *Where, when and how* to invest are the key questions that managers have to grapple with. This is why a digital or IS/IT strategy is required. That in turn depends on having an appropriate organizational environment that supports and promotes open, informed and effective conversations between business management and IS/IT specialists.

Since the third edition, the term *digital* has gained considerable traction. Many vendors, suppliers, analysts and consultants now promote their wares under the label of digital and would have you believe that it is somehow different from IS/IT of old. It is not. What most have done is simply replace what they previously called 'IT' by the 'digital' tag. For example, IT-enabled business transformation from the 1990s has now become digital business transformation. But, as we illustrate early in Chapter 1, the distinction between IS and IT (which is fundamental to our approach) is actually very powerful in understanding digital: we argue that 'digital' has both IS and IT components, and consequently throughout the book we use the labels IS/IT strategy and digital strategy interchangeably. To reflect this, we have given the book the subtitle *Building a Digital Strategy*.

The IT industry's relabelling of concepts to present them as either different or new is an irritating practice: data is now 'big data', decision support systems (DSS) are now analytics and so on. In 1985, Michael Porter and Victor Millar wrote an article in the *Harvard Business Review* titled 'How information gives you a competitive advantage'. In the piece they wrote about the impending data deluge which, if harnessed appropriately, could be a source of competitive differentiation. They didn't use the label 'big data' as it hadn't been invented, but if it had been around then we are sure they would have; instead, they used the label 'information revolution', a label that was *de rigeur* during the 1970s. Yet the message of the piece resonates with what is being written today about big data. The opportunities have increased due to the developments in technology, but the issues involved in successful exploitation have become no easier to resolve.

Since the third edition, much more has been learned about the practicalities of managing IS/IT strategically and the factors that influence the success of the process in both the short and the long term. This edition considers both the implications of the developments in IS/IT and the most useful of the recent thinking and experiences concerning both business and IS/IT strategic management. However, we believe that there is still a significant 'knowing-doing' gap; the knowledge of what should and can be done is well established, but the evidence is that it is unfortunately not followed in practice often enough.

Managing IS/IT successfully is perhaps even more difficult in today's environment of uncertainty, complexity and faster business change, combined with greater choices in the supply of IT services and infrastructure, than it was when we wrote the previous edition. The turbulence in both business and IS/IT environments may explain why, despite the increasing criticality of IS/IT for business, surveys continue to show that most organizations still struggle to deliver expected benefits from IS/IT

investments. Many more are still concerned that IS/IT expenditure does not produce demonstrable 'value for money'.

As stated in the preface to the first edition, the following problems can and often do still result from the lack of a coherent strategy for IS/IT investment, even some 25 years later:

- Business opportunities are missed; the business may even be disadvantaged by the IS/IT or digital developments of others.
- Application and infrastructure investments do not support the business objectives and may even become a constraint to business development.
- Lack of integration of applications and ineffective information management produce duplication of effort and inaccurate and inadequate information for managing the business.
- Priorities are not based on business needs, resource levels are not optimal and investment plans are consistently changed. Business performance does not improve, costs are high, solutions are of poor quality and value for money is low.
- Technology strategy is incoherent, incompatible options are selected and large sums of money are wasted attempting to fit things together retrospectively.
- Lack of understanding and agreed direction between users, senior management and the IS/IT specialists leads to conflict, inappropriate solutions and a misuse of resources.

It is against this background that this book considers how digital or IS/IT strategic management development can be brought about and then sustained. The intention is to provide a structured framework and practical approach, expressed primarily in the language of business and management. This can be used jointly by senior management, line managers and IS/IT professionals (and even suppliers) to combine their knowledge and skills to identify what needs to be done and how best to do it. Since new technologies continually come and go, the pursuit of opportunities through IT must be driven not only by what is technologically feasible but by what is strategically desirable. A key objective of this book is to provide this strategic focus for IS/IT. Clearly, an IS/IT strategy is an increasingly important component of the business strategy, which implies that IS/IT strategy development must become an integral part of the business strategy process and it must be understood and owned by the business management if it is to be implemented successfully.

Some companies, such as Uber, Facebook, Amazon and Alibaba, are born digital and are adept at leveraging information and innovating business models and customer experiences with technology. Usually, it is the more established companies, sometimes with long and successful histories, that need to embrace digital if they are to prosper in the future. Many still do not see information, systems and IT as core to their business and some even still see them as an administrative expense and a cost to be minimized. Consequently, they do not recognize the opportunities or the disadvantages they might be suffering. Others acknowledge that they need to manage IS/IT more strategically, but struggle to do it. This book is intended to help established companies 'embrace digital' and we hope that some of the content will also be valuable to the more technology-oriented companies. This is not just a book for CIOs and IT professionals and consultants; we see it as valuable reading for executives and managers from all business disciplines and types of organization.

Indeed, a fundamental message of this book is that business managers must play a central role if an organization is to be successful in managing IS/IT strategically.

We also know that the book is widely adopted in masters' degree programmes, as well as on MBA programmes and some undergraduate courses, and a range of executive education courses. This has made it somewhat of a challenge to write for two audiences. The former often do not have the same level of knowledge or practical experience as business managers and professionals, whereas the latter are often looking for frameworks and knowledge to make sense of situations that they have experienced.

In general, practitioners do not find academic research accessible and useful.⁵ This is often because the style of writing and structure demanded by journals can make it difficult to draw out relevant findings, transferable lessons and practical implications. We have to admit that we also struggle to find the relevance of some research that makes its way into journals! However, we have drawn extensively on findings from academic studies, but tried to describe and explain them in a way that it is both accessible and relevant. We recognize the contributions that these researchers and writers have made to the contents at appropriate points in the book. We hope that we have been able to bring it all together in a coherent and readable volume. Over the years, we have worked with hundreds of business and IS/IT executives and managers. Their knowledge, insights and experience and their use of many of the ideas, models and frameworks in this book have ensured that the approaches described can be applied successfully in practice.

Although the book is focused primarily on the strategic management of IS/IT in commercial organizations, and the language used generally reflects this, the majority of the content is equally applicable to government agencies, the public sector and not-for-profit organizations. As already mentioned, they are not immune from the opportunities that IS/IT provides nor from the need for a more strategic approach to IS/IT investments. While not operating in competitive marketplaces, they face many of the same issues and challenges in respect of IS/IT. We do present some examples and cases from the public sector; however, readers from non-commercial organizations will sometimes need to interpret what we write for their particular context. For example, usually when writing about 'the business', we are referring to organizations in the general sense; often what is said about customers as users of products and services can be equally applicable to citizens and patients in their interactions with a governmental agency or healthcare provider.

While the overall structure of the book is similar to the previous edition, we have improved the layout of the chapters and the index. We are aware that many readers dip in and out of chapters rather than read the book from cover to cover. Some readers may be interested in following up in more detail some of the points made, models used or research findings drawn upon – the extensive chapter endnotes will guide them to the original source. To help the reader navigate through the content of the book, Figure 0.1 illustrates the overall structure.

The book is essentially split into two parts. The first part, Chapters 1–7, is concerned with introducing and describing the content, context, nature and processes of IS/IT or digital strategy development and the associated tools and techniques. Chapters 8–11 address the issues involved in delivering operational and strategic benefits through the execution of the strategy, including managing IS/IT investments and risks in applications and infrastructure, organizing and governance, making sourcing decisions and managing the IS/IT supply chain.

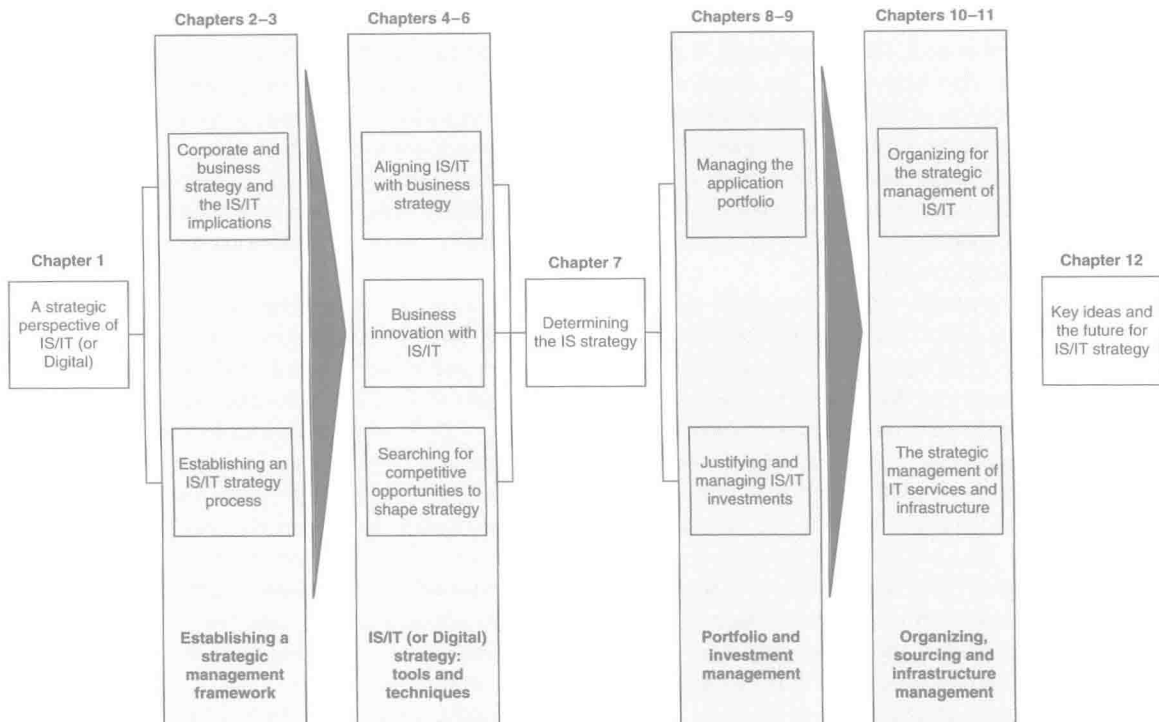


FIGURE 0.1 Overview of book structure.

Any organizational strategy needs to define ‘where we want to be in the future’ and assess objectively ‘where we are now’ in order to decide ‘how to get there’, given the alternative options and resources available and the changes needed. The first part of the book considers how an organization can assess where it is with regard to IS/IT, in the context of the current economic, social and business environment, and what the organization wants to achieve in the future. The business objectives and organizational issues must be interpreted, analysed and supplemented by creative thinking to identify potential innovations, so that the IS/IT strategy not only supports the business strategy but enhances it wherever possible and even creates new strategic options.

Chapter 1 sets the strategic context for IS/IT. It briefly reviews the evolution of the use of IS/IT in organizations and the impact it has had on industries, business models and competitiveness, including contemporary examples of ‘digital disruption’, leading to the latest thinking on the strategic role of IS/IT in organizations*. It provides a classification of the strategic uses of IS/IT as well as success factors in their development. The chapter also introduces some basic definitions and models that will frame the rest of the book.

(*For readers interested in more of the academic research on IS/IT strategy, it is discussed further in the early sections of Chapter 12.)

Chapter 2 provides an overview of what is involved in strategic management and the implications for IS/IT strategies, including sources of competitive advantage and the role IS/IT can play in their creation. It considers approaches, tools and techniques used in business strategy formulation and how they can be used to integrate

business and IS/IT strategic thinking and analysis. Chapter 3 considers what is involved in establishing an effective and comprehensive approach to IS/IT or digital strategy formulation and planning. This includes delineating roles and responsibilities, a theme which is picked up again in Chapter 10.

Chapters 4, 5 and 6 describe tools and techniques that can be used in the approach, with the emphasis on their practical application. The focus in Chapter 4 is on achieving alignment between the business and IS/IT or digital strategies, while Chapter 5 considers how organizations can build the capability to be innovative in their uses of IS, IT and information. Chapter 6 then describes ways of identifying opportunities to shape the business strategy through the application of IS/IT – how to assess its potential impact on industries, business relationships and competitive strategies. Chapter 7 is a summary chapter and brings together the ideas, models and techniques introduced in Chapters 2–6 to show how the ‘demand side’ of the strategy can be coherently developed and adjusted as circumstances evolve.

Chapters 8 to 11 consider how the range of requirements and demands can best be satisfied in terms of ‘supply-side’ strategic management. Chapter 8 describes ways in which the current and future portfolio of IS/IT applications, both individually and collectively, can be assessed in terms of their business contribution. The most appropriate means of managing each application and the mix required to manage the whole portfolio can then be selected. Chapter 9 presents approaches to justifying, evaluating and managing IS/IT application and infrastructure investments, including setting priorities to gain the best overall return and realize the maximum organizational benefits.

Chapter 10 discusses the strategic management aspects related to structuring and organizing resources and the governance of IS/IT. In particular, it addresses the question of where IS/IT should best be managed from, in order to establish the appropriate balance between centralized and devolved roles and responsibilities. The aim is to produce a relevant set of management policies and principles and a partnership between business staff and IS/IT specialists cooperating to achieve common goals. Chapter 11 reflects on some of the key strategic issues associated with the management of IT infrastructure and the provisioning of the different types of IT services needed to satisfy the organization’s application, information and technology requirements. Outsourcing is discussed in depth as well as the management approaches to address the risks associated with IS/IT.

The effects of IS/IT on every enterprise – its strategy, products and services, operations, relationships with customers and business partners and even its organization structure and management processes – are continuing, steadily and inexorably, to become more profound and complex year on year. Chapter 12 considers the longer-term implications of current trends and emerging issues, which will have a significant influence on organizations’ future business and IS/IT strategies and how they are managed.

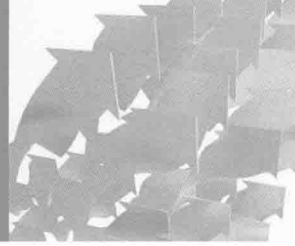
The overall purpose of the book is to demonstrate why the strategic management of IS/IT is essential to organizational success and that it is also feasible, even in times of increasingly rapid change. To obtain the whole range of benefits available from IS/IT and avoid the potential pitfalls, every organization must manage IS/IT as an integral part of its business strategy, to support that strategy and enable the creation of new strategic opportunities. The approaches described in this book are intended to enable greater understanding of both what needs to be done and how it can be done.

While the core principles and precepts of building a digital strategy are enduring, in the years between editions of this book we, and many others, continue to conduct research and work closely with organizations to develop new ideas and expand our understanding of the issues and challenges. Rather than have the reader wait until the 5th edition of the book appears to make these available, we will use digital channels to ensure this new content becomes accessible sooner. To this end we have set up both a LinkedIn Group (<https://www.linkedin.com/groups/8468959>) and a Facebook page (www.facebook.com/strategy4digital). We also hope that these platforms facilitate an ongoing conversation both with and amongst our readers and that together we will co-create content by posting relevant research, case studies and insights and experiences from practice. Additional material to supplement the book's core content and themes will also be available from www.joepeppard.com

Endnotes

1. B. Brown, J. Sikes and P. Willmott, 'Bullish on digital: McKinsey global survey results', *McKinsey Quarterly*, August, 2013, 1–8; *Ten IT-enabled Business Trends for the Decade Ahead*, McKinsey Global Institute, May 2013; M. Fitzgerald, N. Kruschwitz, D. Bonnet and M. Welch, *Embracing Digital Technology: A New Strategic Imperative*, MIT Sloan Management Review, Research Report, 2013; *High Performers in IT: Defined by Digital, Insights from Accenture's fourth High Performance IT Research*, 2013; *The Great Software Transformation: How to Win as Technology Changes the World*, Boston Consulting Group, 2013; and *The Digital Transformation of Industry: How important is it? Who are the winners? What must be done now?* A European study commissioned by the Federation of German Industries (BDI) and conducted by Roland Berger Strategy Consultants, Berlin. Undated.
2. See J. Peppard and J. Thorp, 'What every CEO should know and do about IT', under review at *California Management Review: The Customer-activated Enterprise: Insights from the Global C-suite Studies*, IBM Institute for Business Value, New York, 2013.
3. For example, McKinsey has recognized this and published an article about galvanizing the c-suite behind big data. See B. Brown, D. Court and P. Willmott, 'Mobilizing your c-suite for big data analytics', *McKinsey Quarterly*, November, 2013.
4. N. Carr, 'IT doesn't matter', *Harvard Business Review*, May, 2003, 5–12.
5. Despite all the IS strategy research that has been published, it has been asserted 'that practitioners largely ignore academic literature and do not use it in support of their SISP endeavors'. See R.A. Teubner, 'Strategic information systems planning: A case study from the financial services industry', *Journal of Strategic Information Systems*, 16, 1, 2007, 105–125.

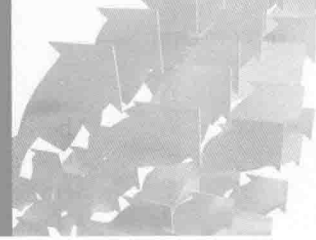
ABOUT THE AUTHORS



Joe Peppard is a Professor at the European School of Management and Technology, Berlin, Germany and an adjunct professor at the University of South Australia. The focus of his research, teaching and consulting is in the areas of leadership, strategy, innovation, organization design and business value realization in the context of digital technologies. Findings from his research have been widely published in academic and general business and management journals, including the prestigious *Harvard Business Review*, and he regularly presents his work at international conferences. Professor Peppard is also a Director of IT Alliance Group, an outsourcing and managed service provider, and a member of Ireland's eHealth Committee.

John Ward is Emeritus Professor at Cranfield University, School of Management. He was previously Professor of Strategic Information Systems and was Director of Cranfield's IS Research Centre from 1993–2004. He has published many papers in leading academic and business journals and is also co-author of *Benefits Management: How to Increase the Business Value of your IT Projects*, published by John Wiley. Prior to joining Cranfield he worked in industry for 15 years and he has acted as a consultant to a range of major international corporations and public sector organisations. He is a Fellow of the Chartered Institute of Management Accountants and served two terms as President of the UK Academy for Information Systems.

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1 The Evolving Role of Information Systems and Technology in Organizations: A Strategic Perspective

OUTLINE

- ◆ Information Systems (IS), Information Technology (IT) and 'Digital'
- ◆ 'Digital Disruption': The Impact of IS/IT
- ◆ A Three-era Model of Evolving IT Application in Organizations
- ◆ A Classification of the Strategic Uses of IS/IT
- ◆ Success Factors in Strategic Information Systems
- ◆ A Portfolio Management Perspective on IS/IT Investments
- ◆ What Is an IS/IT or Digital Strategy?
- ◆ From Strategic Alignment to Strategy Co-evolution
- ◆ Digital Strategies for the 21st Century: Building a Dynamic Capability to Leverage IS/IT

Most organizations in all sectors of industry, commerce, not-for-profit, and government are now fundamentally dependent on their information systems (IS) and information technology (IT). In industries such as telecommunications, media, entertainment, gambling and financial services, where the product is already, or is being increasingly, digitized, the very existence of an organization depends on the effective application of IS/IT. Since the commercialization of the Internet, the use of technology has become the expected way of conducting many aspects of business and some businesses exist purely online. Governments and public administrations have launched many digital services. The ubiquity of mobile devices and new forms of social media are raising consumer demands for immediacy of access and speed of response. The increasing pervasiveness of smart connected devices and 'things' of all kinds is opening up opportunities for new products and services, further operational efficiencies and new types of businesses and business models.

While organizations want to develop a more 'strategic' approach to harnessing and exploiting IS/IT, most have arrived at their current situation as a result of many short-term, 'tactical' decisions. Many would no doubt like to rethink their investments, or even begin again with a 'clean sheet', but unfortunately have a 'legacy' resulting from a less than strategic approach to IS/IT in the past; many organizations including banks, insurance companies and public administrations still depend on systems first developed over 30 years ago. Even investments that were once seen as