DIGITAL TECHNOLOGY
BASED BUSINESS MODEL DESIGN ANALYSIS

Ziko Fransinatra1), Gerhana Adjie2), Raja Marwan Indra Saputra3)
Management, Institut Teknologi dan Bisnis Indragiri
fransinatra@itbin.ac.id, gerhanaadjie@stieindragiri.ac.id, marwan@stieindragiri.ac.id
Submitted: 2023.06.01 Reviewed: 2023.06.25 Accepted: 2023.06.30
https://doi.org/10.34006/jmbi.v12i1.590

Abstract
This research investigates how digital technology aid in the development of new business models in the creative industries. A holistic business model framework was built through a thorough literature study, which was then utilized to assess empirical evidence from the creative industries. According to the findings, digital technology have permitted widespread changes in company structures, and several noteworthy patterns have emerged. However, the redesigned business models are frequently not ‘new’ in the sense of being unprecedented. Business model innovation primarily manifests itself in the use of digital technology to enable the deployment of a broader choice of business models than was previously available to a corporation. The increasing adoption of numerous business models as a portfolio inside one corporation is a key rising trend. This occurs in enterprises of all sizes when a single firm employs numerous business models to service distinct market groups, offer different products, or engage in multi-sided markets, or employs changing business models over time. A recursive learning process refines and extends the holistic business model framework, which can serve as a cognitive instrument for comprehending business models as well as a planning tool for business model improvements. The study advances our understanding of business model theory and how digital technologies enable business model innovation in the creative industries. Three new study topics for the future are emphasized.

Keywords: business model, portfolio model, holistic framework, creative industry, digital technology, digital economy, transformation, innovation

INTRODUCTION
Based on empirical evidence from the creative industries, this paper develops a holistic business model framework to systematically define its key constructs (what); and then uses the framework to analyze how business models have changed and why, as well as explore the role of digital technologies in business model innovations. The research advances our understanding of business model theory and how digital technologies have been used to support business model innovation. It also investigates the creative industry's potential role in fostering innovation and entrepreneurship across other sectors of the economy. The creative industries were chosen for their broad coverage in both traditional (e.g., art, publishing) and digital native sectors (e.g., video games). They are not only a significant engine of economic growth, job creation, and social cohesion (Pratt & Jeffcutt, 2009), but also a hub of managerial innovation and experimentation, as well as new organizational and business practices, to stimulate innovation and entrepreneurship in other sectors of the economy (Lampel & Germain, 2016;
Petruzzielli & Savino, 2015). They were chosen to serve as an important domain for business model improvements enabled by digital technology, as well as an excellent environment for a comprehensive investigation of the subject.

A multi-stage, recursive learning approach is used to design, enhance, and evaluate the holistic business model framework (Straub & Carlson, 1989). It is designed to be a cognitive tool for understanding business models (Badden-Fuller & Morgan, 2010; Furnari, 2015) as well as a planning tool for producing business model innovations (Doganova & Eyquem-Renault, 2009; Sabatier, Rouselle, & Mangematin, 2010). The following section examines past research and creates a comprehensive business model framework. The research strategy and empirical findings are then examined. Following that, digital technology-enabled business model advances in the creative industries are carefully examined, and emerging patterns are recognized. Following that, the contributions to theory and practice are examined. Finally, three new research topics are highlighted. Despite a spike of literature from the late 1990s, the concept of business model remains vague today. Many definitions coexist, many of which are distinctive in nature and pragmatically adopted to match the needs of specific investigations (Demil & Lecocq, 2010; Eckhardt, 2013). There appears to be a general consensus on what a business model is in everyday discussion, but as an analytical notion, it lacks definition and rigour. In several fields, business models have been explored from various viewpoints to fulfill a variety of objectives at various levels and degrees of study. This has hindered researchers’ and practitioners’ capacity to successfully draw on one other’s work.

We now critically evaluate the existing definitions based on our understanding of construct clarity. The following are our observations. First, several of the proposed definitions utilize ambiguous terminology, such as digital technology (Veit et al. 2014; Aagaard 2019), digital marketplace (Venkatesh et al. 2019), or tailored items (Morabito 2014). Looking at Suddaby’s (2010) preconditions for successful definitions, we can see that some of these descriptions fail to meet the criterion of effectively conveying the key qualities of a construct. We first identified and reviewed several well-known conceptual frameworks on business models from the literature, including those by Gordijn and Akkermann (2001), Chesbrough (2007, 2010), Johnson et al (2008), Lindgardt, et al (2009), and Kiron, et al (2013), before settling on one of the most comprehensive and widely used frameworks to structure the case studies - the Business Model Canvas (Osterwalder & Pigneur, 2010). However, after the first few case studies, its limits for this research were evident.

The amount of semi-structured details within each canvas, while very useful in capturing detailed insights for understanding a specific firm’s business model and how its various constructs change over time, becomes a liability when comparing a large number of firms or researching emerging trends in a diverse domain like the creative industries. Additionally, there is no distinction made in the canvas between operational and strategic constructs. The value proposition is the only construct out of the nine that includes value, despite the fact that the concept of value is at the core of every business model. Value sensing, generation, distribution, and capture changes are not intended to be recognized and captured. As a result, this study requires a new holistic business model framework.

A thorough assessment of the literature was done on earlier research on business models, including both newly developing new business models and traditional business models that have been modified thanks to digital technologies. A rigorous procedure called a systematic review is used to find, evaluate, and synthesize research data on a particular study issue (Transfield et al. 2003; Pettigrew & Roberts 2006). The ISI Web of Knowledge was utilized, which combines four indices: the Science Citation Index (SCI), the Social Sciences Citation Index (SSCI), the Arts and Humanities Citation Index (A&HCI), all of which date back to
1970, and the Conference Proceedings Citation Index-Science (CPCI-S), which dates back to 1990. The fields of business management, innovation, e-commerce and e-business, computing and information systems, and social and behavioral studies all underwent a rigorous search for pertinent articles. The references were reduced using a multi-stage filtering procedure that combined keywords, the year of publication, and the applicability of the title and abstract. In addition, important references from recognized authority on the issue were found based on prior knowledge and peer recommendations.

The publications included a number of recent thorough evaluations that covered earlier business model research. The literature on business models has mostly grown in three silos, namely e-Business and information systems, strategic management, and innovation management, according to Zott, Amit, and Massa's (2011) study of 103 papers (chosen from 1253) on the topic. These studies also found five common motifs despite having substantial conceptual variations. The first is that the business model is becoming a new analytical unit. Second, it emphasizes a comprehensive strategy for describing how businesses operate. The third point of emphasis is the firm's and its partners' activity system. Fourth, value capture and generation are both considered. Fifth, new business models are significantly made possible by digital technologies.

Other review articles and journal special issues were found, such as those by Demil & Lecocq (2010), Baden-Fuller & Haefliger (2013), Spieth, Schneckenberg & Ricart (2014), and Visnjic, Wiengarten & Neely (2016). The foundation for this review was laid by these studies taken as a whole. The 50 papers that were found were coupled with some significant seminal works that were found from the citations through a reverse search. This study also incorporated the usage of more than 80 publications, books, and chapters. The definitions of business models, their essential elements, and the contribution of digital technology to business model developments are the main points of discussion. Based on the review, a preliminary framework for a comprehensive business model is created, which is subsequently expanded and improved through interactions with other academics and business leaders in our case studies and in specially invited workshops. Later in this paper, this process will be covered in greater detail.

LITERATURE REVIEW

Business Models

Business models are a multifaceted, complex notion. Previous research has characterized it as "a statement." (Stewart & Zhao, 2000), a description (Applegate, 2001; Weill & Vitale, 2001), a representation (Morris, Schindehutte, & Allen, 2005; Shafer, Smith, & Linder, 2005), an architecture (Dubosson-Torbay, Osterwalder, & Pigneur, 2002; Timmers, 1999), a conceptual tool or model (George & Bock, 2009; Osterwalder, 2004; Osterwalder, Pigneur, & Tucci, 2005), a structural template (Amit & Zott, 2001), a method (Afuah & Tucci, 2001), a framework (Afuah, 2004), a pattern (Brousseau & Penard, 2006), and a set (Seelos & Mair, 2007)' (Zott, Amit & Massa, 2011, pp1022).

Massa, Tucci, and Afuah (2017) conducted a more current review that identified 71 definitions/conceptualizations of the business model from 89 papers and highlighted their first order components and themes. These definitions only partially overlap, promoting divergence rather than convergence of viewpoints. Most earlier studies concentrated on only one or a few facets of the notion.

First, rather than being anything genuine, business models are frequently described as models or cognitive configurations that may be presented, displayed, and otherwise modified as representations of a class of businesses in terms of how they work (Furnari, 2015). According to Baden-Fuller and Mangematin (2013), a business model is a "stripped down characterization that captures the essence of the cause-effect relationships between customers, the organization,
and money," rather than a comprehensive account of what a firm does. Second, business models are commonly used to design business model innovations because they are seen as recipes, ideal kinds, or role models that enterprises want to be (Johnson, Christensen, & Kagermann, 2008; Doganov & Eyquem-Renault, 2009; Sabatier, Roussel, & Mangematin, 2010). Third, certain research identified particular business model categories, including typologies that were both theoretically and empirically inspired (Afuah & Tucci, 2001; Massa & Tucci, 2012) and taxonomies that were empirically based (Timmers, 1999; Rappa, 2016). Fourth, a few frameworks for ontological business models have been created for interactions between heterogeneous groups (e.g., Al-Debei & Avison, 2010; Lindgardt et al, 2009; Olsterwalder & Pignenour, 2010), though none of them have received universal acceptance, and their flaws have been noted (Spieth, Schneckenberg & Ricart, 2014; Visnjic, Wiengarten & Neely, 2016).

The majority of earlier research highlighted the idea of value in business models, however some (Chen, Marsden & Zhang, 2012; Porter, Deva & Sun, 2013) and others (Chesbrough & Rosenbloom, 2002) concentrated on value creation and others on value capture. Our early case studies and interactions with corporate leaders in workshops also underlined the necessity for value sensing and distribution, which spurred additional literature evaluations, as will be detailed later in the article. The business model is described in this essay as the firm's justification and logic for value sensing, distribution, and capture. It describes how a company will generate revenue both now and in the future, and a strong business model can produce long-lasting competitive advantages.

According to Doganova and Eyquem-Renault (2009) and Seelos & Mair (2007), a firm's business model governs how it sets goals, encourages effort, synchronizes operations, and allots resources, as well as its revenue streams, cost structure, and make-or-buy decisions. This is accomplished through creating the vital connection between an organization's vision and strategy and its organizational structures and procedures (van der Heijden, 1996; Porter, 2001; Li, 2007).

It specifies the firm-specific value logics and how much room there is for operational flexibility (Massa & Tucci, 2012). Digital technology have made it possible for many recent advances in business models (Al-Debei & Avison, 2010; Zott, Amit & Massa, 2011; Klang, Wallnöfer & Hacklin, 2014; Visnjic, Wiengarten & Neely, 2016).

**RESEARCH METHODS**

Following each case study, data analysis got under way, organized around the holistic framework's tenets and how digital technologies aided in their automation, extension, and innovation. Although each instance is handled separately (Yin 2014), cross case analysis was done using constant comparison approaches (Strauss & Gorbin, 1990). The analysis was conducted in three steps. In each case study, changes to each component of the business model were first detailed, along with their nature and how digital technology played a part in making them possible. Second, modifications to each business model construct were coded with the letters AET, which stand for automation, extension, and transformation. Third, some important new patterns in business model innovation are further examined using data from a few case studies.

Multiple sources of evidence, establishing a chain of evidence, having various researchers and key informants review draft case reports, conducting case analysis and cross-case comparison collectively among the research team for pattern matching, explanation building, and addressing competing explanations are just a few of the protocols that were designed to ensure construct and internal validity. To assure external validity and dependability, a shared database was made for all case studies and related resources.
A cross case analysis, the micro case studies, and the main case studies are the three sections in which the empirical analyses are provided. The debates and conclusions then combine the findings.

**FINDINGS AND DISCUSSION**

'Business Model' or 'Business Models' in the title brought up 7610 results in the keyword search. The number was decreased to 1239 by narrowing the search to 2010–2016, of which 796 were journal papers and editorials. 174 documents were found after further focusing the search with the words "Technology" or "Technologies," which were then reduced to 33 after the words "Digital" or "Information" were added. The 174 papers' titles and abstracts were obtained, and 50 papers were chosen manually with a particular emphasis on business model constructions and the function of digital technology.

The apparent uniqueness of the 30 micro case studies in implementing new business models was a key factor in their selection. At the level of the value proposition, 53% (16) of companies changed their market emphasis, 60% (18) of companies changed their revenue models, and 43% (13) of companies changed their product offers using digital technology. Additional 47% (14) increased their product line, 40% (12) increased their market focus, and 23% (7) increased their revenue streams. In contrast, the number of people automating existing frameworks using digital technology is quite low—only 3 (10%) of product offerings, 2 (7%) of market emphasis, and 5 (17%) of revenue models.

Similar trends were observed at the level of value architecture, where many organizations have transformed their value sensing (87%), creation (33%), distribution (67%) and capture (80%) processes utilizing digital technology. At the functional architectural level, 60% of the companies changed how they developed their products, 40% changed how they produced and distributed their products, and 80% changed how they interacted with customers. Utilizing digital technologies, the majority of the remaining businesses expanded the various constructions of their value architecture and functional architecture.

**The Digital Transformation of Business Models: Mini Case Studies**

Additional examination of the micro case studies revealed specific changes to various business model constructs. In the activity architecture, 90% of them employed digital technology to change their interactions with customers; in the value architecture, 87% redefined value sensing and 80% changed value capturing. Surprisingly, just 33% of respondents changed how they create value, while 43% changed how they present their products. A number of important themes in the digital transformation of company models reflect these changes.

**Digital enhancement and automation**

Digital technologies were utilised in all 50 of the primary case studies as a fresh channel for communication or interaction with customers and other stakeholders. They all have websites, which are either run by them directly or by outside providers. Many businesses employed digital technologies to automate rather than change their business models, in contrast to the previous case studies. As an illustration, 74% (37) of the large case studies continued to use conventional revenue models, as opposed to only 17% (5) of the micro case studies.

Many of them still rely on grants from government agencies (like the Arts Council) or income from more conventional sources like selling goods (like artwork) and services (like live
performances and singing, dancing, and performing arts lessons) or renting out facilities and spaces (like studios and art galleries to independent artists). By offering digital information and facilitating connection with consumers and other stakeholders, digital technologies were primarily employed to improve their business models.

Digital Transformation of Business Models

The business model underwent significant changes. As opposed to being a commodity supplied by publishers and merchants, video games are now offered as a pay-as-you-go service. The revenue model has undergone a significant change. New value distribution and capture mechanisms in its value architecture enable the new value proposition.

The infrastructure and customer relationships are the key areas of change in the functional architecture. For several new games, this novel business strategy was successful. But as the market for online gaming grew dramatically, the business found it harder and harder to draw in new clients. It experienced cash flow issues as a result of a short-term, sharp reduction in revenue. This instance demonstrated the significant risks involved in changing company models and the various timeframes needed for their assessment. In a few instances, businesses employed loss leaders to draw clients, then made money from complementary goods and services. A prominent music company changed its product offering from selling music tracks to selling live events, merchandising, and advertising by giving away music through free downloading in order to sell goods and live performances for chosen artists. For a few artists, it also tried out the "pay what you like" approach, giving customers the freedom to choose how much to pay by leveraging the close emotional connection between performers and fans. This allowed the business to increase profits while growing its customer base. Although it is still unknown if the concept would be sustainable or transferable, the initial financial returns were quite positive.

What is a 'New' Business Model? New Concept, New Domain and New Impact

We determined that a business model can be novel in at least three different senses after having this topic heavily discussed in three workshops with business leaders and during the case studies. First, a business model may be novel because the concept is novel, which is extremely uncommon because most concepts have already been used. Second, the majority of the time, the development of new business models involves adapting an idea from one industry to another. Third, by removing old restrictions in some industries, digital technologies enable the expansion of a traditional business model, having an impact that has never been seen before. Innovations in business models rarely include developing new business models based on novel concepts. Most of the time, digital technologies enable businesses to use a wider variety of business models than they had before. This can be seen in the way that some case studies are using "portfolio models" more frequently.

CONCLUSION

The study adds to our knowledge of business model theory and the ways in which new business models have been made possible by the use of digital technologies. A holistic business model framework was created, expanded upon, and verified using empirical research and a thorough examination of the literature in order to methodically identify business model constructs and their intricate relationships. The AET categorization was used to systematically
capture the role of digital technology. The value proposition, value architecture, and functional architecture of the business models in our case studies all underwent significant alterations.

These modifications have a considerable impact on these firms' stakeholder credibility and financial viability. The temporal horizon is crucial to take into account when assessing new business models because what succeeds in the short and medium term may fail miserably in the long term. The usage of exclusivity through personalisation, brand extensions through associations, dynamic pricing, and pay-as-much-as-you-like models, among other important developments in business model innovation, were all noted. The findings are important for understanding the role of the creative industry in promoting innovation and entrepreneurship in high-tech and other economic sectors, in addition to policy and practice in the sector.

LIMITATION & FURTHER RESEARCH

Future research still has a lot of work to be done. In order to improve the financial sustainability and stakeholder credibility of specific business models, more research is first required to establish the circumstances under which they should be used. Second, new research is required to quantitatively investigate whether portfolio models can boost a firm's financial sustainability over time and what kinds of enterprises should and should not adopt them in light of the portfolio models' growing popularity. Third, a major methodological hurdle we must overcome is examining new patterns that are still in the very early phases of development and have no empirical support. Traditional economic strategies are no longer effective, for instance, in the field of digital art (what constitutes "original" digital art when the work can be flawlessly duplicated at no cost)? new business models haven't entirely materialized yet, though. In these fields, new research methodologies are required, such as research prototyping and fictional design.

ACKNOWLEDGEMENTS

Author thanks, In most cases, sponsor and financial support acknowledgments special to the P3M of the Institut Teknologi dan Bisnis Indragiri, Management Field, provided funding for this study. And special gratitude to solid team with great assistance during the research.

REFERENCES


Vol. 12, No. 1, June 2023, pp. 66-77
https://doi.org/10.34006/jmbi.v12i1.590


Ferrandiz, R. 2011. From cultural industries to entertainment and creative industries. the boundaries of the cultural field. Comunicar 36: 149-156


Laplume, A. O., Sonpar, K., & Litz, R. A. 2008. Stakeholder theory: Reviewing a theory that


41-68