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Introduction to the special issue – Digital business models: A multi-disciplinary and multi-stakeholder perspective[☆]

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ABSTRACT

The advent and enormous growth of digital technologies, and associated data, force firms to respond to novel digital challenges and increasingly lead them to transform their existing business models. Importantly, given that digital transformation has a strong impact on multiple disciplines, such as logistics, marketing, and strategy, and involves multiple stakeholders, such as service providers, platforms, employees and end-users, it also requires researchers and businesses to adopt a multi-disciplinary, multi-stakeholder perspective, in which multiple research and business fields cooperate in order to create collaborative solutions. In this editorial to the special issue, we aim to bring together insights from multiple research fields to account for the multi-faceted nature of digital transformation. We discuss the relevance of this multi-disciplinary, multi-stakeholder perspective, propose an overarching research framework, and highlight future avenues of research.

1. Introduction

“The world’s most valuable resource is no longer oil, but data.”

The Economist (2017)

“Digitizing your customer service isn't just a way of saving time and reducing cost, it's become the norm with the digital shift in consumer behavior.”

Majorel, Global Digital Experience Provider (2019)

“Most of the executives I talk to are still very much focused on digital largely as a way to do “more of the same,” just more efficiently, quickly, cost effectively. But I don't see a lot of evidence of fundamentally stepping back and rethinking, at a basic level, “What business are we really in?”

John Hagel, Co-Chairman at Deloitte LLP Center for the Edge leaders (2016)

“At least 40% of all businesses will die in the next 10 years... if they don't figure out how to change their entire company to accommodate new technologies.”

John Chambers, Executive Chairman, Cisco System (2015)

Digital change, as reflected by the quotes above, has a profound impact on firms and their customers. The advent of digital technologies and wide availability of data have led to the introduction of new and disruptive business models that have radically shifted competition. While often associated with new entrants, new digital business models are not limited to such firms, but are also introduced by incumbents that digitally transform their business in order to sustain the creation

and appropriation of value. In many instances, firms have altered their existing, traditional (analog) business models, and developed new ones that capitalize on the opportunities provided by digital technologies or (big) data.

The tremendous growth of digital technologies and data have provided business with ample opportunities to develop new business models, but also have led to complex challenges due to their inherent technological uncertainty, pervasiveness of organizational changes, interrelatedness of decisions, and involvement of multiple stakeholders. To enable holistic solutions that create value for the firm and its stakeholders, we need a (1) multi-disciplinary perspective, and (2) multi-stakeholder perspective.

Digital transformation –i.e. using digital technologies to develop new business models – is inherently uncertain due to the rapid pace of technology, and the required pervasive changes to the firm in terms of organizational form, value network, distribution channels, and customer interface. Successful business models generate virtuous cycles that are self-reinforcing, such that the business model's building blocks (core strategy, strategic resources, customer interface and value network) are aligned and strengthen each other (Casadesus-Masanell & Ricart, 2011; Teece, 2018). The implementation of new digital business models involves a set of inter-related strategic decisions on, for instance, the use of new technologies, digital channels, and collaboration with new partners. To organize such decisions, firms need to rely on the insights from and support of multiple functional areas like marketing, logistics, R&D, and strategy. Rather than making isolated optimization decisions for individual building blocks or functional areas, we argue that firms need to be make business model decisions holistically to optimize the aggregate outcome. Hence, multiple functional areas need

[☆] We acknowledge the Groningen Digital Business Center and research school SOM – both from the University of Groningen – for funding a thought leadership conference that started this special issue.

Table 1
Classification of papers of special issue.

Research Theme	Paper	Stakeholder		
		Users & Society	Firms & Industries	Platforms
<i>Digital Strategy & Transformation</i>	Verhoef et al. (2020)		X	X
	Broekhuizen et al. (2020)	X	X	X
	Bijmolt et al. (2020)		X	X
<i>Data Availability, Data Analysis & Data Responsibility</i>	Langley et al. (2020)	X	X	
	Lobschat et al. (2020)	X	X	X
	Wieringa et al. (2020)	X	X	X

to work together to align the building blocks and make informed decisions in areas where strategic trade-offs exist, and where synergies can be created.

Furthermore, new digital business models often rely on digital technologies that enable seamless exchanges between firms, consumers and things (Langley et al., 2020). Hyperconnectivity, as a result of such technologies, has allowed firms to take on new business roles within ecosystems that help to create value for, and together with, multiple user groups (Adner, 2017; Swaminathan, Sorescu, Steenkamp, O’Guinn, & Schmitt, 2020). With the use of smart digital technologies, firms empower customers to co-create value when those customers share their personal data and/or perform business activities themselves. Furthermore, firms have revolutionized many industries by introducing highly successful platform-based digital business models that facilitate exchanges between multiple user groups (Langley et al., 2020). These digital co-creation or platform-based business models depend heavily on the willingness of value network partners to co-create value; hence, to successfully design and implement digital business models, firms require again a holistic decision-making approach that incorporates stakeholder motives, interdependencies and trade-offs (Broekhuizen et al., 2020). For instance, the decision to allow more suppliers to join a firm’s platform may improve the outcome for end consumers who benefit from a higher product or service quality or wider selection, but it simultaneously increases the competitiveness among suppliers that limits their incentives to remain loyal to the platform. In order to make informed strategic decisions, firms need to consider the stakeholders’ mixed and potentially conflicting motives to understand their commitment and loyalty, and the outcomes they will bring to the firm.

In sum, to successfully develop new digital business models, firms need to take a multi-disciplinary and multi-stakeholder perspective. Much existing research has dealt with digital business models, and digital transformation in particular, in functional silos like marketing, information systems, operations, strategic and innovation management. For instance, while the marketing literature has taken a customer-centric approach to understand and predict customers’ online purchasing (e.g., Kannan, Reinartz, & Verhoef, 2016) and return behaviors (Minnema, Bijmolt, Gensler, & Wiesel, 2016) to design better online environments, it, however, often does not consider the supply side (e.g., costs and complexity of managing product flows). Conversely, although supply chain management literature provides conceptual and empirical insights into the efficiency and complexity of sourcing and arranging of products streams in digital environments (Koh, Orzes, & Jia, 2019), this stream often ignores the demand side in terms of value creation and managing heterogeneity of customer needs during their digital customer journey (Saber, Kouhizadeh, Sarkis, & Shen, 2019). Furthermore, both streams, even when they do consider multiple stakeholders, are still focused on firm-level outcomes (profit) and tend to ignore the value impact on society (people) and environment (planet), thus still not capturing the full multi-stakeholder picture that determines the viability of business models in the long run. By taking an integrative perspective, and exchanging insights and techniques, disciplines can strengthen the quality and applicability of academic findings. A multi-disciplinary exchange of knowledge and inclusion of all relevant

stakeholders’ perspectives help to enhance the accumulative understanding of research, conquer blind spots, foster cross-fertilization, and to tackle the complex (and often interlinked) business challenges.

This special issue aims to stimulate multi-disciplinary, multi-stakeholder research on digital business models in order to improve our understanding of how firms can create and capture value from crafting new digital business models, for and with their stakeholders. The special issue synthesizes existing research and develops new knowledge on digital strategy formation and transformation, and on the availability, analysis and responsible use of (big) data.

2. Focus of special issue

This special issue contains 6 conceptual papers that emanate from the discussions among scholars and practitioners at the occasion of the Thought Leadership Conference on Digital Business Models held in Groningen, The Netherlands on April 4–6, 2018. Table 1 classifies the papers of this special issue according to two dimensions: research theme and stakeholders.

The first research theme focuses on Digital Strategy and Transformation. A theoretical basis for the foundation of new business models via digital transformation is provided by Verhoef, Broekhuizen, Bart, Bhattacharya, Dong, Fabian, and Haenlein (2020). Based on a multi-disciplinary reflection drawing from findings in the information systems, marketing and strategy fields, the authors conceptualize three different stages of digital transformation: digitization, digitalization, and digital transformation, which are subsequently linked to strategic growth opportunities and imperatives. Broekhuizen et al. (2020) select digital platforms as a focal stakeholder and discuss a central business model characteristic: platform openness, thereby analyzing drivers, dimensions and outcomes of digital platforms. Bijmolt et al. (2020) select retailers that sell physical merchandise as a focal stakeholder and describe the challenges for the marketing-operations interface in omnichannel environments. They link the functional areas of marketing and operations to the demand and supply side, respectively. According to three key decision areas, assortment & inventory, distribution & delivery, and returns, they link the customer journey (demand side) with the product flow (supply side) identifying the key decision issues where marketing and logistics have highly interdependent goals and interests that require an integrative perspective.

The second research theme looks at the collection, analysis and responsible use of data for digital business models. Langley et al. (2020) draw upon multiple theoretical lenses to present a vision of how the Internet of Everything, which connects people, firms and smart objects, may alter business models and value creation for individuals, firms and institutions. Lobschat et al. (2020) review multiple research disciplines to discuss how firms can develop a set of shared values and norms that guide firms’ creation and use of digital technology and data. Looking at multiple stakeholders (firms, individuals, artificial/technological stakeholders, institutional/ governmental institutions), they investigate how firms can managerially effectuate their digital responsibility. Wieringa et al. (2020), in turn, focus on how firms can use data analytics to transform data into valuable insights, while complying with

increasingly tightening privacy regulations and concerns.

Apart from their multi-disciplinary nature, all papers of the special issue stress the relevance of incorporating multiple business and/or non-business stakeholders' perspectives. Business stakeholders include individual firms and complete industries, as well as platforms that function as intermediaries. Non-business stakeholders include individual consumers and society at large. By broadening the perspective and incorporating multiple perspectives of both business and non-business stakeholders, the papers help to improve our understanding of how firms' strategic responses to digital change impact firm-level outcomes as well as outcomes for other stakeholders.

3. An organizing framework for multi-disciplinary and multi-stakeholder research on digital business models

Digital change challenges firms to respond by altering their business value propositions, digitizing parts of their business models, or introducing completely new (platform-based) business models. The increasing application of digital business models, introduced by new entrants and incumbents, affects firm, consumer, and society-level outcomes. In our conceptual model, depicted in Fig. 1, we link the exogenous drivers of digital change and firms' digital responsibility as determinants of their strategic reactions. The short and long-term success of such business models depends on the degree to which they create value for relevant stakeholders. Following disruption research (Christensen, 2006), we assume that these digitally-driven changes to business models may initially be small, but that they can imply major disruptive consequences for markets and entire industries when they become mainstream.

As a starting point of our model, we assert that digital change, as represented by three exogenous drivers, has sparked the need for digital transformation (Verhoef et al., 2020). The advent and growth of new digital technologies, like broadband internet, the internet of things, and online payment, have enabled new interactions between firms, consumers, and devices, which have consequently driven the growth of e-commerce business models. Equipped with these technologies, consumers have altered – and digitized – their search and purchase behavior. Furthermore, the competitive landscape has changed and intensified due to the entrance of digital startups and of information-rich corporations, like Amazon, Apple, Facebook, Alibaba and JD, which have quickly come to dominate numerous industries.

In developing a strategic response to these digital changes, firms typically are influenced by firm principles, industry practices, or laws regarding their digital responsibility and data analytics. While new digital technologies offer unprecedented data availability and make sophisticated analyses possible, they also require firms to consider their societal and ethical responsibility. This not only requires an increased awareness of the importance of respecting customers' privacy concerns¹ while handling their data (cf. Wieringa et al., 2020), but also of the extent to which organizational culture incorporates moral and ethical norms regarding the use of digital technologies and data during creation and operational use phases (Lobschat et al., 2020). We assert that firms' digital responsibility steers their strategic responses.

Firms can respond in different ways to digital change. Consequently, firms' reactions also differ in the degree of (a) digital transformation, (b) data-driven decision making, (c) platform openness, and (d) omni-channel supply–demand integration. Regarding the degree of digital transformation, Verhoef et al. (2020) distinguish between three

different levels (digitization, digitalization, and digital transformation), each implying distinct imperatives to the firm's organizational structure, resources needed, growth strategies, and metrics used. For instance, when firms introduce a new business model (i.e., digital transformation), they need to acquire additional digital resources, develop flexible organizational structures, and install and track their (digital) performance using (digital) metrics (Verhoef et al., 2020).

Regarding the degree of data-driven decision making, firms can increasingly rely on the use of market and internal data to enhance the functioning of their business model. Privacy is an important aspect to consider when customer data are an integral part of the business model, and firms experience an increasing tension between increasing privacy concerns and the resultant tightening of regulations, on the one hand, and the usefulness of the insights that can be derived from these data, on the other hand. Firms can benefit from the development of methods and techniques that harness the power of data analysis whilst complying with customer privacy rules, in order to overcome the data analytics–privacy paradox (Wieringa et al., 2020).

Platform openness is an important strategic decision for digital platforms capitalizing on the opportunity to use digital technologies to seamlessly connect suppliers, customers and complementary service providers, and to provide them with access to a series of product categories through different channels (Broekhuizen et al., 2020). For each of these platform actors and dimensions, digital platforms can vary their level of openness, thereby responding to internal and external changes, while they consider the potential outcomes for all value network partners.

The degree of omni-channel supply–demand integration is important to retailers offering physical merchandise via multiple digital and non-digital channels. A stronger integration of supply (product flows) and demand (customer journey) may help firms to improve customer journeys and the efficiency of their product deliveries. Yet, omni-channel decisions are strongly inter-related and may result in tensions between marketing and logistics, as a result of trade-offs and conflicting interests (e.g., efficiency gains vs. customer satisfaction improvements). Firms require an integrative perspective to make informed decisions about the design of omni-channel strategies, to relieve some of these tensions and to create possible synergies (Bijmolt et al., 2020).

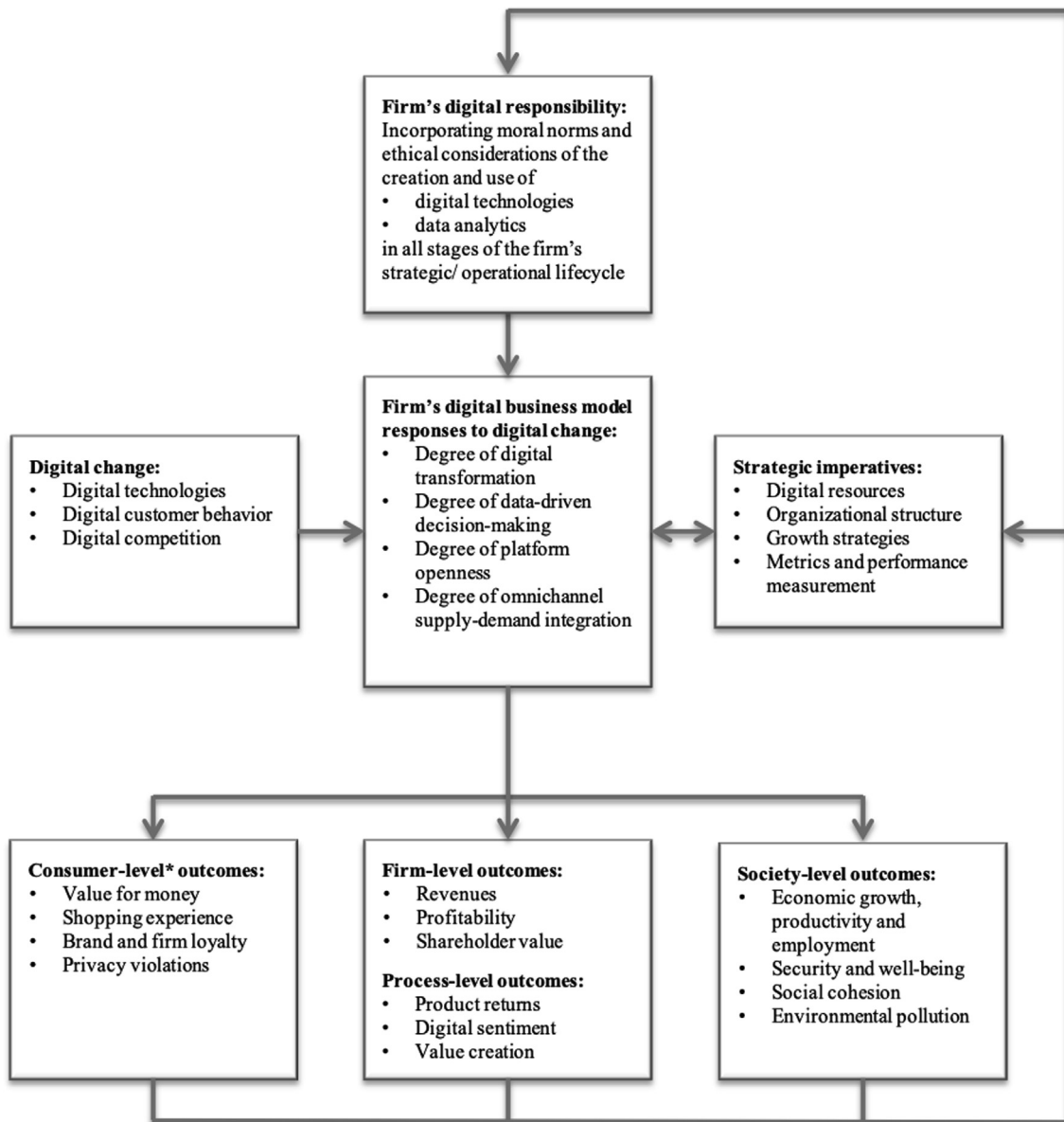
Our conceptual framework acknowledges that firms' strategic reactions and resultant digital business models yield firm, consumer, and society-level outcomes. In measuring firm-level outcomes, our framework identifies – apart from traditional financial metrics like revenues, profitability and shareholder value – process outcome measures like product returns, digital sentiment and value creation that form the basis of the financial outcomes. The use of technologies to collect and analyze real-time measurements allows firms to respond more effectively and improve their asset utilization, return on equity and market value (cf. Brynjolfsson, Hitt, & Kim, 2011).

Furthermore, as the long-term viability of digital business models depends on the continuous value creation for multiple stakeholders, we recommend that the outcomes for multiple stakeholders (including consumers and wider society) are included, considering both positive and negative consequences. Although digital business models may improve consumers' value for money, foster economic productivity, employment and growth, and bring social cohesion among citizens, they may also have detrimental and disruptive effects in terms of ecological damage, unemployment, and societal polarization that undermines well-being. Such negative effects may challenge the (long-term) viability of digital business models.

4. Where to go from here?

All papers in the special issue conclude with a set of specific research questions (Bijmolt et al., 2020; Broekhuizen et al., 2020; Lobschat et al., 2020; Verhoef et al., 2020), a research agenda

¹ Recent data breaches such as the 2016 *Cambridge Analytica* scandals have sparked the discussion on how firms should collect, verify, store, use and discard customer data. As a result, privacy regulations and enforcement have become stricter; for example, the European Union GDPR 2018 rules allow regulators to impose fines of up to 4% of annual global revenues for firms violating rules regarding consent, control and provision of clear explanations.



* For digital business models that involve co-creation by external parties, consumers also refer to the different value network partners, including suppliers and third parties.

Fig. 1. Conceptual Model on Drivers and Consequences of Firm's Digital Business Model Responses to Digital Change.

(Wieringa et al., 2020), or testable propositions (Langley et al., 2020). Synthesizing these ideas and reflections and linking them to our conceptual model, we outline important avenues for future research.

First and foremost, future research on digital business models should be multi-disciplinary, and incorporate perspectives from multiple stakeholders. The different papers in this special issue show that digital change affects firms, their functioning and their business models in so many interrelated fields and ways that analyzing the impact of digital change on a field-by-field and discipline-by-discipline basis would neither be able to fully capture the interrelatedness of stakeholders, dimensions and/or components nor their individual and joint effects. An analysis of how digital change affects firm responses and outcomes thus calls for a holistic, multi-disciplinary and multi-stakeholder approach.

Second, while a number of papers (also in this special issue) conceptualize the performance outcomes of digital business models, we

currently lack empirical investigations of the link between firms' choice for digital business models and their outcomes. Research on the drivers of success is warranted given the high failure rates of digital transformation, yet best practices will be extremely difficult to develop given the plurality of business models, and the interrelatedness of business model components, stakeholders and dimensions. Hence, additional attention should be given to analyze the boundary conditions that determine the effectiveness of specific digital transformation strategies, as it is highly unlikely that there is a single best strategy.

To enhance the cumulateness of research, scholars are advised to clearly define the study's scope and firm response (e.g., degree of digital transformation, data-driven decision making, platform openness, and omni-channel supply-demand integration), and find the appropriate data (in terms of aggregation level, type of stakeholder, timing) to empirically test the relationship. Ideally, scholars will use relevant (digital) metrics in order to judge how firms' responses to digital change

affect their firm-level outcomes, as well as how they impact on outcomes for other stakeholders, including partnering firms, consumers, and society in general.

Third, responding to digital change, by definition, is not a static phenomenon. New and emerging technologies will continue to appear, continue to influence consumer behavior, and continue to alter competition. As a consequence, digital business models will also keep changing. Firms may, moreover, adjust their business models in response to internal pressures (e.g., maturing of the firm, changing organizational preferences, previous business success) and external pressures (new entrants, increasing privacy concerns, stricter legislation). Given the risky and unpredictable nature of business model adaptation and innovation, firms need to be able to quickly adjust their business model to organizational and market changes, while also being able to foresee its long-term consequences (Broekhuizen, Bakker, & Postma, 2018). Longitudinal research on such dynamics and their drivers and outcomes is scarce, and therefore this appears to be a promising avenue for future research.

Finally, digital change creates considerable challenges when it comes to a firm's responsible behavior regarding the use of digital technologies and customer data, and the societal impact of its digital business model. Coping with the pressure to extract as much value as possible from data, while at the same time catering to customer privacy concerns is not straightforward. This is especially true, considering the current power shift (due to stricter regulations and greater privacy awareness) that empowers customers to regain ownership of their personal data. This shift calls for the development of new techniques and profound organizational cultural changes to facilitate digitally responsible use of data and technologies, and to establish a more equal (permission-based) relationship with customers. A good understanding of how customers perceive firms' actions regarding the collection, storage, analysis and use of data, as well as how they value and, in turn, want to be recognized and valued for sharing their personal data, are thereby of crucial importance. The tremendous growth of some digital business models necessitates the inclusion of societal outcomes in business decision making. Digital business models have the potential to address major societal challenges connected to health, transport, education, energy, security, and well-being. Yet, powerful digital players have also been accused of distorting market competition, exploiting employees, facilitating social polarization and exclusion, and harming the environment. A dearth of research exists that incorporates or acknowledges digital business models' externalities to assess their true social, and ecological costs and benefits; this research is needed to show how firms, including such powerful digital players, can act responsibly in the digital age.

5. Conclusions

The diffusion of digital technologies and the rise of big data create business challenges that require wide-ranging organizational responses. Unquestionably, the pervasiveness of these challenges necessitates the digital transformation of firms via the development of new business models that range from digitally enriched to complete digital platforms. To implement new business models successfully, firms need to understand the complexity of managing digital transformation.

This special issue seeks to identify and synthesize a series of topics from multiple research fields to advance our knowledge on how digital change and a firm's digital responsibility shape that firm's response and outcomes. Connecting insights from multiple fields and from multiple stakeholders is inherently complex, and leads to research challenges. These research challenges are timely and relevant given the persistent high failure rates of digital transformations. While the aim of this special issue is to raise awareness for a multi-disciplinary, multi-stakeholder perspective and stimulate scholarly discussion, we also hope that it will directly contribute to the development of digital business models in practice. We see an urgent need to explore a range of

interrelated, emerging phenomena that will ultimately help firms to successfully design and implement digital business models.

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