

Literature Review: Understanding Information Systems Strategy in the Digital Age



Abstract

- “Digitalization has fundamentally transformed the business world and put into question traditional strategy wisdom”.
- This led to the writing of the paper, where the writers undertook an in-depth, extensive review of the academic literature published between 2008-2018 on this topic.
- Five different directions of development of IT/IS strategy were identified.
- A debate on how digitalization challenges traditional IT/IS strategy wisdom is presented, enhanced with the discussion of topics such as digital innovation, digital ecosystems, and digital transformation.



Introduction

- Given the far-reaching socio-technological impacts, practitioners are intensely discussing the managerial challenges imposed by digitalization.
- Digitalization challenges strategy thinking in general, and has a profound impact on IT/IS strategy thinking.
- The reason is simple: it is information technology that levers digitalization.
- Digitalization challenges traditional notions of IT/IS strategy, thus providing impetus for the development of more contemporary conceptions of IT/IS strategy and their relations to business strategy.



Paper Research Questions

- **RQ1:** In terms of research activity: Does digitalization impact the debate on IT/IS strategy quantitatively? More specifically, has digitalization had an inciting effect on the interest and attention researchers pay to the strategic role of IT/IS?
- **RQ2:** In terms of topics and key concerns investigated: Does digitalization raise new questions for IT/IS strategy research? And does digitalization alter the way researchers frame known issues and well-researched problems concerning, for example, the competitive impacts of IT, the alignment of IT and business strategies, or strategy development?
- **RQ3:** In terms of the conceptualization of IT/IS strategy in research: Have definitions and conceptualizations changed in the context of digitalization? Even more fundamentally, does digitalization put into question our traditional perceptions of IT/IS strategy?

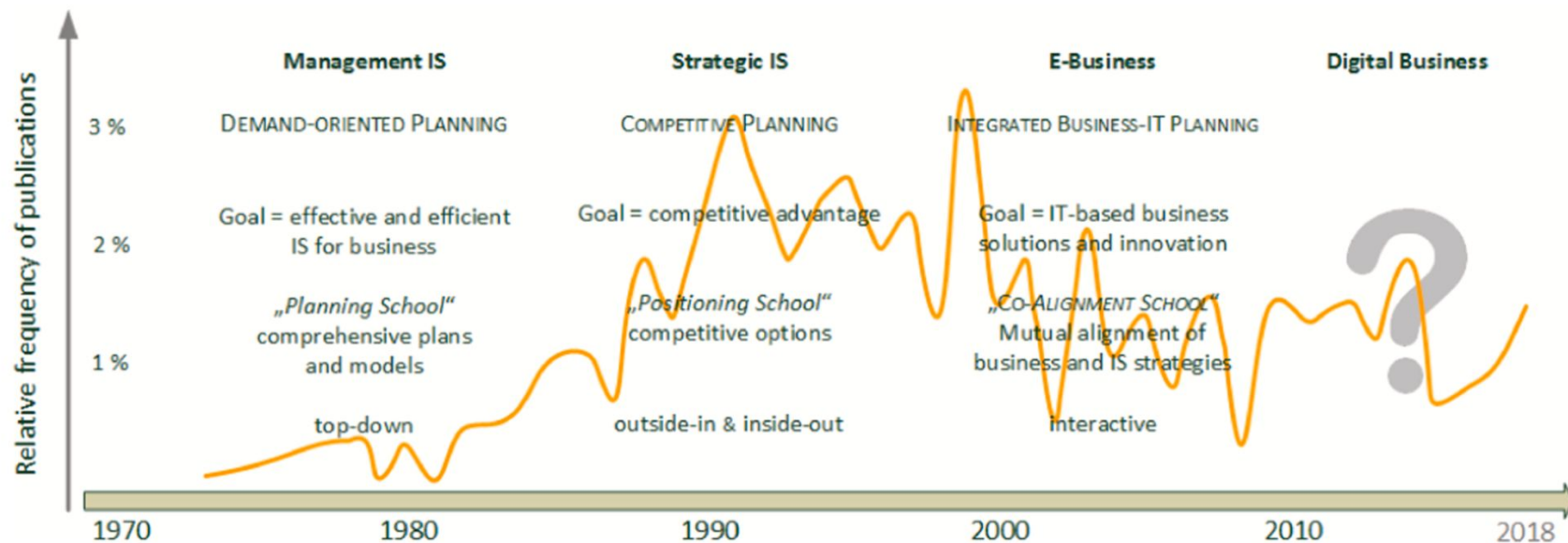


Research Question 1

To assess how digitalization impacted the discussion/debate of IT/IS strategy, the authors compared the publication activity from the years 2008-2018 to the previous decades.

- Early decade's publication information was gathered through the work of previous papers: Teubner and Mocker (2008) and Chen et al. (2010).
- Data from the last decade was obtained by searching for publications that contained the keywords “information”, “information technology”, or “information systems” together with the term “strategy”.

Research Question 1





Research Question 2

To begin to answer this question they extended the literature review beyond the controlled but small sample of leading IS and business management journals used for RQ1 to a larger body of literature.

Two approaches were combined to capture the specific influence of digitalization:

- the literature review from 2008 to 2018 focusing on the use of the terms "digitalization" and "digital transformation,"
- the formulation of a working definition of digitalization.

The definition of digitalization considered the interaction between digital technologies and the social and institutional processes that shape modern society and economy.



Research Question 2

IT/IS management textbooks were analyzed to understand how digitalization has influenced teaching about strategy. Textbooks already established in the market in editions three or higher were selected to ensure academic relevance and to allow analysis of changes made to editions over time.

The study showed that digitization has found its way into all the textbooks analyzed, but in different ways. They identified 141 research articles that contribute to the IT/IS strategy debate. The analysis of these articles showed that research on IT/IS strategy has changed from previous periods, but not in fundamental ways. Only a small proportion of the articles explicitly referred to the phenomenon of "digitization" in the title or abstract.



Research Question 2

Rather than having found a revolution in strategic IT/IS research, five new research trends were identified as an answer to our second research question

1. Researchers explicitly acknowledge that IT/IS strategy-making must not stop at the borders of the organization or industry, but should involve a broader, cross-industry business context.
2. Researchers pay specific attention to the accelerated environmental change driven by digital technologies.
3. While researchers have traditionally investigated the exploitation of IT in support of business strategies, IT/IS strategy is increasingly acknowledged as being corporate-wide and enabling business strategy. Accordingly, recent research is interested in the exploration of new valuable uses of IT as opposed to exploiting the potential of IT in known ways.



Research Question 2


4. We observed the tendency in the development of resource based theories to extend the view from IT resources and capabilities to business capabilities enabled by IT; these resources are not conceptualized as separate sets of IT assets and skills but are associated with co-specialized business capabilities, especially with those capabilities assumed critical in the digital age.
5. The concept of IT/IS strategy has widened to acknowledge the interconnectedness of business and IT. Some scholars even propose to replace IT/IS strategy with the broader concept of a “digital (business) strategy”.



Research Question 3

- In terms of the conceptualization of IT/IS strategy in research: Have definitions and conceptualizations changed in the context of digitalization?

The authors limit their scope to publications from the years 2008 to 2018 in order to respond to RQ3. The rise of digital technologies, they claim, has disrupted conventional business models and produced new opportunities and challenges that call for a different approach to IT/IS strategy. They contend that the conventional definitions and conceptualizations of IT/IS strategy are no longer adequate in the context of digitalization.



Given the quick speed of technical advancement and the growing significance of data and analytics in the digital age, IT/IS strategy needs to be more dynamic and adaptable. This necessitates a change from the conventional "IT-first" strategy, where technology decisions are made independently of business strategy. Instead, IT/IS strategy should be aligned with the overall business strategy, with a focus on generating value for the organization through the strategic use of technology.

Since digitalization opens up new possibilities for innovation in business models, goods, and services, the authors also underline the significance of innovation in IT/IS strategy. Organizations must acquire an entrepreneurial mindset and welcome experimentation and risk-taking if they want to succeed.



Does digitalization put into question our traditional perceptions of IT/IS strategy?

Insight 1: Digitalization made IT/IS strategy as departmental plan obsolete, however, does not void traditional strategy theory in general.

- A departmental plan concept of IT/IS strategy does not provide an adequate response to digitalization and digital transformation.
- Digital IT/IS is now at the heart of doing business.
- New Term: “**Digital Business Strategy**” (DBS) - more specific way to refer to new concerns in business strategy making raised by digital technologies.
- However, DBS is mostly perceived as a business rather than a technology strategy.

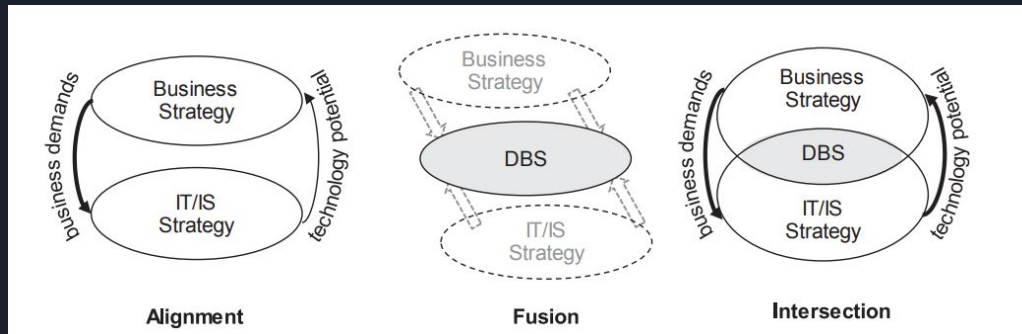



Insight 2: Digital business strategy (DBS) deals with new concerns in business strategy making that arise from digitalization.

- Digital technologies present the opportunity of making physical products smart and connected via global telecommunication infrastructures -> Internet of Things (IoT).
- Digital objects are able to generate data, that can become a key source of competitive advantage.
- Digitalization goes far beyond product and service innovations, changing how organizations create economic value within and between firms-> rise of **digital ecosystems**.
- Digital ecosystems are composed of “providers of complementary innovations, products, or services, who might belong to different industries and need not be bound by contractual arrangements”.
- These ecosystems are more dynamic than traditional supply chains as new firms can join and leave without putting value generation at risk.

Insight 3: Digital Business Strategy is not an upgrade of IT/IS strategy, however, IT is now vital for value creation.


- **Alignment:** classical view on the interrelation of business and IT/IS strategy. The business strategy puts demands on the IT/IS strategy, however it does not deny the possibility of technology enabling new business options.
- **Fusion:** rejects the idea of conceptually distinguishing IT/IS and business strategies, implying a “blurring of the distinction between business and IT strategies”.
- **Intersection:** digital technologies are directly and deeply involved in value creation as opposed to having a merely supporting role.
 - New management role called Chief Digital Officer (CDO) - act “as a buffer between the business and the IT unit”.






Insight 4: The development of the corporate information infrastructure as the original concern of IT/IS strategy will remain of utmost importance to research in the digital age.

- Information, systems, and technology are seen as components of a collective, technology-based infrastructure for organizational information and communication, which they term “**information infrastructure**”.
- IT/IS strategy research should keep its traditional focus on information infrastructure even under the changing conditions of digitalization.
- The platform is a long-standing concept in the context of product development. With digitalization came along the digital platform defined as a “set of digital resources – including services and content – that enables value-creating interactions between external producers and consumers”.
- Digital platforms are a typical information infrastructure concern and at the same time a core issue in DBS.
- Digital platforms must be scalable, flexible, and open to foster the positive network externalities that are the key to economic success, however they must be balanced with potential risks for platform reliability, integrity, and security.



Insight 4a: As digital infrastructures are becoming the backbone of digital business, they raise new questions for IT/IS strategy research, in particular concerning architecture and governance.

- There is much agreement in the literature that the trade-offs in platform architecture cannot be resolved on a technical level alone. Instead, they call for complementary solutions for platform governance.
- This highlights three governance concerns:
 - the distribution of decisions rights between the platform owner and other parties.
 - the control mechanisms to be used by the platform owner.
 - the incentive structures for co-operation.
- Organizations that intend to set up a digital infrastructure also have to make sure that they possess the skills and resources necessary to operate, maintain, and further develop such an infrastructure.
- In response to this issue, it is suggested the development of an “IT/IS management strategy”. This strategy answers the question of “who” takes responsibility for IT/IS in the organization and “guides how the organization should run IT/IS activities” -> **information function strategy.**



Insight 5: The particularities of digital infrastructure call for new capabilities and ways of organizing the information function, which is a derivative area of concern for IT/IS strategy in the digital age.

- Organizations that rebuilt their infrastructure for digitalization also reconfigured their IT/IS organization.
- “bimodal” or “two-speed” IT/IS function:
 - traditional - focus on stability.
 - agile - focus on speed and experimentation necessary to support innovative uses of IT in digital business contexts.
- In response to the growing strategic importance of architecture for building digital infrastructures, an increasing number of organizations have begun to develop unique competencies and set up dedicated teams for enterprise architecture management.
- Some companies opted for cloud sourcing allowing organizations to establish “lightweight” infrastructures by building on external (technical) resources.
- It is expected that IT/IS become more distributed across the organization and perhaps partly decentralized in business functions.



Conclusions

During the decade of 2008-2018 several new trends emerged such as supra-organizational strategies, strategies in turbulent environments and digital business capabilities. The analysis of several articles indicated that a fusion of business and IT/IS strategy would not work due to the fact an indistinguishable, comprehensive and coherent IT/IS strategy was deemed more vital in an increasingly digitalized world. The proposed concept of digital business strategy consists of an intersection between IT/IS strategy on information infrastructure while business strategy considers the challenges of said infrastructure in relation to ways of doing business.