

How to harnesses digital technologies for pursuing business model innovation: a longitudinal study in creative industries

Harnessing
digital
technologies

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Abstract

Purpose – This study aims to investigate how manufacturing firms in the creative industries harness digital technologies to undertake business model innovation.

Design/methodology/approach – This study used in-depth case studies to examine the complex interplay between digital technologies and business model innovation. A longitudinal approach was selected to capture major events both within the firm and in the business environment. Building on the firm's archival data, interviews and secondary data that was available to the public, the authors carefully analyzed impactful digital technology events and the firm's responses to the technological changes that occurred over the period of 2004–2020.

Findings – The findings suggest that digital technologies alone are not sufficient for business model innovation to be successful; support from sociotechnical factors is also required. Additionally, firms should reinvent a new business model when the existing ones seem to start to diminish.

Research limitations/implications – In this study one firm was examined as the subject, using a qualitative method. This method allowed us to observe complex interplays among the resources required in business models. Future research can combine qualitative methods with computational case studies, which utilize a large volume of quantitative big data.

Practical implications – The results of this study suggest that managers must ensure that the resources within and outside organizations are loosely connected and are readily available to be mobilized for supporting business model innovation. To enable this, managers must prepare the required resources in advance.

Originality/value – The current findings add to a growing body of literature on business model innovation and digital technologies. In particular, this study describes the process of how a traditional firm from a least developed country pursues business model innovation with the support of digital technologies.

Keywords Digital technology, Business model innovation, Business model transformation, Dynamic capability, Resource configuration

Paper type Research paper



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1. Introduction

The adoption of digital technology by firms and customers has flourished in not only developed countries but also the least developed countries, including Indonesia. In South-East Asia, Indonesia has the largest number of Facebook users in the region; more than 50% of consumers use social media to discover products. This figure is much higher than those using online channels and offline channels combined with other means, which represent 22% and 24% of consumers, respectively (Facebook, 2020). The pivotal role of digital technology was highlighted by one of the managing directors of L'Oréal during an interview with Facebook (2020): "Consumers are savvy, digital has allowed them to be much more knowledgeable and that has stimulated a lot of curiosity" (Inés Caldeira, Managing Director, L'Oréal). In short, it is timely to conduct research on the topic of how firms use digital technologies to support their business.

The application of digital technology requires a strategic approach. Managers should renew their mind-set to understand that digital technology is no longer a part of the supporting functions and has become part of the business model (Remane *et al.*, 2017). When a manager considers undertaking a business model innovation, they must not only consider how to use the business model for specific purposes, such as market expansion, launching new products or internationalization, but also analyze how the business model might work with certain technologies – i.e. what must be done when certain technologies are adopted for the desired new business model to remain appropriate and useful (Bouwman *et al.*, 2018). Thus, the impact of digitalization on firms' operations, and consequently, the results of business model innovation, varies across industries (Teece, 2018a, 2018b). Further, Teece (2018a, 2018b) noted that "business models are more context-dependent than technology," and accordingly, the level of relevance of technology adoption for gaining a competitive position is vulnerable to environmental changes (Huang *et al.*, 2017).

The focus of research on the topic of business models is highly diverse, ranging from the smallest to the broadest scope – i.e. the product level, business level, company level and industry level (Wirtz *et al.*, 2016). In the early days of the emergence of technological innovation, scholars who emphasized the importance of technological innovation viewed the business model as a representation of the firm. However, more recent studies point out that the business model is only a part of the company (Zott and Amit, 2010). This view was later developed to consider that the business model can transcend organizational boundaries and that there can be more than one business model within an organization (Zott and Amit, 2010; Teece, 2018a, 2018b). With the application of digital technology, firms can implement various degrees of change, from minor to radical, to adjust their business model (Kaulio *et al.*, 2017; Warner and Wäger, 2019), all of which requires the reconfiguration of resources (Teece, 2018a, 2018b). Also, the characteristics of digital technology itself determine to what extent modifications must be made to the existing business model (Bouwman *et al.*, 2018).

Although existing research has focused on the role of business models at various levels of analysis, these studies have been limited to either internal elements or external factors (Schneider and Spieth, 2013). Therefore, there is an urgent need for research analyzing business models that use a holistic perspective so that managers can gain an integrative perspective regarding how a firm manages all of the activities in the business model. By undertaking such an investigation, researchers would be able to analyze the relevant details of activities in the value chain of the business model, while concurrently understanding the logical relationships between different elements of the business model, instead of simply describing them in a narrative way. It is also necessary, and equally important, to consider the time dimension in analyzing digital technology because of the rapid changes in digital

technology strategies that can work well in the short term but could be disastrous in the long term (Li, 2018).

This study analyzes the adoption of digital technology using a longitudinal design, which is still relatively rare in studies of this topic. Prior studies have focused on large-sized incumbent companies (El Sawy *et al.*, 2016; Kaulio *et al.*, 2017; Warner and Wäger, 2019) in developed countries that operate in industries with short life cycles, such as telecommunications, information technology, media and electronics (Barker, 2016; Geum *et al.*, 2016; Hasenpusch and Baumann, 2017). Consequently, undertaking research focused on traditional manufacturing firms in a least developed country could offer new insights. The research question posed in this study is: *How do the adoption processes of digital technologies lead to business model innovation?*

This paper is organized in six sections. Section 2 will discuss previous research pertaining to business models, business model innovation and digital technologies. Section 3 will discuss the method used for conducting this research followed by a presentation of the empirical findings in Section 4 and a discussion of the findings in Section 5. Finally, the conclusions and suggestions for further research will be presented in Section 6.

2. Literature review

Existing studies have demonstrated that technological innovation supports companies to develop value chains, especially through the open business model (Baden-Fuller and Haefliger, 2013), and the digital business model has facilitated firms achieving success as well as enabling incumbents to compete against industry newcomers (Osterwalder and Pigneur, 2010). Nevertheless, how the process through which business model innovation, triggered by the development of digital technology, can create value and generate profits for firms remains unclear (Günzel and Holm, 2013). In this section, three concepts related to this research focus will be reviewed: digital technologies, business models and business model innovation.

2.1 Digital technologies

Digital technologies (viewed as combinations of information, computing, communication and connectivity) are “fundamentally transforming business strategies, business processes, firm capabilities, products and services, and key inter-firm relationships in extended business networks” (Bharadwaj *et al.*, 2013, p. 471). Digital technologies have become a big topic as enablers of business model innovation (Zott *et al.*, 2011; Visnjic *et al.*, 2016). Through the use of digital technologies, a firm can transform its traditional business into a digital business. Digital business is concerned with not only how to transform a traditional business into one that is digitally supported by technology but also the digitalization of products and services and the information needed to deliver them (Bharadwaj *et al.*, 2013). Digital technologies have facilitated companies to reduce the functional and process silos (Bharadwaj *et al.*, 2013) as well as removed organizational boundaries (Teece, 2018a, 2018b) so that the resources within companies become more fluid, which is one of the dimensions of organizational agility (Doz and Kosonen, 2010).

Digital technology has provided various opportunities for companies to interact with their customers and this, in turn, has led to business model innovations (Khanagha *et al.*, 2014). For example, the fashion industry has become increasingly reliant on digital technology, as explained by Martia Abraham, Chief Marketing Officer of ZILINGO, who highlighted that, “every week it seems fashion is changing, and it’s all happening on Instagram” (Facebook, 2020).

Digital technologies, such as social media, digital marketplaces and digital electronic payments have enabled small companies to rapidly increase the scale of their business and support internationalization in a cost-effective way (Huang *et al.*, 2017). At the same time, these technologies have enabled threatened incumbent companies to reorient their position in an industry (Kaulio *et al.*, 2017; Sebastian *et al.*, 2017). With the support of digital technologies, the capability gap between large incumbent companies and small companies newly entered to the market or industry becomes narrower, making the competition more dynamic (Teece and Linden, 2017). Digitalization can be seen as an entrepreneurial process that facilitates firms in reviewing existing business models, having the potential to undermine the competitive position of even large-sized-incumbent companies (Huang *et al.*, 2017).

Integrating digital technology into a company's business operations is not a simple task, as firms must first address the organizational issues (Leih *et al.*, 2015). Indeed, on average, less than one-third of managers from traditional industries are ready to adopt digital technologies (Berger, 2015). Yet, if firms succeed in integrating digital technology into their business operations, a number of benefits can be realized, including the better use of resources, expanding business models (Kiel *et al.*, 2017; Warner and Wäger, 2019), better innovation capability (Bouwman *et al.*, 2018), better performance (Bouwman *et al.*, 2018), transforming business models in traditional industries (Remane *et al.*, 2017) and the potential ability to implement multiple business models within one firm (Li, 2018).

The convergence of technology development has caused managers experience difficulties to forecast future business environment and how they should plan the resources needed to design desired business models. (El Sawy *et al.*, 2016). One possible solution is big data analysis, where managers not only respond to technological development trends but also anticipate how they will develop in the future (Sebastian *et al.*, 2017). Due to the uncertainty of technological development, incumbent firms must prepare resources to enable them to anticipate the convergence of technology developments so that digital leadership can be maintained (El Sawy *et al.*, 2016).

2.2 Business model

There are a large number of definitions of the "business model" (see, for example, Li, 2018; Massa *et al.*, 2017, and Zott *et al.*, 2011, for reviews of the different definitions); there is much variation between these definitions, and it is not easy to reach a universally accepted understanding (Visnjic *et al.*, 2016). However, scholars generally agree that the business model is related to value capture, value delivery and value creation (Zott *et al.*, 2011). Sabatier *et al.* (2010) interpreted the business model as being a "template," "recipe" or "role model" regarding how to run a business in a "good way." In this sense, "good" is defined as the ability to "generate revenue" that is higher than the "costs" and is able to satisfy the needs of different stakeholders. After the template has been established, who does what must be decided. Once these routines have been developed and honed, the template would be sticky to change (Zott and Amit, 2010) because of resource stickiness to the existing routines (Teece *et al.*, 1997). For this reason, the resources must be sufficiently agile so that their configuration within the business model can be adjusted dynamically from time to time (Doz and Kosonen, 2010); this adjustment is deemed essential because stakeholders' expectations are also dynamic and changing (Li, 2018).

This study uses the following definition of a business model: "the design or architecture of the value creation, delivery, and capture mechanisms [a firm] employs. The essence of a business model is in defining the manner by which the enterprise delivers value to customers, entices customers to pay for value, and converts those payments to profit"

(Teece, 2010). From this definition, business models cannot be separated from the context in which the firm operates. Also, business models do not have definite boundaries, and thus organizational boundaries are less relevant to be used as the main reference (Teece and Linden, 2017). The definition takes into account the ability of a business model to blend with its business ecosystem, considering that the business model must be able to carry out changes that reflect the changes in the business environment (Teece, 2018a, 2018b).

The business model offers benefits to a firm's managers in the process of strategizing, planning and making adjustments. It highlights the importance of a company as a system as being more than simply a collection of business elements (Fjeldstad and Snow, 2018). The design of a new business model could have an impact on the market share because a firm can design a new business model by reconfiguring its resources or acquiring new external resources (Zott and Amit, 2007). The business model provides a path for companies where technological innovation and knowledge are combined with tangible and intangible resources to generate profit (Teece, 2018a, 2018b). The business model consists of several layers in which the higher layers serve as connectors to the lower layers, and the lower layers are interlocked (Li, 2018).

2.3 Business model innovation

Business model innovation is defined as the output of innovation that attempts to “renew” the business model currently being operated by organizations (Foss and Saebi, 2017) or makes dramatic changes to the existing business model that are observable and have an impact on stakeholders (Bouwman *et al.*, 2018; Warner and Wäger, 2019). Business model innovation is usually carried out by entrepreneurial firms that continuously identify, experiment with and exploit new business opportunities (Achtenhagen *et al.*, 2013). The main focus of specifically digital business model innovation is how to combine the existing capabilities with the support of digital technology (Sebastian *et al.*, 2017).

Research interest in the areas of business model and business model innovation has increased dramatically with the advent of digital technology (Foss and Saebi, 2018). This technology enables companies to collaborate with external parties so that the business models that are under development become more open (Baden-Fuller and Haefliger, 2013) and can function across organizational boundaries (Zott and Amit, 2010; Leih *et al.*, 2015).

A significant effect of digital technology is the discontinuous changes, which result in a shortened firm life cycle (Louçã and Mendonça, 2002). In this context, business model innovation has been viewed as a response that is able to help maintain firms' survival (Velu and Stiles, 2013). This innovation is carried out through experimentation, as the adoption of new technology alone does not guarantee that firms can adapt to the new or changed environment (Tongur and Engwall, 2014). The technology must be adapted to existing business models so that companies can reconfigure existing resources to create new business models (Kaulio *et al.*, 2017). To reap the economic benefits of technology adoption, companies must use it to pursue business model innovation (Björkdahl and Holmén, 2013). Nevertheless, business model innovation is not always successful; some firms have to go through a process of trial and error, or experimentation, before achieving success (Tongur and Engwall, 2014).

A dramatic change in the business model requires substantial drivers, including the implementation of new technologies, shifting the customer base, redesigning the organizational structure or a combination of two or more of these drivers, resulting in disruption (Teece, 2018a, 2018b). By comparison, a moderate business model transition or minor modification to the existing model would be easier to achieve (Khanagha *et al.*, 2014). Business models are rarely out-of-the-box entirely and require regular maintenance via fine-

tuning to adapt to environmental changes. However, companies sometimes need to overhaul their business model with a comprehensive modification that incurs substantial costs in the hope that this transformation will enable them to generate profits (Ries, 2011; Trimi and Berbegal-Mirabent, 2012), the resulting new business model will enable them to target new markets (Li, 2018).

Theoretically, incumbent companies experience difficulties adapting to changing environments due to resources rigidity (Leonard-Barton, 1992) and are consequently vulnerable to being replaced by newcomers. By comparison, smaller companies are typically more agile and thus more adaptive to the environment (Doz and Kosonen, 2008), although they are restricted by having more limited resources.

3. Methods and empirical work

3.1 *The research design: single case study and longitudinal analysis*

This study uses a single case study, a method that enables researchers to observe objects in-depth (Siggelkow, 2007); the adoption of this method enables complex interactions between elements of the business model to be examined in detail (Zott *et al.*, 2011; Foss and Saebi, 2018). Although the use of more than one subject is suggested in the literature (Eisenhardt, 1989; Voss *et al.*, 2002), it is still possible to build a logical replication that can be equated with statistical generalizations in quantitative methods by using one case (Siggelkow, 2007). Too many research subjects add to the complexity of the data analysis process, making robust conclusions difficult to infer (Eisenhardt, 1991).

A longitudinal field study was selected as a method because it is comparable to storytelling, concerning how firms change their business model from time to time, and therefore, comprehensive constructs can be developed (Eisenhardt, 1991). Moreover, a longitudinal field study offers an opportunity for researchers to observe phenomena in natural settings (Pettigrew, 1990). This research design is appropriate for the topic of digital technologies and business model innovation, which are still in early development, and it is recommended that the question of how companies adapt to the new environment created by technological changes is examined (Eriksson, 2013).

3.2 *Data collection*

We initially carried out desk research to obtain secondary data that is available to the public before collecting the internal data. The desk research was also intended to identify notable sociotechnical changes, such as the introduction of low-end smartphones and the introduction of delivery service providers, such as J&T, Go Send, SiCepat, Lion Parcel, TIKI, JNE, Wahana, and others. The data obtained during the desk research included the company profile, historical data on the use of social media by the case company and transaction activities in online marketplaces, such as Zalora, Lazada, Shopee, Bukalapak and Blibli.

The participants in this study were managers, supervisors and staff members who were involved in the process of adopting digital technologies into the case company's business model. As a longitudinal study design was adopted, we focused on the "carrier of the history" (Kaulio *et al.*, 2017) – in this case, it was those involved in the process of adjusting the business model to include digital technologies, as presented in Table 1. To identify important events occurring during the observation period, the researchers used open questions to identify important events. Generally speaking, the three major themes identified by the participants were:

Data sources	Scope of information
<i>Primary data</i>	
Internal company respondents	A number of informants from the case company were selected for interviews. The focuses of the interviews included not only their involvement in the use of digital technologies but also the historical journey of the firm in engaging with the emergence of the technologies. Priority was given to more senior staff members and those with deeper involvement in the use and adoption of digital technologies
Informants	CustomerShop floor Staff responsible for the operation of social media, online marketplaces and the company website
Number of informants	1 14 12 2
Frequency	24 51 6 16
Techniques of data collection	Unstructured interviews with open-ended questions were organized. As the interviews were undertaken in the middle of respondents' daily activities, the duration of the interviews varied widely, between 15 min and 1.5 h. On some occasions, the discussions were interrupted because of urgent matters related to daily operations that needed to be addressed by the respondents
<i>Secondary data sources</i>	
Social media activities	Historical activities of the firm's accounts were traced back to initial registration
Social media reports and publications	Facebook <ul style="list-style-type: none"> • https://research.fb.com/publications/ • www.facebook.com/business/ • www.facebook.com/business/m/riding-the-digital-wave#Hear-from-the-companies-we-spoke-with Instagram <ul style="list-style-type: none"> • www.businessinsider.com/instagram-growth-hinges-on-stories-cowen-2019-advertiser-survey-2020-1?IR=T • https://tonyhymes.info/2019/05/02/how-do-people-use-instagram-infographic/ Twitter <ul style="list-style-type: none"> • www.clickz.com/social-media-2019-survey-results/239478/
Government announcements, product launches and business news	This data provided the background information, which is useful for identifying historical changes in sociotechnical factors
Internet search performed using Google search engine	Performed an electronic search using the keywords Alpha, Alpha Handicraft International and AHI to obtain corporate actions, news and information regarding the AHI. <ul style="list-style-type: none"> • Carried out a search for issues related to the development of delivery service providers, new smart phone introduction, etc. • Identified similar companies to the AHI in Indonesia and observed their actions in response to digital technology development

Table 1. Data sources

- (1) the development of digital technologies and sociotechnical changes related to the technologies – we assigned the code “digital technologies” (DT) to these events;
- (2) firm responses to the development of digital technologies – we assigned the code “firm response” (FR) to these events; and
- (3) changes in the resource configuration used to support business model innovations.

3.3 *Protocols for validity and reliability*

To ensure the validity and reliability of the study, a series of procedures were applied during the process of data collection and analysis, as suggested in the literature (Eisenhardt, 1989; Miles and Huberman, 1994; Yin, 2014). The researchers used a theory-guided approach in the case study, as this method enables a more structured and systematic explanation than conventional exploratory case studies (Eisenhardt, 1989).

3.4 *Data analysis*

The data obtained from the desk research provided preliminary information regarding the case company and its business context, enabling the researchers to focus on the primary data available within the firm. After we had conducted interviews, we triangulated the collected data from the informants with other sources of data, including company documents, observations and data from the desk research. The recorded interviews were then transcribed verbatim, which enabled us to analyze the statements from informants in detail. As a part of the triangulation techniques, the transcribed interviews were cross-checked and analyzed simultaneously with notes made during data collection in the field. Based on the premise that new theories can be created by observing anomalous phenomena and the results of creative thinking (Eisenhardt, 1989; Christensen and Sundahl, 2001), this research focuses on two phenomena: events that related to digital technologies and the firm’s responses to these digital technology developments in regard to its business model.

To analyze the collected data, we used the grounded theory methodology (Bamford, 2008; Roman *et al.*, 2017), which consisted of three stages. First, we conducted open coding of the collected data into various categories of topics related to the research (Suddaby, 2006) – e.g. firm response, digital disruption, business model innovation, value creation, value proposition and resource configuration. Second, we conducted axial coding, which aims to identify the causal relationship between different codes. At this stage, the researchers performed matching, between the *events* related to digital technologies with the *responses* of the case company. In addition, the interplays *between the events* and *responses* were also examined. Third, the researchers highlighted the dominant patterns in the findings. Major patterns might overlap with minor ones, and hence, we should conduct refinements to ensure the codes are conceptually separate from each other (Glaser and Strauss, 1967).

The thematic data analysis that resulted from the grounded theory is presented in chronological order so that digital technology developments can be identified from time to time, as presented in Figure 2. This technique of data display was selected because this study uses a longitudinal approach. Figure 2 also presents how the case study firm responds to emerging new technologies. During the data analysis, we started by identifying what digital technologies have emerged during the observation period, and subsequently, divided them into three high-level categories: the emergence of social media, the emergence of local markets and sociotechnological changes. On the upper side of Figure 2, these high-order themes are summarized from the detailed events that occurred during the investigation period.

Meanwhile, on the lower side of [Figure 2](#), the firm's responses to the emergence of digital technologies are presented. We categorize these responses into three high-order categories – i.e. communication and strategic sense-making, business model extensions and business model transformation – in which each category is summarized from the second and first order. The second and first order categories are presented in the lower side of the [Figure 2](#). In the graph, the second order themes are presented under the title of “strategic responses” for each phase, whereas the first orders are presented under the title of “examples of activities”. These explain each strategic response in more detail.

4. Empirical findings

4.1 *The case company*

Alpha Handicraft International (AHI) is a manufacturing firm situated in Yogyakarta, Indonesia, that produces a variety of fashion and apparel items made from leather, including handbags, backpacks, key chains, wallets, footwear, purses, cases and ancillaries. Since its establishment, AHI has targeted its products at the international market and high-end customers in the local market. The firm manages 180 full-time employees, and all its products are manufactured in-house to enable more convenient quality control. In 2019, the firm produced more than 180,000 products, which are mostly marketed to the Australian and European markets.

While the firm has developed the “Alpha” trademark for the local market, it uses different trademarks for foreign markets. The “Beta” trademark is used for the European markets, and “Gamma” is used in the Australian market. The firm's Australian partner, Gamma Leather Co., headquartered in Tasmania, organizes 50 outlets in Australia. Meanwhile, marketing and distribution for the European market are managed by Beta Leather Co., headquartered in The Netherlands, which manages more than 600 retail outlets.

4.2 *Empirical findings: the journey of integrating digital technologies into the business model*

This section describes how the adoption of digital technologies has supported the case company's transformation from managing a single business model into multiple business models. This transformation seemed serendipitous but did, in fact, require the careful planning of resources. Generally speaking, the development path of digital technologies relevant to business model innovation can be categorized according to three periods:

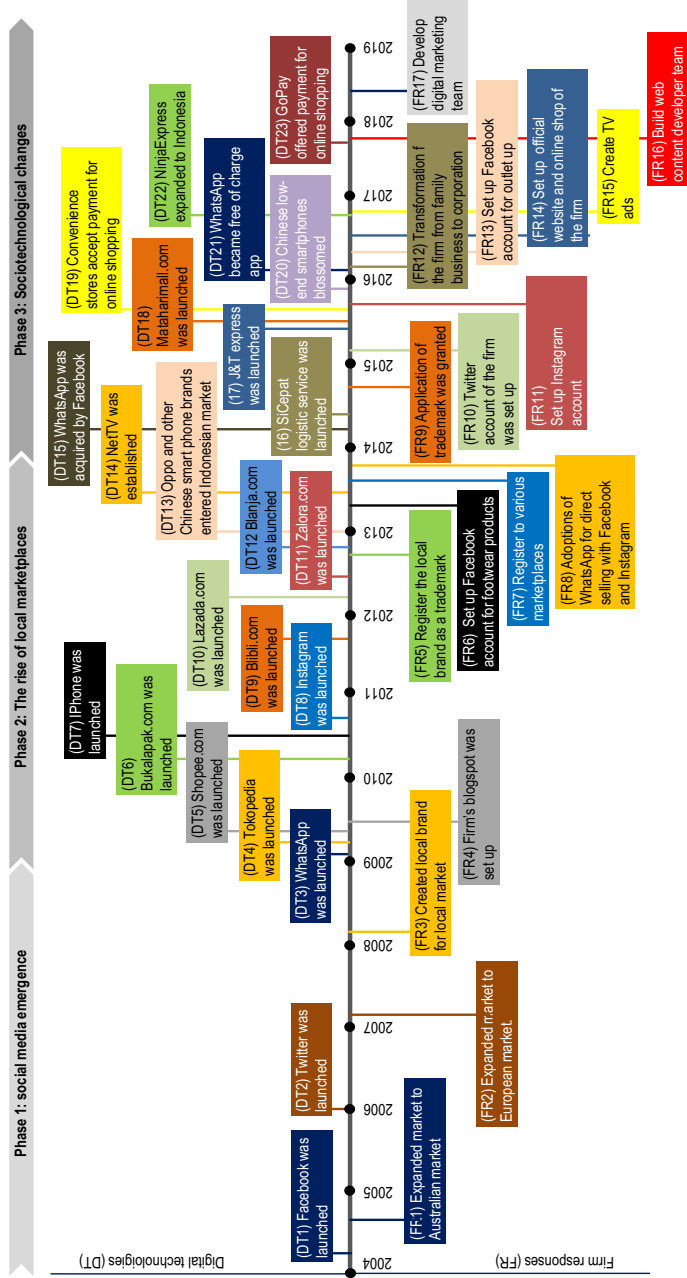
- the emergence of social media, indicated by the launch of Facebook, Twitter and Instagram; and
- the establishment and rise of local marketplaces.

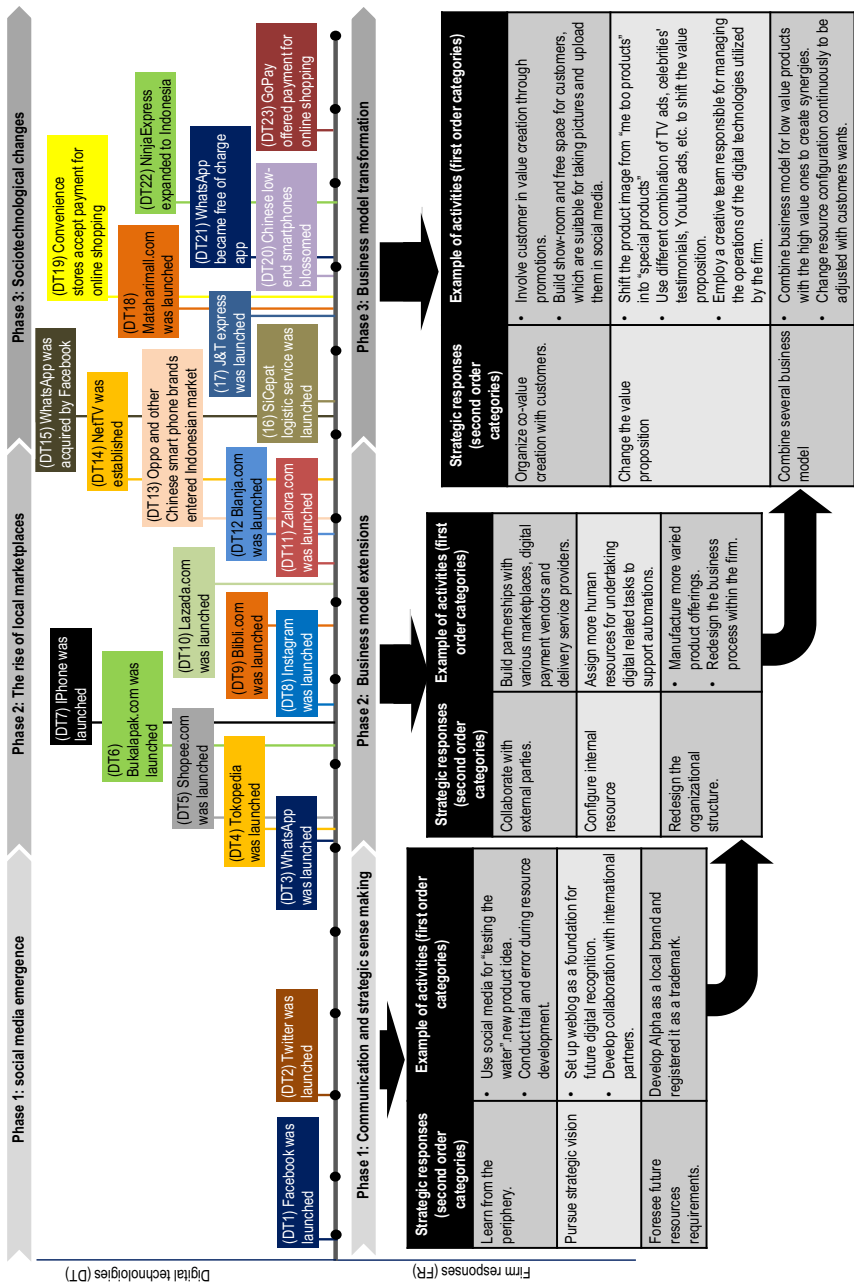
In this phase, foreign marketplaces expanded to Indonesia and offered convenience to local businesses and small- and medium-sized enterprises. Local marketplaces refer to online trading platforms managed by the Indonesian firms, whereas foreign marketplaces refer to those originating from abroad who set up a branch office in Indonesia; and

- sociotechnical context changes, marked by the emergence of diverse payment methods, more convenient service delivery and the introduction of low-end smartphones from Chinese manufacturers.

The details of the three phases and how the case company has responded to the digital technology changes in each phase are presented in [Figure 1](#) and explained in the following sub-sections.

Figure 1.
The three phases of digital technologies development and the firm responses





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Figure 2. The strategies on different phases of digital technology developments

4.3 Phase 1: social media emergence (2004 to 2010)

Social media is the most affordable digital technology for companies to adopt, as it does not require resources with specific expertise. Undeniably, Facebook (DT11) and Twitter (DT12), introduced in 2004 and 2006, respectively, are the two social media platforms that played the most pivotal role in the development of digital technology. During this phase, AHI had not used social media as a part of its business model. The company realized that social media would someday develop to become a part of the business model, but the manager did not yet understand how and in what way.

Instead of adopting social media for supporting its business, the firm engaged in strategic expansion by developing partnerships with the Australian and Dutch companies, which later took the trademarks “Gamma” (FR1) and “Beta” (FR2), respectively. This decision led to a dramatic increase in production volume that required substantial firm resource adjustment. The initial intention of the partnerships was to achieve wider market coverage. With stable demand from both the partners, the firm’s operations became more efficient because of a more stable production process and higher production volume. The firm also received knowledge transfers from its partners in Australia and The Netherlands. From these partnerships, the firm realized that trademarks were an important response to future environmental changes and, for this reason, the firm created a new brand for the local market: Alpha (FR3).

The manager aspired to grow the company to become a global firm, based on the understanding that the technology would make it easier for people from various parts of the world to communicate. However, the strategies used by the firm were not always in alignment with the technology development trends. For example, in 2009, the firm decided to use a Web blog (FR4) to introduce its products to the market, rather than Facebook or Twitter. The manager contended that Web blogs were considered more prestigious at that time than Facebook (DT1) and Twitter (DT2), which were deemed to be more suitable for building personal friendships.

It took almost 10 years, following the launch of social media for AHI, to adopt both Facebook and Twitter; the firm set up accounts on these platforms in 2013 (FR6) and 2015 (FR10), respectively. Once the social media accounts were set up, they were used to commercialize the firm’s business and, in particular, promoted “Alpha” as a trademark (FR5). Social media was also used for the preliminary assessment of new product innovations in the market, as explained in the following text:

Innovating is risky, but if we do not dare to take that risk, we will not move forward [. . .] Social media facilitates us to “test the water” if we have innovative products. (Head of Marketing Department)

Social media enables firms to recognize weak signals of future market trends, which is a valuable way of conducting resource preparation before other companies do. The following statement describes this situation:

[. . .] just like in real life, on social media you must have sharp eyesight and sensitive hearing. If you have that, you can move earlier [. . .] and earn profits faster. But remember, everything you do early is susceptible to the wrong direction. (Director, Owner)

4.4 Phase 2: the rise of local marketplaces (2010 to 2015)

In Phase 2, many local marketplaces emerged that enabled small- and medium-sized enterprises with limited digital literacy to market their products online. In early 2010, the case company began allocating more resources to manage digital technology that would

support its business model. Some staff members were assigned the task of not only managing transactions on the firm's marketplace account and social media but also developing a sensing capability so that they could understand how the digital business environment had been evolving. The AHI engaged in almost all the available online local marketplaces – e.g. Shopee (DT5), Bukalapak (DT6), Blibli (DT9), Lazada (DT10), Zalora (DT11) and Blanja (DT12). Transactions completed through these marketplaces increased the value of the online business and broadened the firm's market reach. The automation process offered in the marketplaces reduced the amount of human intervention, resulting in more efficient business operations.

Furthermore, WhatsApp was used to communicate with customers submitting orders through Facebook (FR6), Twitter (FR10) and Instagram (FR11). WhatsApp made the communication with customers more personal and intimate, as described in the following text:

We just want to provide a personalized online service, as if she is the only customer, and as if she is standing in front of us. With WhatsApp's personal messages, this is all done in a much easier way. (Retail sales staff)

From the preceding descriptions, it is clear that each digital technology – marketplaces, social media and WhatsApp – made different contributions to the business model. In addition to reconfiguring resources, entering a marketplace requires collaboration with external parties, such as service delivery providers, electronic merchant payments and banks.

In this phase, the product offering was significantly diversified from just footwear to a wide variety of fashion products, such as purses, backpacks, business bags, accessories and so on. The firm had previously been known as a manufacturer of footwear; for this reason, it had set up a Facebook account 3 years earlier than other fashion products' (FR12) Facebook accounts (FR6). The brand images of high-quality and durable footwear could be transferred quickly to new product lines through visual communication on Facebook, Instagram, Twitter as well as graphical displays on digital marketplaces:

At first, we thought it [social media] was just for communication [with customers]. But the reality is much bigger than that. Our [product and company] image is built inexpensively through social media. (Marketing supervisor)

Meanwhile, on the market side, there had been an increase in the intensity of the use of digital technology in this second phase because of the increasingly affordable Chinese-manufactured smartphones (DT29) in the market.

During this second phase, it can be seen that the firm gradually reconfigured its internal resources in response to the increasing use of digital technologies. The manager recognized that the development of digital technologies required strategic adaptability, as well as the creation of trademarks, partnerships and networks to support the adaptation process. The company benefited from managers possessing strategic sensitivity to the trends in digital technology.

4.5 Phase 3: sociotechnical changes (2015 onward)

In Phase 2, the firm had begun to transform its business model from a single business model – i.e. a manufacturer of footwear with a limited number of local outlets – to a multifaceted business model, with the firm producing various products made of leather. A number of distributing and marketing channels supported by digital technologies were used and the firm

was involved in international business networks. In Phase 3, the transformation of the business model accelerated because of the support of sociotechnical factors.

These sociotechnical factors included the growth of local delivery service providers, electronic wallets and convenience stores offering services as payment service providers for online transactions. Local delivery service providers – i.e. J&T Express (DT17), SiCepat (DT16) and NinjaExpress (DT22) – provide delivery service solutions at low prices, with high reliability. GoPay (DT23) is an electronic wallet offered by local firms, facilitating payment for online transactions, which encouraged customers to shop online more comfortably. Customers who do not have an access to bank-based payments have the option of using convenience stores (DT19), such as IndoMart or AlfaMart, which are ubiquitous in the neighborhood. All these factors encourage customers to feel more comfortable about adopting digital technologies to purchase the firm's products.

The introduction of certain gadgets also contributed to the transformation of digital business models. The iPhone, which was launched in 2007 (DT7), did not appear to have much impact on customer shopping behavior patterns, as its price point was considerably high for customers in a least developed country, like Indonesia. However, the launch of Oppo (DT13), which was followed by other affordable smartphones manufactured in China (DT20), familiarized consumers with online shopping and shifted the value delivery of the firm significantly from offline to online.

Having adopted social media, online marketplaces and customer communication with WhatsApp, the firm strived to embrace the digital technologies to another level. The firm combined the adoption of these technologies with television advertising, websites, YouTube as well as building a digital technology team (FR16). The creative team is responsible for dealing with the mass media for publications and designing television and YouTube advertising. Professional models, photographers and content creators were hired on a temporary basis to manage the firm's social media accounts, YouTube account and website. This integration had a significant impact on the firm's business model because each digital technology has a different emphasis, resulting in synergy, as explained by one of the managers:

We want people to recognize our brand, which is why our brand is on Facebook, Twitter, and Instagram. And that's not enough. We need to raise our image to another level using advertising on television [...] Television adverts make people think that we are classy, not just looking for something free [using social media]. (Marketing Manager)

In addition, customer relations also changed from being simply “purchase transactions” to “relationship marketing” by establishing a customer loyalty program. All these efforts were aimed at repositioning the firm's products, changing them from “me too products” to “special products.”

In summary, in Phase 3, AHI had more options for adopting various digital technologies, and it seems that the firm company has to seize this opportunity. The value proposition has shifted from ordinary to high-end products.

5. Discussion

This section presents the big picture of the detailed findings in Section 4. The detailed findings in the previous section demonstrated that to keep pace with dynamic environments, the firm must be supported by agile resources when undertaking business model innovation (Fjeldstad and Snow, 2018). This study has shown that business model innovation requires a gradual process that accelerates in-line with the development of digital technologies and the sociotechnical factors supporting the transformation (Tilson *et al.*, 2010; Beaumont *et al.*,

2014), such as the adoption of gadgets, digital payment technology, delivery services and digital marketplaces. The three phases are summarized in [Figure 2](#), and the details of the strategies on each phase are discussed in the subsequent paragraphs.

5.1 Strategy in phase 1: communication and strategic sense-making

The responses of the firm during Phase 1 of digital technology development can be summarized as communications and strategic sense-making. These events occurred throughout Phase 1 and the early stages of Phase 2. The firm uses digital technology, mostly social media and a small number of Web blogs, to communicate with its customers. Digital technology has provided mobility, interactivity and information availability, but the challenge that arises is how to capture this opportunity ([Berman, 2012](#)). Although social media seems trivial to many people, the literature reported that almost all successful companies use social media to support their businesses, using at least four platforms every day ([Dooley, 2019](#)). By harnessing social media, the case company has successfully managed its customer communication.

Social media is easily accessed by both businesses and consumers, and for this reason, it is easy to be harnessed to support retail business, and to be applied for supporting the promotion mix widely ([Mangold and Faulds, 2009](#)). Through the use of social media, the case company identifies the weak signals of market trends, originating from distant signal sources, which is a strategy called *learning from the periphery* ([Day and Schoemaker, 2016](#)). New product idea generation using social media is well documented in the literature ([Mount, 2014](#)), and this strategy is used by the AHI. The firm uses social media to “test the water” with regard to a new product idea. In addition, the firm uses trial and error to predict what resources would be suitable for pursuing business model innovation in the future. An example of this is the use of social media and trademark development at the beginning of 2010; at that particular time, the two strategies did not seem related, yet the manager of the firm believed that the trademark would be an important asset. A few years later, the trademark was gaining popularity in the market with the support of social media. Synergy between trademark development and social media is possible, but it should be reserved until the sociotechnical factors are in alignment with these strategies.

Furthermore, the firm uses social media for *pursuing strategic vision*. Social media enables the firm to develop networks and lay the foundations of digital technology-based business models ([Storvang et al., 2019](#); [Niemand et al., 2021](#)). Although the firm’s strategy to build a Web blog was not impactful for its business, the Web blog built the foundations for adopting other digital technologies. Establishing partnerships abroad was another effort made to gain market recognition. In this phase, the firm *foresaw the future recourse requirements* that would be needed for developing a new business model. In addition to establishing partnerships with foreign companies, the company developed the Alpha trademark for its products, which are targeted for local market. Both of these activities were a part of its efforts to identify how the business environment was evolving and to predict the necessary configuration of resources for business model innovation in the future.

In short, the firm uses social media for not only responding to phenomena occurring at a particular moment in time but also identifying the future needs of the business model. Therefore, success in this phase is concerned with not only what digital technology can do to support its existing operations but also, and more importantly, what strategic uses the technology will have in the future and which resources will be needed to support the implementation.

5.2 Strategy in phase 2: extension of the business model

The rise of the local marketplaces has enabled the firm to extend its business model by automating transactions with external parties and intensifying revenue generation. Firms undertaking extensions of their business model can combine existing business operations with digital technology to intensify revenue generation, strengthen a product's position in the market and improve the product's image in the market, while the core business does not change (Li, 2018).

Furthermore, digital technologies have enabled the firm to automate *collaboration with external parties*, such as marketplaces, digital payment vendors and delivery service providers. The automation of various processes, such as order processing, transactions and communications with customers and stakeholders, results in more efficient operations (Li, 2018). To implement automation, the firm *reconfigures internal resources* by assigning trained staff to support transactions in the digital marketplaces.

Automation is associated with changes in the product offerings and an *organizational structure redesign* due to the increasingly efficient operation of the firm (Hess et al., 2016). In-line with the extension of the business model, the case firm's product offering is increasingly varied and is supported by a larger organizational structure. The business model extension, which was primarily triggered by the increase in local marketplaces, has encouraged the firm to redesign its business processes. The adoption of digital marketplaces is not itself costly, but its implementation requires the support of resources that need to be prepared at the outset. Once the firm has successfully adopted a marketplace in a pilot project, this action can be replicated to extend the business model in other marketplaces, which incurs a marginal, almost negligible cost (Henfridsson et al., 2014).

5.3 Strategy in phase 3: transformation of the business model

Business model transformation is different from business model extension; the former involves more significant changes, creating an entirely new business model, whereas in the latter, the firm still uses the existing business model. In business model extension, digital technology might be adopted to support revenue generation or automate operations, whereas in business model transformation, elements of different business models can be integrated with the support of digital technology and configured into a new business model (Li, 2018).

In the case company, the business model transformation gained momentum when the sociotechnical context of digital technologies was well-established. For example, the proliferation of affordable Chinese-manufactured smartphones contributed to the creation of a digital technology user base. Although users may not necessarily become customers, a large number of technology users are necessary for financially successful companies (Huang et al., 2017). The affordability of smartphones is a sociotechnical factor, and this finding thus corroborates the view of Tilson et al. (2010) that "the sociotechnical process of applying digitizing techniques to broader social and institutional contexts that renders digital technologies infrastructural." Managers should have the ability to identify the readiness of the sociotechnical context before deciding to pursue business model innovation. Pioneering a new business model does not always lead to competitive advantage, and followers can also be successful by waiting for the market to reach a sufficient readiness to accept the new business model (Tece, 2018a, 2018b).

In the business model innovation undertaken by AHI, the elements of the business model that were needed to transform the business model already existed, and the company only had to match the firm's resources with customers' value requirements, one of which was *co-value creation*. The firm facilitated co-creation with customers by building a showroom

equipped with several spaces suitable for taking pictures, holding press conferences and gathering customers. Using these facilities, customers can post images to social media and tag the firm's trademark. This finding is in agreement with previous empirical evidence that suggests that social media can be used in a creative way to engage in co-creation (Zwass, 2010) between customers and the firm.

The firm has shifted the value proposition from a "me too product" to a "special product" through promotion on social media. To strengthen this effort, the firm has combined it with television advertising, YouTube channels, websites, recruitment of social media influencers and the establishment of a digital team. Social media influencers are seen as being effective in increasing product ratings and sales (Zareie *et al.*, 2019). All of these efforts are managed by a creative team.

AHI combines several business models to meet the changing value requirements of its customers. The firm has successfully identified potential synergies between the new business models and the existing one. It should be noted that the firm recognizes that not all business models are profitable, but their simultaneous operation is needed to build synergies with the others. For instance, offering accessories with a small nominal value through Facebook and Instagram alone is not economically viable; however, when this is combined with other business models – i.e. online marketplaces, boutiques and office branches – the models reinforce one another.

6. Conclusion, practical implications and future research direction

6.1 Practical implications

This research has practical implications for managers, particularly, how managers organize firms' business models. The ideal business model for firms in the future is difficult to predict, but managers can vignette how future business models look like, based on the pattern of how digital technologies evolve. The pattern of technological development provides managers with some guidance regarding where the trend is going.

In addition, managers must look at how the sociotechnological factors develop as these factors affect how the internal resources of firms can be integrated with external resources. As a consequence, managers must provide the required resources in advance, so that when managers intend to pursue business model innovation immediately, the resources will be readily available. In short, managers must ensure that the resources, both within and outside the organizations, are loosely connected and readily available to be mobilized as "contributors" to business model innovation when the time arrives.

6.2 Conclusion

In this study, the researchers aim to observe how firms carry out business model innovation in response to the development of digital technologies. The findings of the study indicate that, generally, firm resources can act as a "contributor" to business model innovation facilitated by digital technology. The configuration of resources that is required to create business model innovation must be carried out at the right time so that the resources, as "contributors" to the business model, and the market, as "recipients" of the value proposition, are ready. Other interesting points to emphasize are:

- The adoption of digital technologies alone is not sufficient for the pursuit of business model innovation. In general, the success of business model innovation depends on the readiness of the firm's internal resources and the support of sociotechnical factors.

- Organizations must respond to emerging opportunities with proper resource configuration. Configuring resources, supported by digital technologies, must occur at the right time, as deploying resources too early will lead to costly operations, whereas delays will lead to firms being left behind by their competitors.
- Managers should be aware that the new business model is a temporary optimum resource configuration, a situation in which the resource configurations are temporarily matched to a certain circumstance. The firm should reinvent the business model once its relevance starts to diminish.

6.3 Limitations and future research direction

The complex interplay among the resources in business models encouraged the authors to conduct this study using qualitative methods. The methods enabled researchers to focus on details and meanings although at the expense of a broad scope of companies and industries. Future research can combine qualitative methods with computational case studies, which use a large volume of quantitative data from big data. Combining quantitative big data and qualitative analysis could offer practitioners and academia more insight and knowledge than quantitative or qualitative analysis alone.

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Appendix. Interview protocol

Objective of the interview: to document historical changes of the firm in relation to digital technologies, which eventually identify and bring out:

- the emergence of various digital technologies;
- how the firm's strategies have evolved;
- the dynamics of organizations that respond to the emergence of digital technologies; and
- how sociotechnical factors interplay with digital technologies.

Enterprise data

- descriptive data;
- strategic objective;
- organizational structure;
- production facilities, product families, firm's office, showroom and other infrastructures;
- activities in digital technologies, traced back from the firm's official accounts in various social media, its website, BlogSpot, YouTube and trading platforms; and
- events related to the development of digital technologies from secondary sources, such as reports, articles, news, etc.

Questions related to macroeconomic condition and general questions

- From your perspective, how have digital technologies developed since 2004?
- From your perspective, how is the interrelationship between the macro condition of the economy – such as purchasing power, income, salary – related to digital technology diffusion?
- Do you agree with the opinion that the increasing amount of internet penetration and mobile phone ownership will help firms to be more digitalized?

Questions related to social media

- Could you explain how you adopted social media in the very beginning when it first emerged? What about the later phase of social media and recent times? Have there been any shifts regarding its role?
- How do you explore and exploit social media; what are the benefits?
- What impact could various social media have on your marketing activities?
- What are the obstacles of adopting social media to support your business?

Questions related to collaboration with the firm's partners

- Could you please elaborate on how your collaboration with partners from abroad is supporting your digital business model strategies?
- How do you integrate your business partners into your digital business model?
- How do you integrate existing physical and nonphysical assets into your business model? Also, in what way can these assets hinder or support the digital business model transformation?
- Have you developed partnerships with firms from different industries to support your business model changes – e.g. banking, logistics and retail industries? If so, who are they and in what areas do you collaborate with them?
- How do you find the partnership that can support your transition toward a more digitalized business model?

Questions to customers

- With regards to the firm's products that you purchase, do you think social media adoption is beneficial for you as customers? If so, how and in what way?
- Why are you engaged in the social media account of the firm? What are the benefits for you as customers?

- From your point of view as customers, what has been the difference between the time before the emergence of social media and the time after the social media emerged?

Questions related to digital technologies adoption

- What factors do you think hinder the adoption of digital technologies?
- How are the following digital technologies and other related factors affecting the firm and what has been the response?
- social media – i.e. Facebook, Twitter, Instagram;
- YouTube;
- QR Codes; and
- local trading platform – e.g. Lazada.com, Bukalapak.com, Bili.com, etc.
- Are there any issues other than the points we have mentioned previously that affect the adoption of digital technologies in your firm?

Questions related to organizational issues

- Do you tend to anticipate the emergence of digital technologies or do you wait until new digital technologies emerge before preparing a response?
- How do you obtain the resources required to adjust to the development of digital technologies?
- Did your organizational structure need adjustment because of the introduction of new digital technologies? If so, which technology needed adjusting, and in what ways were the adjustments made?

Questions related to the business ecosystem

- Do you participate in a group of firms that operate in similar industries?
- How do you use social media for marketing purposes? – e.g. digital analytics, promotion, introducing new products, etc.
- Do you receive government assistance to help you adopt digital technologies? If so, can you please explain what this is?
- Can you please explain how the proliferation of various electronic payments affects your business?
- Can you please explain how the support logistics services received from digital technologies affect your business?
- Can you please explain how other firms operating in different industries adopt the digital technologies that affect your business? – e.g. retail business, supermarkets, banking, restaurant, taxis, etc.

Questions related to managing an asset to support digital adoption

- Could you please elaborate on how you integrate employees' skills to support digital technology adoption?
- How do you organize your resources and adjust them for the integration of digital technologies in your business?
- How and in what way have digital technologies changed the resource allocations of your company?

Questions related to sociotechnical factors

- What factors do you think that can support and hinder your firms and your customers to do business online?
- In your opinion, how can you increase the chance of customers making payments online?
- How do you prepare the resources that are required for you to anticipate the emergence of new digital technologies?
- There have been many local marketplaces introduced since the 2010s, could you please elaborate on how you respond to the marketplaces?

Questions related to longitudinal changes

- How do you think your firm's strategies have evolved from the emergence of social media until the present time?
- Could you please elaborate on how you integrate the firm's assets into digital strategies?
- Can you please explain what were the milestones of change at your organization as you responded to the emergence of digital technology?
- Can you please explain which influential technologies have affected your business operations since 2004?
- How has your firm responded to the emergence of digital technologies?

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