Digital Strategizing: An Assessing Review, Definition, and Research Agenda

Abstract

This paper provides an assessing review and agenda for research at the 'nexus' between information systems and strategy practice. The review aims to understand the nature of this connection between the two domains, where information systems scholars strive to understand the everyday work of practitioners in organisations and the impact of digital technologies in strategizing, whilst strategy practice scholars seek a greater understanding of such technologies and their use by strategists. Despite a developing body of work relevant to both information systems and strategy practice, and several editorials calling for 'synergy', we still collectively know little about the state of knowledge at the nexus. To address this, our review identifies several constructs that provide linkages between information systems and strategy practice to reveal more about the current state of knowledge and to develop a formal definition for a domain which we call *digital strategizing*. We conclude by outlining an agenda to encourage and accelerate future research on digital strategizing.

Keywords: *Information systems; Strategy practice; Digital technology; Strategizing*

Introduction

The information systems (IS) and strategy fields have been interlinked for some time. IS researchers have been working on issues relating to strategy for several decades (Galliers, 1991; Gable, 2010), and as digitalisation within firms moves at pace, the strategy literature has seen an increasing appreciation of the pivotal role that information technology (IT) plays in the strategic management of organisations (Powell & Dent-Micallef, 1997; Haefliger et al., 2011). This has prompted a recognition of the relevance of IT, or what are often referred to as digital technologies, in everyday strategy practice and has highlighted the need for heightened collaboration among researchers in IS and strategy practice (Peppard et al., 2014; Whittington, 2014; Volberda et al., 2021). In the digital age, there is a need for IT to be taken seriously in strategy, with its management being "integrated into the mainstream activities of executives" (Galliers et al., 2012, p.85).

Whilst it has been observed that IS and strategy scholars hold mutual interests in the micro, or human, side of technology and strategy practice (what is often referred to as strategy work) in organisations which are thriving (Whittington, 2014; Marabelli & Galliers, 2017), we still lack understanding about the state of knowledge at this nexus. Peppard et al. (2014) have argued the theoretical case for the two domains to mutually focus on what IS practitioners do, such as the *technê* and *phronêsis*[1] of IS professionals, managers, and consultants. On the other hand, Whittington (2014, p.89) has stressed it is "high time" that strategy practice studies investigate the role of IT and materiality in strategizing, calling for recognition that topical and methodological interests with the IS field are complementary. In a similar vein, as part of their

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[1] Technê and Phronêsis are Greek philosophical terms with the former denoting craft, techniques, or skills, and the latter representing practical wisdom and learning. Peppard et al. (2014) deploy these terms as a critique of research in IS and strategy fields and to emphasise the need to understand how (IS) strategy is made through the craft and practical wisdom of practitioners.

explication of strategizing in a digital world, Volberda et al. (2021) have encouraged work on the adoption of digital technologies and how this impacts the practices of strategy-making, whilst Kohtamäki et al. (2021) have emphasised that the role of technology in strategizing is a key research area to harness diversity in strategy practice research. Whilst such commentaries have recognised potential for, and stimulated ideas between and across IS and strategy practice, we argue that as work continues to emerge it is now opportune to provide a robust review and agenda to drive and connect further work which brings digital technologies and strategizing into closer focus. To do so, scholars require conceptual clarity about this nexus and potential domain (Suddaby, 2010).

Despite the clear focus on the micro-level, when adopting a practice lens researchers are presented with a range of choices at the organisational level and unit of analysis, or what might be referred to as levels of praxis (e.g., meso and macro levels) (Jarzabkowski & Spee, 2009; Hughes & McDonagh, 2021). Such choices guide researchers and their capacity to craft a theoretical contribution. Practice approaches are underpinned by different theories and consequently offer many routes to theorising from studies of digital phenomena grounded in practice. The development of these unique research paradigms has shaped the criteria for theory building (Rivard, 2020) and the craft of contributing to knowledge (Corley & Gioia, 2011) across both the IS and strategy domains (e.g., Hirschheim and Klein, 1989; Prahalad and Hamel, 1994). Outlining a new domain is our overarching aim and contribution which involves stepping out of the dominant paradigm to connect with another thereby breaking free from the 'straitjacket or prison' (Miller, 2007) imposed by such paradigms. This considered, we build upon the calls for research at the nexus between IS and strategy practice to outline and map a new domain which we label 'digital strategizing' - this necessarily covers a range of areas

including the use of IS for strategy and strategizing, the mobilisation of strategic IS, and the formulation and implementation of specific (digital) strategies.

Ultimately, despite encouraging manifestos to conduct research (e.g., Peppard et al., 2014; Whittington, 2014), the extent to which researchers have been able to connect the domains remains unclear. We argue for the importance of strategy practice as helping researchers analyse the *doing* of strategy as it unfolds in organisations concerning IT or digital phenomena – unpacking this further as a domain and formalising a research agenda justifies our review. Our work seeks to provide clarity in three ways, and these act as three key contributions: first, we map existing works and identify pertinent constructs, that we label as themes in digital strategizing. These themes guide our understanding regarding the current status of the nexus. Second, we use the insights from our review to form a definition which captures these themes as the domain at the nexus we call digital strategizing, this being: "*A domain focused on the interplay between digital technologies and people at different levels of organisations in processes that form, transmit, implement, host, and support strategy*" [2]. Third, we shape an agenda to guide future research on digital strategizing. A review of this nexus is important because it enables us to evaluate more comprehensively the joint potential knowledge within the streams of research, and to craft sharper avenues for future work.

With our aims outlined, our intention is to answer the following two research questions:

1. What is the current state of knowledge at the nexus of information systems and strategy practice research?

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[2] We explain in detail how the definition was formed from constructs extracted from our selected journal articles for review in the findings and discussion sections.

2. What insights can be leveraged to develop a definition for, and inform future work on, digital strategizing?

The following sections provide the background to the origins of the IS and strategy practice nexus, outline our method and our adoption of an assessing review, and present the themes that emerged from our review and that constitute the building blocks of our definition of digital strategizing. We conclude by outlining an agenda for future research based on reflections on the current status of the journal articles reviewed.

The Origins of the Information Systems and Strategy Practice Nexus: Towards Digital Strategizing?

In this section, we emphasise that the connection between IS and strategy is not new. Indeed, various streams have linked the two fields. This has culminated more recently in moves towards better understanding practices in both IS and strategy, and in calls for the two fields to do so together (e.g., Peppard et al., 2014; Whittington, 2014). Fundamentally, better understanding this connection is essential because the majority of organisations have had their strategy transformed by contemporary information technology (IT) and the capabilities it unlocks.

By the late 1980s, the use of IT in major organisations had reached a relative degree of maturity, and many organisations possessed some level of IT resources. However, the precise application to organisational tasks, specifically their role as it related to organisational strategy, was varied and just beginning to emerge (Somogyi & Galliers, 1987). By the 1990s, however, the strategic significance of IT was recognised as fundamental to building core strategic capabilities of firms (Itami & Numagami, 1992). It was at this point that IT began to emerge as central in value creation; there was recognition of ways in which information can give firms a competitive

advantage. It was argued that IT encompasses more than just tangible hardware resources, and that it played a key role in the information, management, and strategic potential of a firm.

The resource-based view (Barney, 1991) further invited inspection of IT as a core strategic resource and explicated the uniqueness of IT-enabled capabilities (Wade & Hulland, 2004). Throughout the 1990s, IT became fundamental to value creation,, which went further than simply possessing IT capabilities. A focus on the internal processes of firms invited closer investigation of the role of IT to organisational knowledge and learning (Pentland, 1995; Xu & Ma, 2008). Firms aligned the use of IT to business strategy, which presented the opportunity for capability building and superior coordination within, and between, value chains (Karpovsky & Galliers, 2015). These developments have also been discussed through the concept of digital business strategy. Here, it is argued that rather than alignment, which views IT strategies at a lesser, functional level, there is a fundamental fusion between business and IT strategies where both are equally important in organisations (Bharadwaj, et al., 2013; Teubner & Stockhinger, 2020).

The close relationship between IS and strategy has led to closer inspection of how IT-enabled capabilities are developed in use, including addressing epistemological differences between fields and their treatment of work practices and IT (Orlikowski & Barley, 2001). In this regard, we have observed a growing overlap between IS research and the strategy practice domain where there is a mutual interest in the micro (human) side of technology and strategy work in organisations, and explication of (IT-driven) strategizing (Johnson et al., 2003; Marabelli & Galliers, 2017). This "synergy" between the domains (Whittington, 2014, p.87) is evident as IS and strategy practice scholars have investigated how contemporary technologies influence everyday strategy activities. Areas of interest include the utilisation of ubiquitous strategy

tools-in-use (e.g., Knight et al., 2018); materiality in strategy work (e.g., Leonardi, 2015); and exploration of IT-enabled participatory forms of strategizing (e.g., Tavakoli et al., 2017). Further, we have witnessed an increase in attention to more interdisciplinary work between IS and strategy practice; this has taken place through, for example, specific tracks and symposia at leading conferences in the respective fields[3].

Studies focused on strategy practice have significantly improved our understanding of strategizing and the increasingly ubiquitous role of IT. While there is no agreed-upon theory in such studies of strategizing, a consistent vocabulary has emerged. This consists of three dimensions or three 'Ps'[4]: *practices* ("shared routines of behaviour, including traditions, norms and procedures for thinking, acting and using 'things'"), *practitioners* ("strategy's actors, the strategists who both perform this activity and carry its practices"), and *praxis* ("actual activity, what people do in practice") (e.g., Whittington, 2006, p.619). The difference between *practices* and the Greek word *praxis* follows Reckwitz's (2002) interpretation of the dual sense of practice in social theory, both as something that guides activity and as activity in itself (Whittington, 2006; Jarzabkowski et al., 2007) and as such there is an important distinction between the two. This distinction can be usefully explained by Feldman and Pentland's (2003, p.101) ontology of routines in which they outline two complementary conditions – ostensive and performative - required for the existence of organisational routines. First, the ostensive aspect of a routine represents "the ideal or schematic form of a routine. It is the abstract, generalized idea of the routine, or the routine in principle". The ostensive aspect has been

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[3] For example: '*Big Data and Managing in a Digital Economy*' (Academy of Management Specialized Conference, 2018), '*Designing the Future: Strategy, Technology, and Society in the 4th Industrial Revolution*' (Strategic Management Society Special Conference, 2020), and '*Governance, Strategy, and Value of IS*' (International Conference on Information Systems, 2020).

[4] Studies often refer to their focus on 'strategy practice' or sometimes more specifically on 'strategy as practice', both of which align to this consistent vocabulary. In this review paper, we use the former terminology as it is better representative of the 71 journal articles selected in our review.

likened to strategy practices in organisations as it represents a routine as it is "supposed to happen" (Johnson et al. (2007, p.26). Second, the performative aspect of a routine denotes "specific actions, by specific people in specific places and times. It is the routine in practice". This aligns with Whittington's (2006) definition of strategy praxis, which refers to actual activities and the relationship between how people perform an activity and the organisational context in which such activity occurs (Johnson et al., 2007). Feldman and Pentland (2003) also posit that the performative aspect will affect and amend the ostensive and the ostensive aspect serves to guide and account for the performative. There is an important relationship between the actions and behaviour of people in relation to the formalised practices with which they engage. Overall, the 'three Ps' have been adopted as a consistent vocabulary which offer researchers choice (and clarity) for the unit of analysis in their efforts to research strategy practice.

We review existing work to understand the current state of knowledge at the nexus of IS and strategy practice research and use these insights to outline and define this domain as digital strategizing. Our review that follows outlines encouraging areas that will help to guide further work on digital strategizing.

Method

We conducted an assessing review with an objective and focus of synthesising existing literature on IS and strategy practice (Leidner, 2018). This enabled us to provide an evaluation of digital strategizing and develop a research agenda based on our assessment of the research conducted at the IS/strategy practice nexus. Our assessing review also enabled us to unpack the qualities and potential deficiencies of the literature. The relevance of this review method is

further justified as it allowed for a comprehensive snapshot of prior studies, as well as to show where key debates exist and suggest future directions for research. We followed Okoli's (2015) eight-step guide which applies to assessing reviews (Leidner, 2018). Specifically, this guide suggests that a rigorous and broadly reproducible review must have a clear methodological approach, be explicit in explaining the procedures by which it was conducted, and be comprehensive in its scope by including all relevant material. Before the review began all authors were involved in thorough discussions on the adopted protocol: we discussed keywords and sources and we experimented with methods of coding and synthesis (Okoli, 2015) as detailed throughout the following sections.

Sources and keywords

Considering the aims of our review, our literature search logically focused on high-ranked IS and strategy journals, whilst also considering top-tier management and organisational studies outlets. This was a key step in identifying the purpose of our review and our goal to better understand and define digital strategizing as a domain; it also helped us to appraise the quality of the selected journal articles (Okoli, 2015). To check our coverage, we included a small number of articles from additional outlets (see *Appendix A*). We considered articles published from 2003 onwards, as this is the point where the 'practice turn' started to enter the lexicon of both fields (e.g., Johnson et al., 2003). We chose not to consider conference papers as their developmental nature meant they contained substantial overlap with published works. The set of keywords that formed the search terms used in our review and the selected journals are listed in *Appendix B*. We started by using a broad search term, followed by more specific searches, and removed duplicate results where appropriate. We then reviewed articles in more depth to

evaluate their relevance to both domains, and also performed a backward analysis to include any missed studies cited in the selected articles that satisfied our criteria.

Exclusion criteria and organising framework

Our search yielded 1128 results, which we narrowed using a set of exclusion criteria. These exclusion criteria were built from existing definitions relating to both IS and three established dimensions of strategy practice. The exclusion criteria were also utilised as our a-priori organising framework, as is common in assessing reviews (Leidner, 2018). In the selection process, articles had to be relevant to IS and to at least one of the three strategy practice dimensions for the article to address the nexus between the two domains, as shown in *Figure 1*. This acted as a practical screening tool for inclusion (Okoli, 2015).
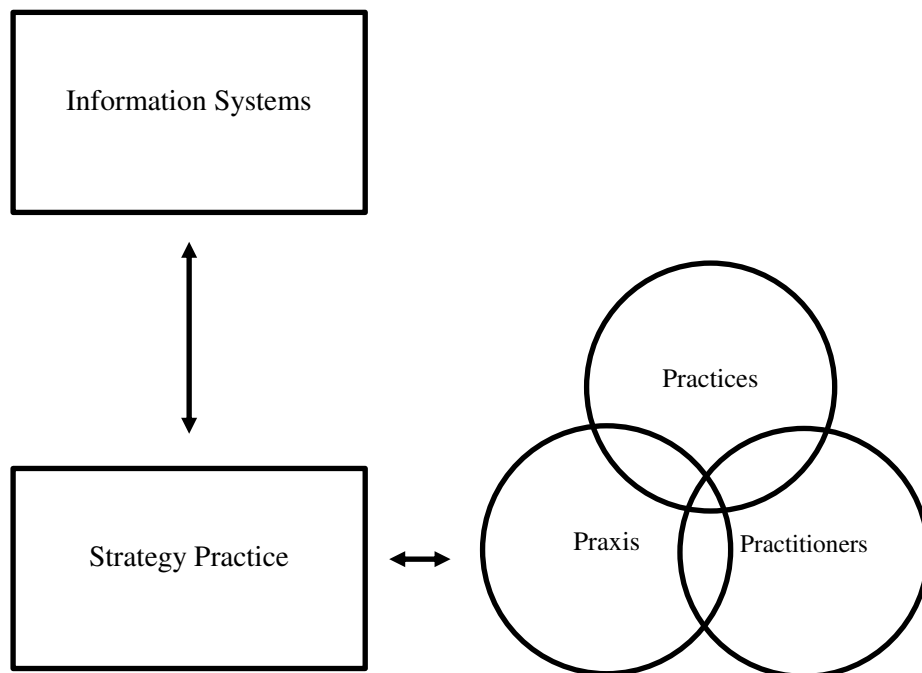

Figure 1: Information systems and strategy practice as exclusion criteria for article selection and an a-priori organising framework

In considering the relationship between strategy practice dimensions, we followed the example of Jarzabkowski et al. (2007, p.10-11) who state that: "while any research question will unavoidably link all three (strategy practices, practitioners, and praxis), empirically there will be different dominant areas of focus […]. For example, a study may foreground the interconnection between practitioners and praxis, whilst back-grounding the practices". It is the foregrounded dimension(s) that were used to appraise and later code the articles included here.

In our first round of review, we read the titles and abstracts of the articles to check whether the terms had been used to articulate our intended meaning of IS and strategy practice. At this stage, we excluded articles using the term 'practice' to reflect a meaning other than those in, for example, 'strategy as practice' or 'practice theory' (e.g., practice implications, or untheorised relevance to practice, which are not the focus of this review): we also excluded articles in which digital technologies were not a core concept. This exclusion of articles yielded 216 potential articles from the initial search results. After closer coding, we excluded 153 articles leaving a total of 63 articles. We continued searching whilst our paper was in the review process and identified a further eight articles that qualified for final inclusion. The final 71 articles across 17 journals have been read in full. Overall, these steps demonstrate comprehensiveness in the search for literature (Okoli, 2015). A full list of articles, including their composition, is included in *Table 1*.

Journal domain	Articles at the nexus	Number of empirical: quantitative	Empirical: quantitative articles	Number of empirical: qualitative	Empirical: qualitative articles	Number of conceptual	Conceptual articles	Journals included
Information Systems	27	0	N/A	18	Aversa et al. (2018); Amrollahi & Rowlands (2017); Amrollahi & Rowlands (2018); Arvidsson et al. (2014) Baptista et al. (2021) Barrett et al. (2016); Chanias et al. (2019) Henfridsson & Lind (2014); Huang et al. (2014); Huang et al. (2015); Hughes & McDonagh (2021); Karanasios & Slavova (2019); Kwayu et al. (2018); Leonard & Higson (2014); Morton et al. (2020); Schlagwein & Hu (2016); Shollo & Galliers (2016); Tavakoli et al. (2017).	9	Cecez-Kecmanovic et al. (2014); Karpovsky & Galliers (2015); Loebbecke et al. (2016); Marabelli & Galliers (2017); Marabelli & Newell (2012); Newell & Marabelli (2015); Peppard et al. (2014). Schlagwein et al. (2017); Whittington (2014).	Information and Management; Information Systems Frontiers; Information Systems Journal; Information Systems Research; Information Technology and People; Journal of Information Technology; Journal of Strategic Information Systems; MIS Quarterly
Strategy, Management, and Organisational Studies	44	2	Hutter et al. (2017); Thomas & Ambrosini (2015).	30	Arnaud et al. (2016); Azad & Zablith (2020); Baptista et al. (2017); Belmondo & Sargis-Roussel (2015); Burger-Helmchen & Cohendet (2011); Demir (2015); Denyer et al. (2011); Dobusch & Kapeller (2018); Dobusch et al. (2019); Gegenhuber & Dobusch (2017); Järvenpää & Lang (2011); Jarzabkowski et al. (2015); Kannan-Narasimhan & Lawrence (2018); Kaplan (2011); Kaplan & Orlikowski (2013); Knight et al. (2018); Knight et al. (2020); Leonardi (2015); Luedicke et al. (2017); Malhotra et al. (2017); Mantere & Vaara (2008); Morton et al. (2018); Mount et al. (2020); Neeley & Leonardi (2018); Paroutis et al. (2015); Plotnikova et al. (2020); Stieger et al., (2012); Wenzel & Koch (2018); Werle & Seidl (2015); Whittington et al. (2017).	12	Burgelman et al. (2018); Chesbrough & Appleyard (2007); Dameron et al. (2015); Haefliger et al. (2011); Hautz et al. (2017); Jarzabkowski & Kaplan (2015); Jarzabkowski & Pinch (2013); Plesner & Gulbrandsen (2015); Vaara & Whittington (2012); Volberda et al. (2021); Whittington (2015); Whittington et al., (2011).	Academy of Management Annals; British Journal of Management; California Management Review; Long Range Planning; Organization Science; Strategic Management Journal; Strategic Organization; M@n@gement; Organization Studies
Totals	71	2		48		21		

Table 1: Composition of *selected articles by journal domain, journals included, and empirical or conceptual focus*

Because we were reviewing research from two distinct domains, each with its journals, we included the focus of the journals publishing the 71 articles in our review. We do not argue that any single journal represents exclusively one domain or the other; certainly, information systems scholars publish in strategy journals and strategy scholars publish in systems journals (and they sometimes publish together). However, whilst it may seem intuitive that the relationship between IT and strategy is well-established, engagement with digital strategizing at the intersection between IS and strategy practice remains nascent, hence why a relatively small number of articles are included in our review.

Synthesis of literature

We started with a deductive analysis, in which the articles were coded according to the a-priori framework (Leidner, 2018) incorporating IS and strategy practice dimensions (*Figure 1*). This supports our aim to map the current state of knowledge in digital strategizing and in order to identify potential avenues for future research. At this stage, we engaged in a more comprehensive, iterative process of coding the 71 selected articles and their relevance to a number of emerging themes. An essential step was to synthesise and extract 'facts' from studies by adopting an appropriate and reproducible technique (Okoli, 2015). We organised these within a 'codebook' for all authors to access and discuss, and we set regular times to go through and agree upon all codes (which referred to dimensions of practice and relevance to IS). In tandem, we compiled an overview for each article comprising the article's abstract and a short summary based on our own full reading and interpretation. This provided 46 pages of analysis, comprising nearly 19,000 words. This was a crucial means to extract data from each of the articles and to understand them through our own interpretation (Okoli, 2015). We extended our

codebook based on this overview and added additional details based on the broad focus of each article. We read each thoroughly and coded them based on both IS and each dimension of strategy practice (e.g., practice technology, practice tools, participating practitioners, and the nature of praxis) so as to gain a more granular view of the themes within the nexus and to prepare us for writing the review in sufficient detail (Okoli, 2015).

Findings

In our findings, we present the themes found in the final pool of studies. These themes are explained with regard to how researchers establish and explain relationships between IS and the dimensions of strategy practice: *practices, practitioners,* and *praxis*. The linkages, or verbs (e.g., enable, transmit, host), between themes emerged throughout our analysis and demonstrate the ways in which these themes are present in the literature. We identify the themes that show how they affect strategy in different ways (Markus & Rowe, 2018). As each theme is a construct which we are identifying from our review, we also provide a definition for each in this section to identify and evidence the building blocks of our later definition of digital strategizing.

Digital strategizing practices

We identified three unique themes related to practices, which are summarised in *Figure 2*. First are *strategy artefacts* that have a linkage where they are integrated into the work of enabling strategy (such as strategy formulation and implementation); second is *strategy objects* which are involved in transmitting strategy; and third is *strategic information systems* which support the overall strategy of firms and outcomes associated with strategy.
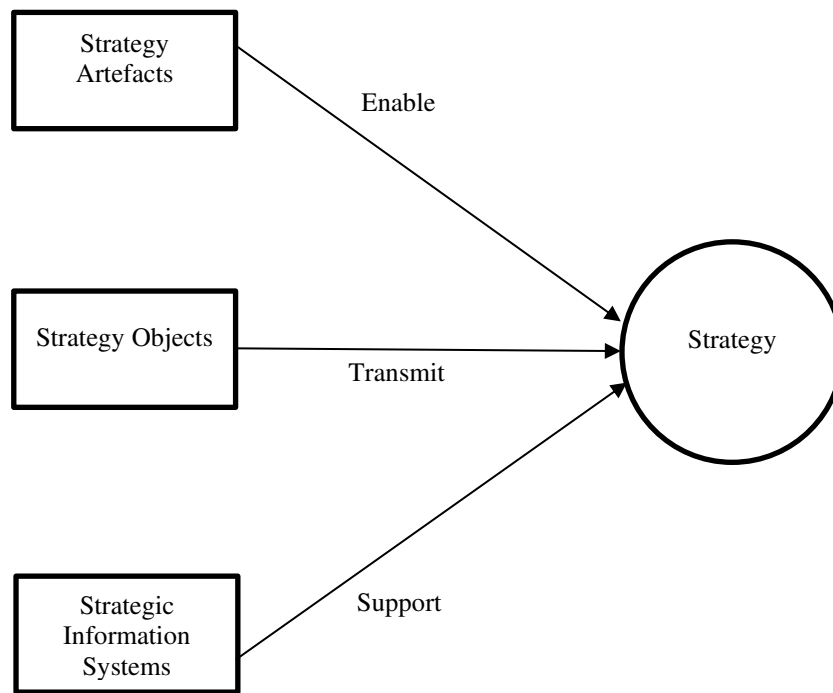
Figure 2: Three themes for digital strategizing practices

The first and most common theme, *strategy artefacts*, represents the range of technologies at play in enabling various facets of strategy work, including the formulation (Mantere & Vaara, 2008; Leonardi, 2015; Volderba et al., 2021) and implementation (Chesbrough & Appleyard, 2007; Dobusch et al., 2019; Morton et al., 2020) of strategy. In our review, we identified various strategy artefacts - technologies that have a role in enabling strategy. Examples include electronic spreadsheets and documents, such as Excel, which are used for formulating annual strategic planning programmes (Demir, 2015), and presentation software, such as PowerPoint, which is used for the discussion of complex strategy issues and in the knowledge production processes of strategizing (Kaplan, 2011; Knight et al., 2018). It has been argued that the "massification of strategy" (Whittington, 2015, p.13) has occurred, at least in part, through web-based material artefacts. Other examples of artefacts in articles we identified include broad social media and software (Denyer et al., 2011; Haefliger et al., 2011; Huang et al., 2015;

Baptista et al., 2017) and online community and crowd platforms (Barrett et al., 2016; Dobusch & Kapeller, 2018; Hautz et al., 2017; Malhotra et al., 2017). This first theme extends beyond software or platforms to include a more specific focus on the use of hardware, such as computers, projectors, automated kiosks, and mobile devices and their role in enabling strategy (Jarzabkowski & Pinch, 2013; Paroutis et al., 2015; Plesner & Gulbrandsen, 2015; Baptista et al., 2021). All of these artefacts were found to enable strategizing practices and to contribute to strategy in organisations. Research has long embraced practice theories to move away from a focus on designed properties of technologies and towards what people actually do with them in their ongoing and situated activity (Orlikowski, 2007). In the digital strategizing domain, we found that researchers are beginning to follow suit in examining the role of these artefacts in enabling strategy. Werle & Seidl (2015, p.67) have considered, however, that artefacts are not necessarily 'digital' in nature and that digital technologies as artefacts come under the "the stuff of strategy" as a term covering both digital and analogue artefacts (e.g., flipcharts, whiteboards, physical meeting minutes) and analysis of how they interact together.

Second, existing literature has considered text and speech as *strategy objects* that are used to transmit strategy. Included here are the articles we found that had an explicit focus on how aspects of strategy are documented, distributed, and communicated. There were a notable number of articles, for example, detailing the practices intersecting human and IT agencies in firms and how these assemblages permeate every aspect of organisational strategy and guide realised strategic 'objects' (Belmondo & Sargis-Roussel, 2015; Dameron et al., 2015). These consist of both IT and analogue technologies, 'new media' (Plesner & Gulbrandsen, 2015), and resources associated with text, speech, and materiality which are essential for strategy being

transmitted. For instance, digital visualisation materials have been studied regarding how they influence the realisation and enactment of strategy (Azad & Zablith, 2020). Further, studies have explored the role of texts in strategy discourse and sense-making by middle managers (Arnaud et al., 2016) and how blogs are used to communicate strategy-related issues inside and outside growing ventures (Gegenhuber & Dobusch, 2017). Others have uncovered materiality, which involves hardware, such as laptops and mobile devices; strategists use these to share objects (Whittington, 2015), to give technology demonstrations, and to deliver keynote speeches designed to communicate strategic messages (Wenzel & Koch, 2018).

Lastly, we identify *strategic information systems* that have a role in supporting strategy, broadly by helping firms as they work towards achieving their strategic goals and outcomes. Specifically, extant work has unpacked how technologies and associated practices support strategies that incorporate or demonstrate specific firm capabilities (Marabelli & Galliers, 2017; Kannan-Narasimhan & Lawrence, 2018). Digital technology is related to success in complex strategic knowledge sharing processes (Loebbecke et al., 2016; Shollo & Galliers, 2016; Schlagwein et al., 2017), and has an impact on the competitiveness and performance of organisations (Kwayu et al., 2018). Further, practices emerge in firms relating to issues of IT-business alignment (Karpovsky & Galliers, 2015) or as a result of IT-mediated activities, which produce outcomes such as emerging strategy contents (Henfridsson & Lind, 2014) or increased absorptive capacity (Schlagwein & Hu, 2016). Another example is that the very performativity and the "practice of deciding" through strategic IS can support the competitive sphere and industries in which they operate (Aversa et al., 2018, p.222). Organisations might, however, also fail to realize the intended value from strategic IS such as in processes of strategic change

and instead can encounter 'strategy blindness' (Arvidsson et al., 2014). Overall, we find that articles in this theme are more explicit in outlining how technologies do or do not support strategy and also connect practice to more specific strategy outcomes including capabilities (Schlagwein & Hu, 2016), strategy contents (Henfridsson & Lind, 2014), alignment (Karpovsky & Galliers, 2015), and competitiveness (Aversa et al., 2018).

In *Table 3*, we detail a complete list of the sources relevant to the three themes for digital strategizing practices and a definition for each of these themes as a construct in our work.

Digital strategizing practices		
Theme: Artefacts		
Source type	**Sources**	**Definition of construct**
Empirical	Amrollahi & Rowlands (2017); Amrollahi & Rowlands (2018); Baptista et al. (2017); Baptista et al. (2021); Barrett et al. (2016); Chesbrough & Appleyard (2007); Demir (2015); Denyer et al. (2011); Dobusch & Kapeller (2018); Dobusch et al. (2019); Haefliger et al. (2011); Hautz et al. (2017); Huang et al. (2015); Kaplan (2011); Knight et al. (2018); Leonardi (2015); Luedicke et al. (2017); Malhotra et al. (2017); Morton et al. (2018); Morton et al., (2020); Neeley & Leonardi (2018); Paroutis et al. (2015); Plotnikova et al., (2020) Tavakoli et al. (2017); Volberda et al. (2021); Werle & Seidl (2015).	Technologies that enable formulation and implementation of strategy.
Conceptual	Burgelman et al. (2018); Dameron et al. (2015); Haefliger et al. (2011); Hautz et al. (2017); Jarzabkowski & Kaplan (2015); Jarzabkowski & Pinch (2013); Mantere & Vaara (2008); Plesner & Gulbrandsen (2015); Vaara & Whittington (2012); Whittington (2014); Whittington (2015); Whittington et al. (2011).	
Theme: Objects		
Source type	**Sources**	**Definition of construct**
Empirical	Arnaud et al. (2016); Azad & Zablith (2020); Belmondo & Sargis-Roussel (2015); Gegenhuber & Dobusch (2017); Jarzabkowski et al. (2015); Kaplan & Orlikowski (2013); Karanasios & Slavova (2019); Knight et al. (2020); Morton et al., (2020); Wenzel & Koch (2018).	Forms of text, speech, and software and hardware that transmit strategy.
Conceptual	Plesner & Gulbrandsen (2015); Whittington (2015).	
Theme: Strategic information systems		
Source type	**Sources**	**Definition of construct**
Empirical	Arvidsson et al. (2014); Aversa et al. (2018); Chanias et al. (2019); Henfridsson & Lind (2014); Hughes & McDonagh (2021); Kannan-Narasimhan & Lawrence (2018); Kwayu et al. (2018); Leonard & Higson (2014); Schlagwein & Hu (2016); Shollo & Galliers (2016).	Technologies that support strategy and its outcomes.
Conceptual	Karpovsky & Galliers (2015); Loebbecke et al. (2016); Marabelli & Galliers (2017); Marabelli & Newell (2012); Peppard et al. (2014); Schlagwein et al. (2017).	

Table 3: Themes for digital strategizing practices, relevant sources, and construct definitions

On reflection, practices, as outlined here, and the intersection with IS demonstrates a stream of research that has extensively examined how strategy formulation, implementation, and action over time is enabled, transmitted, and supported by technology; often it is through IT that strategy-making is accessed and performed (Jarzabkowski & Kaplan, 2015; Werle & Seidl, 2015). Whilst attention has only recently shifted to looking within the monolithic frameworks, theories, and assumptions in IS and strategic management to understand digital strategizing, the 'practice turn' in strategy (Whittington, 2006) has signalled researchers' engagement with the argument that digital technologies are relevant to the strategic use of various artefacts, objects, and strategic information systems.

Digital strategizing practitioners

A selection of studies have explored how the strategy work of various organisational practitioners (e.g., top managers, middle-managers, strategy professionals, and IT staff) is changing, or being influenced by, the use of IT. *Figure 3* summarises the practitioner themes in digital strategizing. As this figure shows, our review identifies two broad practitioner themes, with a focus on how strategy is developed by strategy practitioners using IT and how erstwhile non-strategy practitioners participate in strategy through IT.
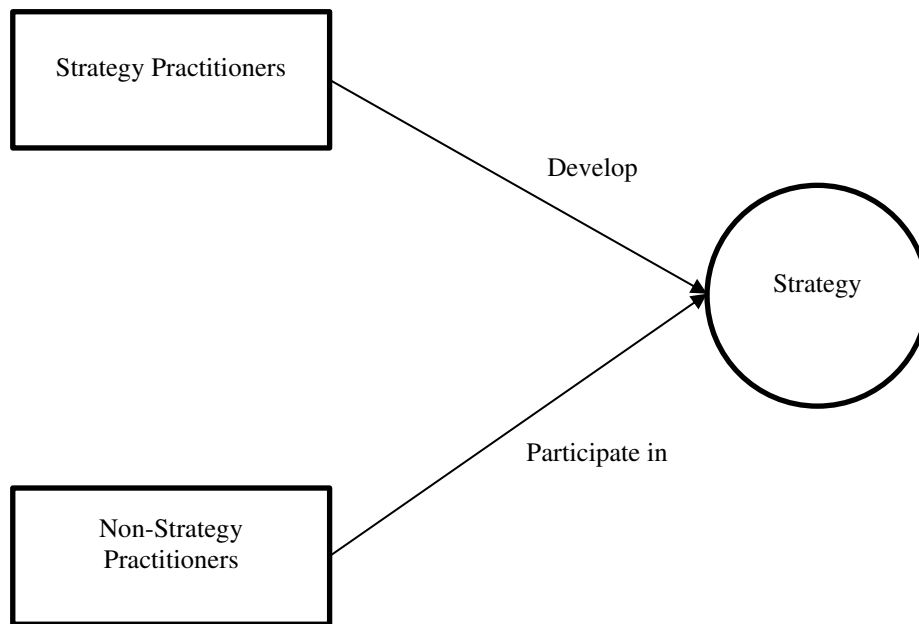
Figure 3: Two themes for digital strategizing practitioners

First, *strategy practitioners* are organisational actors who are traditionally expected to be involved at the forefront of strategizing. We found that our reviewed articles which focused on these practitioners were concerned with various aspects of strategy development. A dominant focus in this theme was on various types of senior or c-suite-level managers in firms (Whittington et al., 2017; Burgelman et al., 2018) and the "social systems in which strategies are shaped" (Demir, 2015, p. 125). For example, groups of leaders in organisations who have a specified role and expertise, such as IT-leaders, form a focus in how they help organisations to be more strategically agile (Morton et al., 2018). There has been a focus on how middle managers use IT to develop and support various practices of control to assist strategy development in volatile environments (Thomas & Ambrosini, 2015). Leonard & Higson (2014) addressed the composition of top management teams and their skills in utilising specific forms of IT to reach organisational goals. There were also a limited number of articles that paid closer attention to strategy practitioners in relation to the role of IS strategizing (Peppard et al., 2014). Essentially, the focus here is on how IS strategies or certain technologies are developed in

organisations, such as how sub-community groups formulate the production of IS strategy contents through IT mediated activities over time (Henfridsson & Lind., 2014), or how strategists practice strategic information systems planning across different organisational levels (Hughes & McDonagh, 2021).

Second, we uncovered several studies involving *non-strategy practitioners* – those actors whose role does not typically entail direct participation in strategizing. For example, several articles have detailed the inclusion of specific non-strategy practitioners, both internally (such as employees) (Hutter et al., 2017) and externally (such as customers or members) (Whittington et al., 2011). Such studies outline how IT, including social media and web-based surveys, guide a heightened level of democracy regarding strategic conversations in organisations (Hautz et al., 2017). Some of the arguments here have grouped the actors involved in strategy quite broadly, addressing topics such as how ad-hoc crowds interact on online platforms to mitigate knowledge gaps (Malhotra et al., 2017), whilst other articles have focused on more precise details of the strategizing activities involving operational-level managers (Mantere & Vaara 2008; Hughes & McDonagh, 2021) or front-line employees (Azad & Zablith, 2020). The impact of participation by these non-strategy practitioners is also a nascent focus. For example, some studies have considered participation and types of legitimacy as an impact of open strategizing (Luedicke et al., 2017; Plotnikova et al., 2020), whilst others have contemplated refinement and better adoption of a strategic plan as an outcome for firms from the use of IT in strategizing (Morton et al., 2020). Away from this dominant theme, other articles have explored non-typical practitioners and their interaction with strategy processes, such as how user communities act as a strategic resource for firms in relation to product development, and

how specific ICT-mediated strategic practices are used by development actors in the agriculture

sector (Karanasios & Slavova, 2019).

Table 4 details the two themes for digital strategizing practitioners, along with a list of sources

and our definition for the strategy practitioners and non-strategy practitioners constructs.

Digital strategizing practitioners		
Theme: Strategy practitioners		
Source type	**Sources**	**Definition of construct**
Empirical	Arnaud et al. (2016); Belmondo and Sargis-Roussel (2015); Chanias et al. (2019); Henfridsson and Lind (2014); Hughes & McDonagh (2021); Jarzabkowski et al. (2015); Knight et al. (2018); Knight et al. (2020); Leonard and Higson (2014); Morton et al. (2018); Morton et al., (2020); Paroutis et al. (2015); Plotnikova et al., (2020); Thomas and Ambrosini (2015); Whittington et al. (2017).	People in organizations who are traditionally directly involved in developing strategy.
Conceptual	Burgelman et al. (2018); Jarzabkowski and Kaplan (2015); Newell and Marabelli (2015).	
Theme: Non-strategy practitioners		
Source type	**Sources**	**Definition of construct**
Empirical	Azad & Zablith (2020); Burger-Helmchen and Cohendet (2011); Hughes & McDonagh (2021); Hutter et al. (2017); Karanasios and Slavova (2019); Leonard and Higson (2014); Malhotra et al. (2017); Mantere and Vaara (2008); Morton et al., 2020; Plotnikova et al., 2020; Wenzel and Koch (2018); Whittington et al. (2011).	People in organizations whose role does not entail direct participation in strategizing.
Conceptual	Burgelman et al. (2018); Hautz et al. (2017).	

Table 4: Themes for digital strategizing practitioners, relevant sources, and construct definitions

Overall, the focus on different practitioners has started to add richness to our understanding of

digital strategizing and shows their role and interaction with various digital technologies in

strategy work across levels of organisations. Existing work transcends a focus on more general

forms of strategy work by practitioners and enters into the specifics of strategic perspectives in

the transition from analogue to digital strategy work, including by non-strategy practitioners.

IT, in this sense, is having a clear impact on the nature of strategizing, addressing questions

such as who is involved in strategizing and how does strategy develop.

Digital strategizing praxis

The aforementioned attention on practitioners and practices, in particular, is prominent through various parts of the digital strategizing literature to date. There is, however, promising research relating to praxis. *Figure 4* shows the two themes on praxis found in the literature.
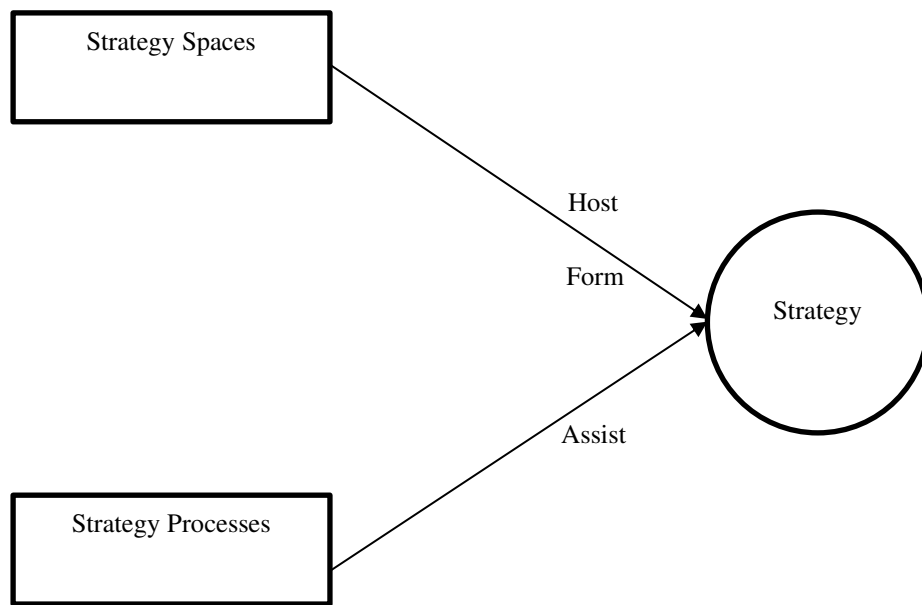
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┌─────────────────────┐
│  Strategy Spaces    │ ─────────┐
└─────────────────────┘          │ Host        ╭───────────╮
                                 │ Form        │           │
                                 ▼             │ Strategy  │
                        ─────────────────────► │           │
┌─────────────────────┐   Assist              ╰───────────╯
│  Strategy Processes │ ─────────┘
└─────────────────────┘
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Figure 4: Two themes for digital strategizing praxis

We label the first theme *strategy spaces*, and these are the physical or virtual environments in which actors and material/discursive resources interplay. In essence, we identify that research has illuminated the 'spaces' or 'sites' in which strategy work occurs (Huang et al., 2014; Jarzabkowski et al., 2015). We found promising evidence of various forms of attention on staged arenas of strategy in the form of IT strategy workshops and strategy sub-projects conducted through IT. This includes empirical projects where researchers have adopted novel ethnographic techniques (e.g., video ethnographies) to capture the inner workings of such spaces and the arrangement of practitioners in praxis (Paroutis et al., 2015; Knight et al., 2020). Such spaces host the development of strategies and strategy contents over time, and they might

be represented by online communities (Burger-Helmchen & Cohendet, 2011; Järvenpää & Lang, 2011; Barrett et al., 2016), or by tools in use in different configurations of physical spaces (Peppard et al., 2014). In addition, specific stages of strategy have been explored which unravel over time in strategy spaces as strategy is formulated. For instance, this is relevant in patterns which reveal fluidity (the ability to change system use as needs change) and extensiveness (the requirement to embed system use in structures and routines) as part of ongoing IS strategy implementation (Leonard & Higson, 2014). Overall, strategic spaces have been theorised as a means of understanding more about the mutual entanglement of the practices between IT and human agency in various stages of strategy-making in firms. However, there also exists an equally important and complementary concentration on physical strategy spaces within which various hardware and applications (e.g., cloud-based or executable applications) are utilised to form strategy (Neeley & Leonardi, 2018). Furthermore, a number of studies in the strategy practice literature have used ethnographic methods to study detailed behavioural interactions taking place in a strategy space (Jarzabkowski et al., 2015; Knight et al., 2020). This focus on strategy spaces, therefore, engages the ontological challenge of both the physical and abstract spaces in which strategy takes place. A challenge is to actively capture IT as part of these spaces which include strategy tools and technologies as part of the physical and abstract sites for strategizing.

The second theme relates to various, often high-level, *strategy processes*. Several specific processes and IT in organisations, such as those used for crowdsourcing (Stieger et al., 2012; Amrollahi & Rowlands, 2017; Mount et al., 2020); design thinking (Knight et al., 2020); digital transformation (Chanias et al., 2019); open strategizing (Tavakoli et al., 2017); and knowledge

sharing (Marabelli & Newell, 2012) have been explored in relation to praxis. This includes how praxis forms part of, informs, or alters strategy practice, and why this poses a pertinent question for research which spans periods. In addition, there has been a detailed exploration of strategy-making across different stages of the strategy process (e.g., in strategy development and implementation) (Hautz et al., 2017; Azad & Zablith, 2020), and to understand how IT guides bundled affordances or materiality in strategy (Cecez-Kecmanovic et al., 2014; Demir, 2015). IT has also been conceptualised as a carrier of strategic intent from the top of organisations to operational levels, where instantiation explains the emergence of strategy from the praxis (and practices) that flow from the use of specific digital technologies such as automated kiosks (Baptista et al., 2021). This includes the understanding of certain strategy outcomes such as strategizing for innovation adoption (Kennan-Narasimhan & Lawrence, 2018) or capability building (Morton et al., 2018). Further, there has been emphasis on the praxis of development where the bottom-up logic of certain actors is combined with top-down imperatives and industry norms in strategy processes (Amrollahi & Rowlands, 2018; Karanasios & Slavova, 2019).

Table 5 summarises the two themes for digital strategizing praxis with a full list of identified sources for this dimension and relevant definitions.

Digital strategizing praxis		
Theme: Strategy spaces		
Source type	**Sources**	**Definition of construct**
Empirical	Arnaud et al. (2016); Barrett et al. (2016); Burger-Helmchen and Cohendet (2011); Huang et al. (2014); Järvenpää and Lang (2011); Knight et al., (2020); Morton et al., (2020); Neeley and Leonardi (2018); Paroutis et al. (2015); Schlagwein and Hu (2016); Werle and Seidl (2015).	Technologies that represent or create environments for hosting or forming strategy.
Conceptual	Haefliger et al. (2011); Jarzabkowski et al. (2015); Whittington (2014).	
Theme: Strategy processes		
Source type	**Sources**	**Definition of construct**
Empirical	Amrollahi and Rowlands (2017); Arvidsson et al. (2014); Azad & Zablith (2020); Baptista et al. (2021); Chanias et al. (2019); Demir (2015); Dobusch et al. (2019); Gegenhuber & Dobusch (2017); Henfridsson and Lind (2014); Hughes & McDonagh (2021); Kannan-Narasimhan and Lawrence (2018); Kaplan and Orlikowski (2013); Karanasios and Slavova (2019); Knight et al. (2018); Knight et al., (2020); Leonard and Higson (2014); Malhotra et al. (2017); Morton et al. (2018); Mount et al., (2020); Neeley and Leonardi (2018); Schlagwein and Hu (2016); Stieger et al., (2012); Tavakoli et al. (2017).	Everyday streams of activity in organizations that assist strategy.
Conceptual	Burgelman et al. (2018); Cecez-Kecmanovic et al. (2014); Peppard et al. (2014); Hautz et al. (2017); Vaara and Whittington (2012).	

Table 5: Themes for digital strategizing praxis, relevant sources, and construct definitions

The focus on praxis in digital strategizing is largely on the rich flows of activity associated with strategy, whether in physical spaces where IT is utilised in tandem with more traditional analogue tools where strategies are formed through strategizing, or where fully online spaces are used to form and also host strategy contents and outputs. Various processes have also been studied: these may be processes associated with the development of digital technologies, such as information systems, or they may represent IT in use, such as in processes that enable strategy crowds or communities. Overall, such studies offer more insight into how IT is used in strategizing and how it contributes to the realisation of strategy outcomes.

Discussion: Defining Digital Strategizing and Outlining a Research Agenda

Our findings have revealed several themes and we have defined these as key constructs in digital strategizing. In this discussion, we first summarise these themes and use them as 'building blocks' (Suddaby, 2010; Vial, 2019) to devise a formal definition of digital

strategizing. We then outline a research agenda for continued theorisation of digital strategizing.

A definition for digital strategizing as a domain

We provide below (*Table 6*) a summary of the assembled themes at the nexus of strategy practice dimensions and IS. We provide a clear definition for each of these themes, as they are the constructs that we use to provide a formal definition of digital strategizing based on existing recommendations and guidelines (e.g., Suddaby, 2010).

Strategy practice dimension	Identified theme	Definition of construct
Practices	Strategy artefacts	Technologies that enable formulation and implementation of strategy.
	Strategy objects	Forms of text, speech, and software and hardware that transmit strategy.
	Strategic information systems	Technologies that support strategy and its outcomes.
Practitioners	Strategy practitioners	People in organisations who are traditionally directly involved in developing strategy.
	Non-strategy practitioners	People in organisations whose role does not entail direct participation in strategizing.
Praxis	Strategy spaces	Technologies that represent or create environments for hosting or forming strategy.
	Strategy processes	Everyday streams of activity in organisations that assist strategy.

Table 6: Themes at the nexus of strategy practice dimensions and information systems

We have also devised a conceptualisation of how these themes constitute digital strategizing as a domain (*Figure 5*). Our review has signalled that digital strategizing is an emerging area of research and the figure also denotes that there are ample opportunities to expand the domain through continued theorisation at the nexus, as is the focus for the second part of our discussion.
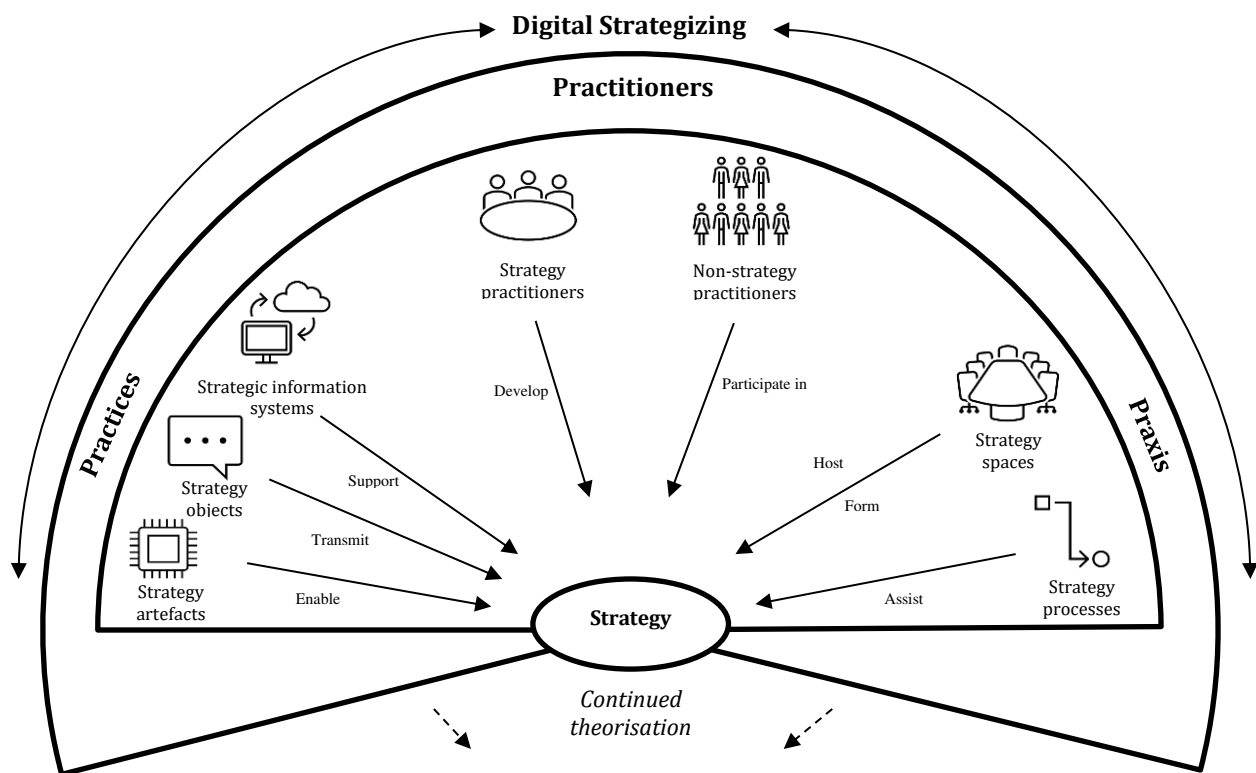
Figure 5: Summary of themes which form the domain of digital strategizing

Construct clarity (Suddaby, 2010) and conceptual definition (Wacker, 2004) are essential qualities for building and interrogating theories. Along with other prominent examples of reviews on digital phenomena (n.b., Vial, 2019; Table 2), we use these 'rules' to denote that each of the themes or constructs we have identified represents a potential 'building block' for constructing the nexus between IS and strategy practice as the domain of digital strategizing. In doing so, we ensure that definitions effectively capture the essential properties of the concept or phenomenon under consideration (Wacker, 2004). Further, each of our definitions is not tautological (e.g., strategists' practice is strategic because they are employed as a strategic manager) and they are parsimonious (Suddaby, 2010). Collectively, we utilise the above definitions for each theme and locate them within different dimensions (*Table 6*). We have synthesised these findings from our review to provide a formal definition of digital strategizing based on the insights from the existing literature.

Considering this process, we arrived at the following definition of digital strategizing: *"A domain focused on the interplay between digital technologies and people at different levels of organisations in processes that form, transmit, implement, host, and support strategy"*.

The definition addresses that digital strategizing is first and foremost a domain and that practices, practitioners, and praxis are located broadly in the interplay involving technologies, people, and varied processes. Digital strategizing is not therefore a theory, but rather it is derived from various ontological and theoretical perspectives adopted in the reviewed articles (Seidl & Whittington, 2014). The definition purposefully integrates some of the linkages, or verbs, which were used to summarise the actions and occurrences relevant to the themes in the findings and where they appear in the strategy process. We have refined and grouped these where appropriate and to again provide a concise and conceptually clear definition. For example, we denote that 'assist' is associated with 'support' and well captured by the latter in the definition. Similarly, 'develop' is parallel to 'form' and coalesces aptly under this verb. Our definition also reflects that this review has started to unpack the nascent state of the art when it comes to the aforementioned calls for synergy between IS and strategy. This enabled us to provide an overarching view on why digital strategizing is relevant to organisations and the role of both fields in contributing to this understanding. Further, our review has identified that the role of digital technologies is varied and often involves an interaction with analogue representations. For instance, the role of technologies in digital strategizing could be the use of crowdsourcing tools (digital technology) by employees (people) to formulate strategy (the strategy process) (Malhotra et al., 2017); another could be the use of scorecard techniques (analogue technology) complemented by a range of digital technologies (projectors, productivity software) as various strategy workshops are hosted over time in physical spaces (Demir, 2015).

The IS field is making headway, as demonstrated from evidence across all dimensions of strategy practice, in better understanding the use of an ensemble of technologies to host, transmit, support, form, and implement strategy. At the same time, the strategy field is paying greater attention to materiality and strategy tools which is a vital step in making technologies present in the analysis of strategy. In this sense, the nexus is mutually beneficial and has embraced the challenge of theorising earlier calls for work between the fields (e.g., Peppard et al., 2014; Whittington, 2014). However, our review has not only shown what work has been done and has led to the formulation of the above definition, it also provides a basis for steering future research into digital strategizing. We argue that whilst the digital strategizing literature is emerging and promising, there are several themes that warrant particular attention in further work in the domain. Therefore, we consolidate our findings by providing an agenda for future research which we form around three broad reflections.

An agenda for continued theorisation at the nexus

We stress the need for continuous theorisation around digital strategizing. In this agenda, we encourage those interested in this area to follow the phenomenon as opposed to researchers from respective fields focusing upon theoretical niches in either IS or strategy. A prescriptive recommendation for future research such as this is to return to the craft of theory building (Rivard, 2020) and here we outline our reflections on three key areas needed to advance the domain in both empirical and theoretical terms. There is ample opportunity to do so. First is a far more acute focus on impacts relevant to digital strategizing; second is to study cutting-edge technologies and related processes; and third is to extend the role of technologies to be made centre-stage in research.

1. Unravelling the impact relevant to digital strategizing

Perhaps the most pronounced finding from our review is that it has revealed substantially more attention paid by researchers to the use of IT for strategizing, as opposed to the in-depth explication of how the practice of strategy yields specific strategies and outcomes – what we can broadly consider to be the impacts relevant to digital strategizing. In essence, we know much about the processes in digital strategizing but little about the 'product'. A limited number of articles in our review draw on forms of praxis towards producing overarching IS strategies (e.g., Henfridsson & Lind, 2014). A relatively small number of articles focus on more specific plans, such as ICT for development strategies (Karanasios & Slavova, 2019); digital transformation strategies (Chanias et al., 2019); and social media strategies (Kwayu et al., 2018). There is also some evidence of how IT and business strategies emerge together (Leonard & Higson, 2014) which offers promise relating to digital business strategies (Teubner & Stockhinger, 2020). However, it is surprising to see so few studies move beyond localised representations of strategy practice to outline its impact. Whilst work grounded in unpacking micro-level interactions offers much insight in itself, a promising step forward is to examine 'how' practices lead to results.

We also recognise that other relevant factors, such as competitiveness, institutional changes, absorptive capacity, firm performance, capability-building, or the realisation of sustainability goals, are just a few other examples where practice studies in digital strategizing could offer further insight. We were able to witness some examples of these impacts in our review (e.g., Schlagwein & Hu, 2016; Kwayu et al., 2018; Morton et al., 2018). Generally, work that goes beyond the use of IT in strategy practice, and which expands towards an understanding of macro-level outcomes, has the potential to guide theorisation of digital strategizing and extend

the current literature to new areas. It will also help to avoid what has been termed "micro-isolationism" (Seidl & Whittington, 2014, p.1408) where scholars should engage seriously with connecting practices with higher-level (meso or macro) phenomena (e.g., Nicolini, 2010; Kouamé & Langley, 2018). In the case of digital strategizing, we recognise that more can be done to explicate the role that digital technologies play in the elaboration and implementation of strategy. For instance, as organisations are developing entire business models around digital technology it is crucial not to focus too narrowly on strategy practices involving digital technology but instead consider the wider implications of such practices in strategy processes and in how strategies are realized. A specific example from our review where digital strategizing is conveyed as a multilevel phenomenon is Kaplan & Orlikowski (2013) and the exploration of how practices (micro) help firms achieve strategic goals, such as those related to innovation and the development of specific IS strategies (macro). To assist with this, researchers could articulate the relevance of higher levels within their research questions. Furthermore, attention to methodological pluralism in the digital strategizing domain, including a wider range of research designs and methodologies, such as quantitative and configurational studies, has the potential to both accelerate and diversify digital strategizing research. Indeed, only two articles included in our review adopted a quantitative approach. Questions at this part of the nexus could include: 'How are digital business strategies developed in practice?'; 'What are the processes and mechanisms of integration of IT into the fabric of firms, and at different organisational levels?'; and 'What are potential 'dark sides' of utilising new technologies for strategizing?'.

2. *Digital strategizing at the cutting-edge of IT and strategic transformation*

First, we emphasise that research can focus more on cutting-edge developments in IT and strategic transformation. In our review, we have studied various instances of the use of IT in organisations; the focus was often on everyday interactions and the use of ubiquitous forms of IT in strategizing, such as social media platforms (e.g., Baptista et al., 2017); productivity software (e.g., Demir, 2015; Knight et al., 2018); and computing devices and hardware (e.g., Whittington, 2015; Paroutis et al., 2015). However, firms are increasingly engaging with, and in some cases basing entire business models upon, cutting-edge technologies, not only in their innovation of products and services but also in the delivery of their business model for value creation. For example, there has been an upward trend in both IS and strategy literature concerning multi-sided platforms and platform strategies (e.g., Ozalp et al., 2018; Brunswicker et al., 2019); technologies associated with intelligent automation and artificial intelligence (e.g., Shrestha et al.,, 2019; Coombs et al., 2020); the (industrial) internet of things (e.g., Monteiro & Parmiggiani, 2019; Khanagha et al., 2020), and in omnichannel business models (Hansen & Kien, 2015; Jocevski, 2020). Research on digital strategizing has the potential to explore the intricacies of such areas and their underlying practices and processes, where digital technology is the basis for such phenomena to ever be imagined. It is an area that remains almost entirely unexplored from our review, as much of the extant work we have reviewed indicates that digital technologies largely complement or replace existing analogue strategy practices (Baptista et al., 2017). Whilst understanding the widespread use of IT is important, it is equally fruitful to learn more about the potential of new and powerful forms of technology and how they are changing the dynamics and strategies of organisations. Researchers might narrow their interests and ask more specific questions across digital strategizing practices, practitioners, and praxis. Potential questions to be addressed include: 'What are the specific

practices involved in digital platform creation and implementation?'; 'How does artificial intelligence complement the work of practitioners in strategizing?'; and 'What are the flows of praxis over time in digital ecosystems?'.

3. *Extending the role of digital technologies in digital strategizing*

As a final reflection, and to build on points made in the two prior areas in our agenda, we recognise that studies of digital strategizing, particularly in strategy, management, and organisational studies outlets, often foreground practices and practitioners but treat the specific nature of IT as a contextual concern or 'en passant'. For example, the specifications of IT and the performativity afforded by IT in strategy work serves as only context or background to a study (e.g., Denyer et al., 2011; Demir, 2015; Dobusch & Kapeller, 2018). Further, IT might be a secondary focus or theorised in tandem with analogue forms of strategizing (such as the use of whiteboards or flipcharts). Whilst this offers value, a more distinct focus and evidence of the role and materiality of digital technologies in the work of strategy, including in strategy formulation and implementation, offers an important exchange across the IS and strategy fields. For instance, in our review, we saw promise with the literature focused on increasing forms of participation in strategy where such studies often foreground the significance of various contemporary technologies and 'IT-enabledness' through strategy ideation and formulation processes (e.g., Baptista et al., 2017; Gegenhuber & Dobusch, 2017, Tavakoli et al., 2017; Amrollahi & Rowlands, 2018; Morton et al., 2020; Plotnikova et al., 2020). There are also studies which have demonstrated how and why the implementation of IT is central to strategic change, even in situations where strategies are not realized as intended (Arvidsson et al., 2014). To Aversa et al. (2018, p.222), this constitutes a more holistic focus on the "practice of deciding" where digital technologies are considered a central element in how strategists specify

what constitutes a strategic decision and ultimately how they evaluate what strategy outcomes are desirable and possible. We propose that a focus on materiality and strategizing in studies can follow suit in putting IT centre-stage and can guide understanding of the specifications of IT and the specific performativity afforded by IT in strategy work. Illustrative questions necessitate placing digital technologies at the forefront in digital strategizing to ensure IT is not merely contextual but playing an active role in how it unfolds. Ultimately, strategists in organisations today have digital technologies in mind when formulating and implementing strategy and this needs to be elaborated in digital strategizing research. Questions for researchers to consider include: 'How does the selection and design of IT impact different stages of strategizing in organisations?'; 'How do practitioners interact with distinct features of IT in the performativity of strategy?'; and 'What are the structural and technological conditions required to support and sustain digital strategizing?'.

Conclusion

The implications of our work flow from three overarching contributions. First, we have illustrated the importance of the nexus between IS and strategy, particularly focusing on strategy practice, by conducting the first comprehensive review and critical synthesis of the nexus of these complementary domains. Second, we have applied our findings to a formalised definition of digital strategizing. Third, we have provided three substantive reflections regarding the state of knowledge in digital strategizing. This informs a research agenda that we hope will be a driver for more empirical and conceptual research that draws on the new domain of digital strategizing, thereby moving beyond the two extant domains.

Our work is not without limitations. As a first reflection, whilst we took steps to ensure a rigorous assessing review (Leidner, 2018), such analyses, and the steps taken, are subjective and in this case were performed by a small research team. Second, our review is intentionally narrowed to address a very specific nexus. We could therefore have unintentionally discounted the relevance of interesting work on IS and strategy in the wider literature and other fields; for example, we might have taken a route to specifically identify the nature of emergent vs planned strategies across articles in our review. Broadening the focus might be a fruitful avenue for future research; however, our boundaries for selected literature were sufficiently narrow to allow us to maintain our focus, and our findings have much potential to inform other disciplines where they bear relevance. Third, we acknowledge that the focus on various forms of IT is a pressing topic in the strategy and management literature; we must, therefore, consider that the field will (soon) expand beyond the 71 articles that we have identified as relevant in this review, and that research applicable to our devised agenda will already be well underway. Overall, our paper provides a foundation to advance research into the domain of digital strategizing. We hope this review proves to be a valuable source for understanding and formally defining the nexus between the IS and strategy practice.

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Appendices

Appendix A – Journals selected for review

AIS 'Basket of Eight' Information Systems Journals: European Journal of Information Systems, Information Systems Journal, Information Systems Research, Journal of Information Technology, Journal of Management Information Systems, Journal of Strategic Information Systems, Journal of the Association for Information Systems, MIS Quarterly.

Additional Information Systems Journals: Communications of the Association for Information Systems, Information & Management, Information & Organization, Information Systems Frontiers, Information Technology & People.

Strategic Management, Management, and Organizational Studies Journals: Academy of Management Annals, Academy of Management Review, Academy of Management Journal, British Journal of Management, California Management Review, Harvard Business Review, Journal of Management Studies, Long Range Planning, M@n@gement, Organization Science, Organization Studies, Strategic Management Journal, Strategic Organization.

Note: for articles which were in journals outside of the AIS 'Basket of Eight', including additional IS journals and those in Strategic Management, Management, and Organisational Studies domains, we checked their ranking to ensure they featured on the CABS academic journal guide (UK) and ABDC journal list (Australia) as widely used benchmarks of research quality. This list represents the initial journals included in our search criteria but articles relevant to our review were not present in all of these.

Appendix B - Search overview with illustrative search terms

	Illustrative Search Terms	Publication Period	Total(s)
Broad initial search	"Information systems" "strategy practice"	2003-2020 (all possible outlined journals)	1,128
Example more specific searches	"Information systems AND strategy practi*"		99
	"Information technology AND strategy practi*"		91
	"Information systems AND strategi*ing"		9
	"Information technology AND strategi*ing"		6