Analysis of Digital Innovation Sustainable Business Models in the Tourism Business in Indonesia Implementation Dynamic Capabilities (DSBMI-DC)

Review of Integrative Business & Economics Research

Nurjamilah*
Business Administration Science, Universitas Padjajaran

Arianis Chan
Business Administration Science, Universitas Padjajaran

Tetty Herawati
Business Administration Science, Universitas Padjajaran

Ria Arifianti
Business Administration Science, Universitas Padjajaran

ABSTRACT

Tourism business model innovation aims to foster creative and critical thinking, thereby encouraging the tourism industry to identify optimal approaches for generating knowledge and creating added value. This includes leveraging digital technology, executing digital marketing operations, and implementing sustainable strategies. This research methodology utilizes meta-synthesis in the initial stage (qualitative) and employs Interpretive Structural Modelling (ISM) in the subsequent step (quantitative). The proposed model comprises four layers: approaches, aspects, dimensions, and components. Through quantitative analysis, the 16 dimensions are categorized into four primary levels, namely 'continuous computing', 'continuous execution', 'sustainable engagement', and 'sustainable results'. Taking sustainability and digital transformation into account as pivotal catalysts for modern business transformation, this paper presents a novel framework in the realm of tourism business model innovation in Indonesia. Tourism business model innovation necessitates a well-designed business framework that incorporates social and environmental sustainability, as well as the requirements of digital transformation.

Keywords: Business model innovation; Sustainability; Digital transformation, Dynamic capabilities.

Received 7 January 2023 | Revised 22 May 2023 | Accepted 21 July 2023.

1. INTRODUCTION

The tourism industry's businesses warrant increased research attention, given the challenges and disruptions they currently confront as a result of the global COVID-19 pandemic. The Tourism and Creative Economy Sector aims to continuously enhance its contribution to the resilience of the Indonesian economy. The targeted objective for the tourism sector is to increase its foreign exchange value from US$ 3.3 - 4.8 billion in 2020 to US$ 21.5 - 22.9 billion in 2024. Additionally, the sector's GDP contribution to the nation is expected to rise gradually from 4.0% in 2020 to 4.5% in 2024. Prior research has

ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

demonstrated that the ability to utilize digital technology is a critical factor in achieving success in sustainable development (Aluchna, Maria, and Boleslaw, 2008). Hence, in order to attain business model innovation, it is crucial for businesses to establish a harmonious alignment between their digitalization endeavors and sustainable practices (Aluchna *et al*., 2008; Eikelenboom *et al*., 2019; Lakshmi.R *et al*., 2018; Parida *et al*., 2019). However, it remains essential to understand how companies can effectively renovate their business models to consider social and environmental concerns, along with economic factors, while simultaneously maintaining the agility required to promptly and adequately respond in the digital age (Brenner *et al*., 2018; Leleux *et al*., 2018). Furthermore, the research is grounded in the phenomenon of the gap, which highlights the significance of dynamic capabilities for the tourism sector, given its current exposure to comprehensive transformations brought about by the digitization of technology in all aspects. Digitalization has presented fresh opportunities for numerous sectors to endure and recuperate from the Covid-19 pandemic, including the tourism sector. With the adoption and utilization of digital technology, this sector has witnessed an initial improvement in performance in early 2022, and it is anticipated to further expand and contribute approximately 4.3% to the overall year's realization.

2. LITERATURE REVIEW

Moreover, in order to determine the research position and the interrelationship between variables, several previous studies in the field of tourism research have employed the dynamic capabilities view (DCV) as a theoretical framework in their respective research projects. The majority of research in this area centers on the hotel sector (Fraj *et al*., 2015; Leonidou *et al*., 2015; Marco-Lajara *et al*., 2017). Other studies focus on tourism innovation (Sainaghi *et al*., 2017; Verreynne *et al*., 2019) and competitive advantage (Evans, 2016; Nieves and Haller, 2014), specifically in the context of eco (Leonidou *et al*., 2015) and green competitive advantage management (Mittal and Dhar, 2016) within tourism SMEs (Brida *et al*., 2016). The majority of research in this field employs the Dynamic Capabilities View (DCV) as a theoretical framework to examine and elucidate concepts such as competitive advantage, sustainable competitive advantage, performance, and company innovation. However, there is a paucity of research that specifically investigates how dynamic capabilities and their micro-foundations are manifested within the tourism sector. Dynamic capabilities can be perceived as a collective amalgamation of capabilities encompassing sensing, seizing, and reconfiguring/transforming, rather than being regarded as distinct independent capabilities in isolation (Nyamrunda and Freeman, 2021). Therefore, despite the extensive body of literature on dynamic capabilities that has emerged in the past two decades, empirical evidence remains scarce in industries outside of manufacturing or innovation sectors, wherein the widespread adoption of advanced technologies and swift technological changes are widely recognized as crucial (Easterby-Smith *et al*., 2009; Jiang *et al*., 2019). Specifically, research on dynamic capabilities in the service industry, particularly within the tourism sector, remains limited. However, tourism is regarded as a promising domain in terms of economic development, environmental and socio-cultural transformations, employment prospects, evolving consumer values, the dissemination of technological knowledge, and the creation of new markets and products (Dogru and Bulut, 2018; Webster and Ivanov, 2014). Existing literature has predominantly focused on sustainability, digital transformation, or dynamic capabilities individually, without comprehensively examining the interplay and impact of these concepts on one another. To address this research gap, our study concentrates on the

ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

conceptualization of sustainability, digital transformation, and dynamic capabilities as well as their interrelationships within the context of business model innovation.

3. METHODOLOGY

This study was designed utilizing a mixed exploratory research approach, employing a two-stage exploratory plan that utilizes qualitative findings to inform the subsequent quantitative phase. In this study, the initial stage involves qualitative data collection and analysis to explore and identify the phenomenon of interest, specifically sustainable business model innovation in the digital age. Subsequently, during the quantitative stage, we elucidate the relationship between the various components of the phenomenon by gathering quantitative data. The rationale behind selecting the combined exploratory research method for this study is as follows:

1. To extract the dimensions of a sustainable business model in the digital age using a dynamic capabilities approach, a review of the latest scientific findings is necessary. This review should encompass qualitative stages such as meta-synthesis and content analysis.
2. The absence of a comprehensive sustainable business model in the digital era and dynamic capabilities necessitates collaboration with experts in this field, employing an interpretive structural modeling approach that incorporates quantitative measures.

4. DISCUSSIONS

4.1 Findings of the qualitative study

This study aims to determine the developmental trajectory of research on the utilization of institutional repositories for open access. The study was conducted in August 2022, utilizing a search conducted through the Scopus database using the keywords TITLE-ABS-KEY (Business model Innovation, sustainability, Dynamic Capabilities, Digital age, Business Tourism). The search results data were subsequently subjected to descriptive analysis based on the year of publication, institutions and countries that published research results on the development of Business model Innovation, sustainability, Dynamic Capabilities, and Digital age research on Business Tourism, journal/publication names, document types, and research topics. In order to generate a research development map, the data was exported in the CSV (Comma Separated Values) file format. Subsequently, the exported data was processed and analyzed using the VOSviewer application program to create a bibliometric map depicting the development of research on Business model Innovation, sustainability, Dynamic Capabilities, and Digital age in the field of Business Tourism.

The cluster density view displays the items (labels) that share the same characteristics as the visible items. Each data point in the project is assigned a color based on the density of items at that specific time. This section is instrumental in providing an overview of the overall structure of the bibliometric map by highlighting the importance of items through color coding. The color of a data point on the map indicates the number of associations it has with other items. It aids in identifying the items that are deemed significant for analysis. The above image depicts the density of publications in relation to pets, which is the outcome of an analysis conducted using all research development articles on Business model Innovation, sustainability, Dynamic Capabilities, and Digital age in Business Tourism, irrespective of their relevance. The red color represents higher

ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

density, while the green color indicates lower density. In the image, there are four distinct clusters that emerge when sorting the data based on the keywords.

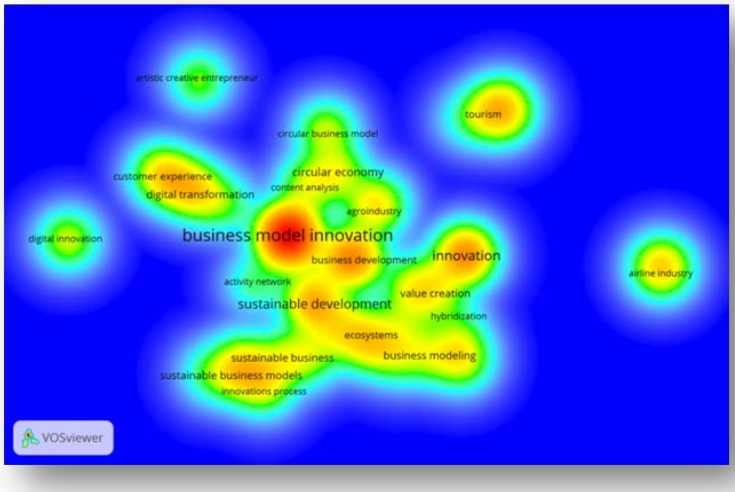

Figure 1 represents the visualization of research development density findings

4.2 The findings of the quantitative study employing interpretive structural modeling (ISM)

After finalizing the 16 dimensions in the qualitative phase, the second study focused on determining the interrelationships between these dimensions through interpretive structural modeling (ISM). To fulfill this objective, we employed snowball sampling to select 18 experts possessing PhD qualifications, along with adequate knowledge and experience in this particular subject. These experts were then invited to complete the ISM matrix questionnaires.

Step 1: The identification of problem variables

The problem variables in this study are the dimensions obtained from the content analysis. These dimensions were utilized in their coded (acronym) form to construct the structural self-interaction matrix.

X1 Digital Technologies
X2 Business Computing
X3 Green Computing
X4 Social Computing
X5 Value Learning
X6 Value Proposition
X7 Value Creation
X8 Value Delivery
X9 Capture Value
X10 Value Agility
X11 Environmental Engagement
X12 Social Engagement
X13 Customer Engagement
X14 Environmental Results
X15 Social Results

ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

X16 Customer Results

Step 2: The formation of the structural self-interaction matrix
The self-interaction matrix illustrates the relationships between variables in both its columns and rows. Based on the contextual relationships and the experts' consensus regarding the pairwise comparison of all variables (X1-X16), we constructed the structural self-interaction matrix. (Table 2) The SSIM is constructed based on the outcomes of a discussion conducted among a panel of experts.

Relation	Symbol
two-way relationship between i and j	**X**
no relationship between i and j	**O**
i leads to j	**V**
j leads to i	**A**

In this step, the opinions of the 18 experts regarding the relationships between variables were compared, and the "mode" of the opinions for each pair of variables (i.e., the relation with the highest frequency among the expert opinions for those variables) was incorporated into the final table.

Step 3: The formation of the initial reachability matrix
In this step, the initial reachability matrix was created by converting the entries of SSIM into binary values, following the rules provided in Table 3.

Cell (i,j) of SSIM	Conversion rule
V	Place 1 in the cell (i, j) and 0 in the cell (j, i) of the reachability matrix.
A	Place 0 in the cell (i, j) and 1 in the cell (j, i) of the reachability matrix
X	Place 1 in the cell (i, j) and 1 in the cell (j, i) of the reachability matrix
O	Place 0 in the cell (i, j) and 0 in the cell (j, i) of the reachability matrix

Step 4: The formation of the final reachability matrix
After constructing the initial reachability matrix, the final reachability matrix was formed by taking transitivity into account in the relationships between variables.

Step 5: Level partitioning
In this step, we determined the reachability (output) set, the antecedent (input) set, and the intersection set for each variable. The reachability set of a variable comprises the variable itself as well as other variables that contribute to it. The antecedent set of a variable encompasses the variable itself as well as other variables that it contributes to. The intersection set of a variable comprises all elements that are present in both the reachability set and the antecedent set of that variable. For level partitioning, initially, the variables with identical reachability and intersection sets were assigned to the first level of the model. Subsequently, the aforementioned process was reiterated without including the variables already placed in the first level, in order to ascertain the second level of the

ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

model. By repeating this procedure for all variables, the nine levels depicted in Figure 4 were derived.

Step 6: To draw the final interpretive structural model, the following steps were undertaken.

In this step, the levels and final reachability matrix obtained in the previous step were utilized to create an initial model. Subsequently, after removing any instances of transitivity, the initial model transformed into the final model, as depicted below.

Step 7: Analysis of Driving Power and Dependence: MICMAC Diagram

The MICMAC diagram is a graphical representation in which the vertical axis represents the driving power, while the horizontal axis represents the dependence of a variable. As depicted in Figure 5, the research variables were categorized into four groups: independent, linkage, autonomous, and dependent, based on their positioning on the MICMAC diagram. Accordingly, the factor of "digital technologies" was determined to possess the highest independence and driving power, whereas "economic sustainability," "social sustainability," and "environmental sustainability" were recognized as factors displaying the greatest dependence and the least driving power.

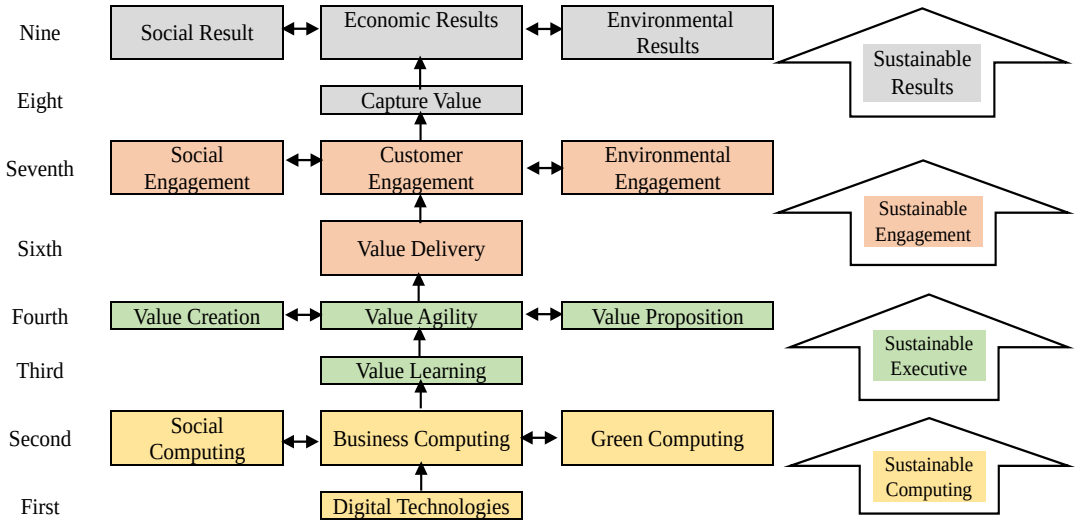

Figure 2 MICMAC diagram I

An Integrative Model of Sustainable Business Model Innovation in the Digital Age Based on Dynamic Capabilities

The Indonesian tourism industry is confronted with the challenge of formulating a sustainable business model capable of adapting to evolving global trends and capitalizing on digital innovation. Advancements in digital technology, including online booking platforms, travel applications, and virtual reality experiences, present novel opportunities for tourism enterprises to enhance operational efficiency, elevate customer satisfaction, and adopt environmentally and socially sustainable practices. In this context, the successful handling of changes and achievements in the tourism business model in Indonesia relies on the implementation of Dynamic Capabilities (DSBMI-DC) as a crucial factor for success.

ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

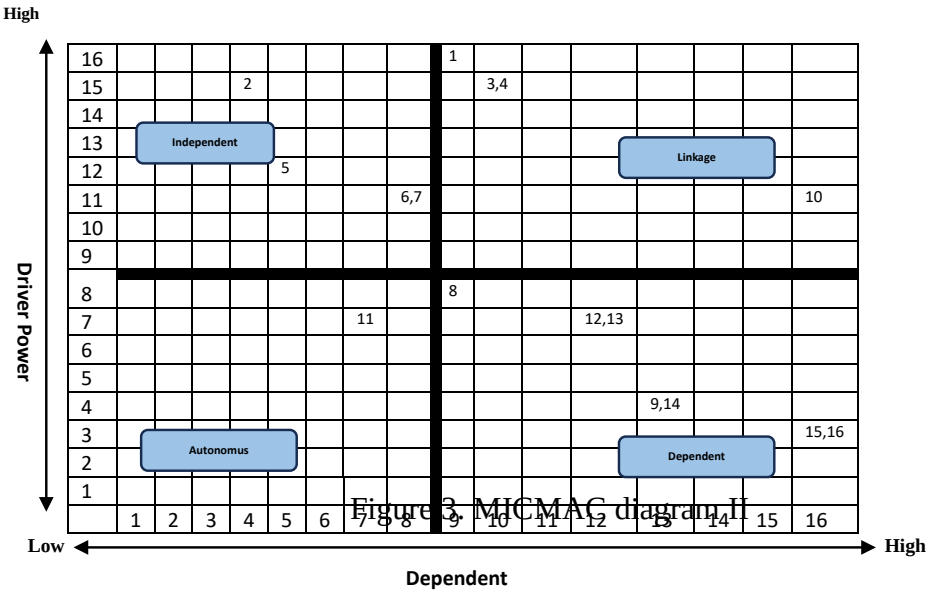

Figure 3. MICMAC diagram II

To attain sustainable business model innovation in the digital age, grounded in dynamic capabilities in Indonesia, the research findings have culminated in the development of a model encompassing three approaches, five aspects, sixteen dimensions, and thirty-seven components. The initial aspect of this model is "continuous computing," which encompasses the influence of technology and sustainability demands on businesses and can be regarded as a driving force. The subsequent aspect is "sustainable execution," which emphasizes that for sustainability initiatives to prosper, it is imperative to acknowledge the significance of digital technology and sustainability prerequisites as inputs. Additionally, it calls for the consideration of new values such as agility and learning, in addition to conventional business model value propositions and values. These values encompass both sustainability and digital aspects. The third aspect, "sustainable engagement," aims to foster market engagement among existing and potential customers. Continuous engagement with a business is established when customers are informed that the business is dedicated to addressing environmental and social concerns, as well as meeting their genuine needs. Lastly, the fourth aspect is "sustainable results," which comprises three components. The initial component is the economic outcome, which is deemed necessary but insufficient, and should be supplemented by the other two components (social and environmental outcomes). To achieve this objective, businesses must proactively prepare, evaluate, and publish reports on the status of their business sustainability indicators, continuously striving to enhance them over time. By considering the implementation of Dynamic Capabilities (DSBMI-DC) alongside pertinent environmental factors, this research aims to offer valuable insights into effective strategies for addressing industry changes and attaining sustainability within the tourism business sector in Indonesia.

5. CONCLUSION

Within our model, sustainable outcomes encompass four dimensions: value capture, economic sustainability, social sustainability, and environmental sustainability. In this regard, the primary objective is to ascertain if the long-term benefits generated for stakeholders lead to economic sustainability. Subsequently, it becomes imperative to identify suitable indicators to measure the degree of success in attaining social and environmental goals through efforts and programs. Lastly, it is crucial to determine

ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

whether the business has effectively transitioned into a sustainable enterprise. While sustainability programs may initially incur additional costs, they have the potential to generate innovative revenue streams. Businesses can attain higher revenues by implementing cost-effective initiatives such as product-as-a-service and waste reuse, thereby enhancing customer loyalty and engagement, particularly among the new generation of consumers who exhibit heightened sensitivity towards sustainability concerns.

The social dimension of sustainability is frequently overlooked, as it is comparatively easier to discuss and measure the environmental dimension. Nonetheless, we emphasize the significance of the social dimension of sustainability and encourage businesses to contemplate how they can optimize the benefits of their operations for both society and themselves, similar to the expectations placed upon social enterprises. The contribution of digital technology to social sustainability is remarkable, particularly in addressing challenges faced by the elderly and promoting equity through digital health initiatives and online platforms. According to resource-based theory, we discussed the importance of businesses collecting, directing, and managing their internal resources (such as capital and financial resources, human resources, and physical resources) in alignment with their orientation towards achieving sustainable outcomes. It is envisaged that such investments will empower companies to sustain and enhance their economic, environmental, and social performance. Moreover, it will facilitate the design and development of suitable indicators for periodic performance measurement, enabling continuous improvement.

REFERENCES

[1] Aluchna *et al*., (2008) "Sustainable business models: The case of the collaborative economy." *In Sustainable business models*, 41-62.

[2] Bocken, Nancy MP, Samuel W. Short, Padmakshi Rana, and Steve Evans. (2014): "A literature and practice review to develop sustainable business model archetypes." *Journal of cleaner production* 65, 4256.

[3] Brenner, Barbara. (2018) "Transformative sustainable business models in the light of the digital imperative - A global business economics perspective." *Sustainability* 10, no.12 4428.

[4] Dogru, T., & Bulut, U. (2018). “Is tourism an engine for eco nomic recovery? Theory and empirical evidence”. *Tourism Management*, 67, 425–434.

[5] Webster, C., & Ivanov, S. (2014). “Transforming competitiveness into economic benefits: Does tourism stimulate economic growth in more competitive destinations?”. *Tourism Management,* 40: 137–140.

[6] Eikelenboom, Manon, and Gjalt de Jong. (2019) "The impact of dynamic capabilities on the sustainability performance of SMEs." *Journal of Cleaner Production* 235 1360-1370.

[7] Lakshmi.R, Vasantha; Kennedy, Hanuman S. (2018) “Sustainable Business Model: A Theoretical Framework for Manufacturing Firms.” *International Journal of Business and Management Invention.* (IJBMI) PP—01-04.

[8] Inigo, Edurne A., Laura Albareda, and Paavo Ritala. (2017) "Business model innovation for sustainability: Exploring evolutionary and radical approaches through dynamic capabilities." *Industry and Innovation* 24, no. 5 515-542.

ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)

[9] Khomsahrial Romli et.al (2019) “Analysis of Tourism Mapping in Lampung Province to Optimize Entrepreneurship” *Development Review of Integrative Business and Economics Research*, Vol. 8, Supplementary Issue 2 110-119
[10] Leleux, Benoit, and Jan Van der Kaaij. (2018) “Winning sustainability strategies: Finding purpose, driving innovation and executing change. *Springer*
[11] Lin, Ping, Xiaosan Zhang, Shuming Yan, and Qingquan Jiang. (2020) "Dynamic Capabilities and Business Model Innovation of Platform Enterprise: A Case Study of DiDi Taxi." *Scientific Programming*
[12] Nyamrunda, F. C., & Freeman, S. (2021). “Strategic agility, dynamic relational capability and trust among SMEs in transitional economies.” *Journal of World Business,* 56(3), 101175.
[13] Obaya, Martín, Verónica Robert, Octavio Lerena, and Gabriel Yoguel. (2020) "Dynamic capabilities in the software and information services industry. A case-study analysis in Argentina from a business model perspective." *Innovation and Development* 10, no. 1 89-116.
[14] Paiola, Marco, and Heiko Gebauer. (2020) "Internet of things technologies, digital servitization and business model innovation in B-to-B manufacturing firms." *Industrial Marketing Management* 89 245-264.
[15] Parida, Vinit, David Sjödin, and Wiebke Reim. (2019) "Reviewing literature on digitalization, business model innovation, and sustainable industry. *Past achievements and future promises.* 391.

ISSN: 2304-1013 (Online); 2304-1269 (CDROM); 2414-6722 (Print)