Exploring Characteristics of Digital Organizational Culture in Post COVID-19: A Systematic Literature Review

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ARTICLE INFORMATION

ABSTRACT

This systematic literature research explored the characteristics of Digital Organizational Culture (DOC) in the Post Covid-19 period. Data on specific criteria of 63 DOC articles published between 2020 and 2022 were collected from the Google Scholar database using the Publish or Perish software. The data collected were analyzed using the matrix synthesis method and source suitability index technique. The results showed that ten DOC characteristics meet the criteria, including cross-functional collaboration, digital leadership, digital innovation culture, employee digital skills, digital technology change orientation, digital data management, risk-taking, customer digital experience focus, flexibility agility, and digital mindset. Consistency of key elements from at least three sources is required for further model development. The practical implications of this research are expected to serve as a guide for the implementation of DOC in the future, both in terms of its impact on the success of digital transformation and on organizational performance, especially in the post-COVID-19.

Keywords: Digital Transformation, Digital Organizational Culture, Digital Corporate Culture, Post COVID-19

INTRODUCTION

The COVID-19 pandemic is one of the health crises that is volatile, uncertain, complex and ambiguous (VUCA). It can be considered a disorder that elevates the response of organizations and employees to a "new normal" known as the post-COVID-19 period (Raghavan et al., 2021). Today companies are increasingly aware of the need to adapt to the challenges of the new normal through their activities, strategies, and routines. They have started optimizing and ensuring the implementation of efficient processes through digital tools to ensure business continuity (Heredia et al., 2022).

New normal can be defined as a situation in which the nature/behavior of the organization has changed in response to the new health, social and economic realities of the post-COVID-19 period. It also signals fundamental changes in the operations and behavior of organizations and employees due to the ongoing nature of the pandemic (Raghavan et al., 2021).

On the other hand, digital transformation is a dramatic change in the performance of an organization and a factor in its survival and success in the digital era. It is not only a technological tool but also associated with human challenges, such as organizational culture (Shirazi et al., 2021). Changes in digital culture can be characterized by disruption, a constantly changing environment, as well as the increasing importance and intensive application of technology (Hartl, 2019).

COVID-19 has been a great accelerator in rapidly driving global trends towards embracing emerging modern technologies that usher in transforming lifestyles, work patterns, and business strategies. It has evolved into a "catalyst" for the adoption and increased use of digitalization in work and office organizations, in addition to presenting opportunities and challenges (Amankwah-Amoah et al., 2021).

Therefore, the changes that the organization and employees have adopted based on the crisis experience will continue to be part of the system and become the new normal. According to Chesbrough (2020), changes allow organizations to build resilience against similar events in the future. However, until now, studies on what digital organizational culture (DOC) looks like, especially in the post-COVID-19, were limited to being discussed by scholars.

This research aims to explore DOC from previous literature and develop a characteristics model. Hence, the research questions are as follows:
RQ1: What study has been carried out in DOC in the post-COVID-19 period in terms of definition, primary elements, and methodology?
RQ2: What is the future study agenda in the area of DOC?

LITERATURE REVIEW

Schein (1985) defined organizational culture as "the deeper level of basic assumptions and beliefs that organizational members share, which operate unconsciously, in a 'taken-for-granted' fashion about it and the environment." The study by Duerr et al. (2018) explored the digital domain, which can be conceptualized according to Deshpande and Webster's (1989) definition as a set of assumptions and a shared understanding of organizational functioning in a digital context.

Referring to the theoretical lens model from Schein, Duerr et al. used three levels of organizational culture in a digital context. Firstly, the structure is included in the definition of Artifact, where changes and structural roles can occur due to digitalization. Secondly, organizational beliefs and values are vital components of their culture that must be respected and lived by employees, which can ultimately contribute to the company's sustainable competitive advantage. Thirdly, the underlying assumptions are the starting point on which all values and actions are based.

DOC needs to provide an environment that supports a balance between business digitalization and value generation from digital tools capable of improving enterprise performance. Martinez-caro et al. (2020) stated that organizational members will identify structural and cultural procedures and artifacts to exploit data and generate value through this culture. Hence, it is necessary to understand organizational function in a digital context shared by members, which led to the use of four DOC elements.

Meanwhile, Isensee et al. (2020) emphasized the role of organizational culture as an important foundation of environmentally sustainable digital development processes. Environmental and digital management includes cultural change, which underpins the functionalist paradigm of organizational culture as a manageable object. Therefore, a paradigm shift is needed, where organizational culture becomes integral to environmental sustainability and digitalization in the required reciprocal relationship. Isensee further proposed the concept of organizational culture related to digitalization and the environment in the context of eight elements.

Digital transformation should use a comprehensive, holistic approach in the careful integration of technological and human aspects by adapting the capacity building for all employees and involving them in the process (Trushkina et al., 2020). They proposed five elements that are specific features of a company's digital culture.

Phan (2021) stated that corporate culture is an important factor for digital transformation because it provides lessons for businesses and creates an important foundation for successful future digital economy implementation. Companies willing to successfully transform digitally must overcome cultural barriers and require consensus from the entire employee system with leaders as pioneers and role models. Culture consists of the values and a set of behavioral characteristics that define the way things are accomplished in an organization. Furthermore, Phan proposed six elements of digital culture in the transformation process.

Stoinova et al. (2020) stated that companies need to plan for digital transformation to understand the minimum requirements for a corporate culture for successful transformation. In this regard, Stoinova proposed seven universal elements of corporate culture to implement digital transformation projects successfully. Knecht & Hund (2022) reported that for digital transformation to be successful, organizational culture should be adapted to the new requirements of an increasingly digital environment by changing established company processes and routines. They identified the key elements of DOC that are characterized by four basic assumptions.

DOC results are attached to digital innovation and transformation (Zhen et al., 2021). Its development can ensure digital innovation by embracing transformation and the extensive use of digital technologies, artificial intelligence, big data analytics, IoT platforms, multilevel customer interaction, and cloud computing. In addition, DOC

contributes to organizational readiness by implementing and utilizing company resources for business process improvement. Zhen used four elements of DOC in this research.

Many companies have not yet reached digital maturity hence organizations need to adapt their strategies due to the constantly changing digital environment and competitive innovation pressures (Weritz et al., 2020). Weritz proposed an antecedent that can affect digital maturity in the form of culture, consisting of three key elements.

According to Lanza Blengini (2020), digitalization is a transformational change capable of affecting a company's culture. Subsequent digital changes require new operating models to affect traditional organizational structures. As a result, companies need a new talent base, creative mindset, and appropriate organizational culture. Indeed, a successful digitalization process depends not only on the software but also on its users. In this regard, Lanza Blengini (2020) proposed three key elements of an effective organizational culture for digitalization.

In a digital environment, Grover et al. (2022) emphasized the importance of change and the importance of keeping companies up to date. Organizational culture is one of the most important factors in enabling a successful change initiative. Digitalization has fundamentally changed organizational structures and processes, thereby affecting the way people interact with one another. Meanwhile, digital culture is comprehensive tool organizations use to change social and economic value-creating practices. They offer a new perspective on organizational culture in the digital world by identifying digital cultural resources that include ten key elements.

Saputra and Saputra (2020) defined digital culture as an organizational factor that supports, encourages, and maintains the use of digital technology in organizations. The development in the organization has an impact on increasing digital leadership and employee competence. In addition, digital culture is also related to digital mindsets and values, which are relevant to the key factor of digital organization consisting of 4 elements.

Organizations need to develop a company digital transformation strategy by increasing staff's digital competence, changing organizational culture towards a digital type, creating a digitalization leader team, and attracting and retaining talent (Chernyavskaya and Yakhievna, 2021). Digitalization changes the process of exchanging information between people and organizations and forms a digital organizational culture system that contributes to implementing transformational processes. Chernyavskaya and Yakhievna further conveyed the four elements as special features of DOC.

RESEARCH METHOD

This section discussed the nature of the review, methods, and strategies used to answer the research questions, which aims to find specific information for the continuation of the DOC study conducted before the pandemic. Hence, using this research method will enable the proper selection of a review of the key elements and develop the right characteristics for the model. This research consists of several stages, namely data search and retrieval, article selection, article digitization, and data processing and analysis (Indarti et al., 2020), and it is illustrated in the Figure 1 below.
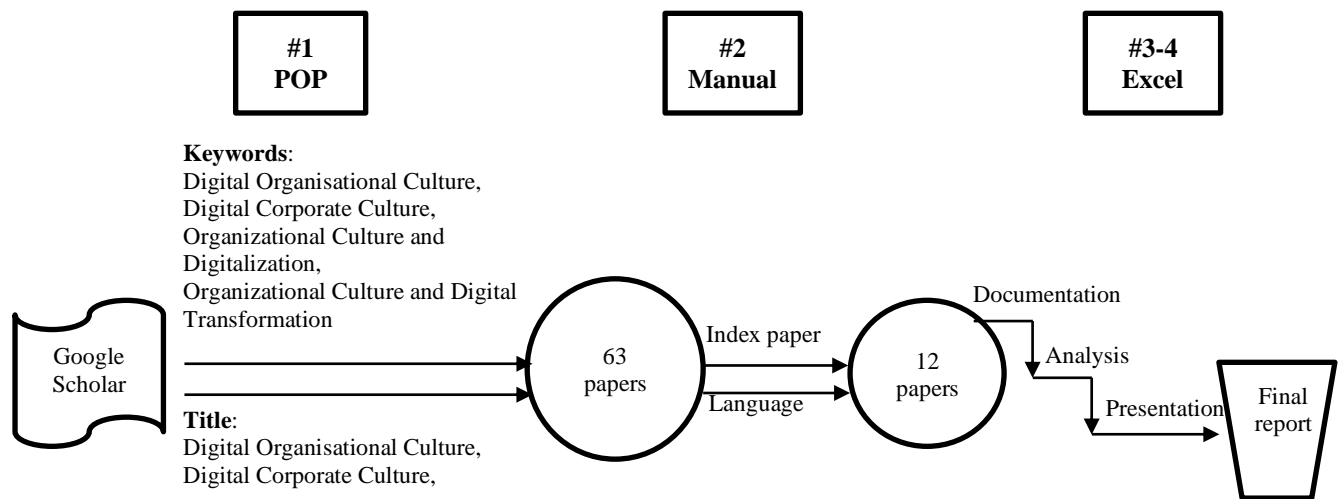
Figure 1: Research Steps for Literature Review

RESULTS AND DISCUSSION

Based on content analysis of 12 articles with in-depth information on the description and elements of DOC after data synthesis and analysis, a total of 62 elements were found, some of which are repetitive and overlapping. The maximum number of elements found is 10, which came from the article "A theoretical perspective on organizational culture and digitalization." Meanwhile, the minimum number is 3, which was found in the articles "Exploring the antecedents of digital transformation: Dynamic capabilities and digital culture aspects to achieve maturity" and "Explorative case study on the digital transformation of Austrian SMEs." These elements were used to determine similar characteristics for model development.

Table 1: Summary of Information about DOC Elements in Google Scholar

Articles	Author(s)	Author code	Numbers of DOC elements
Digital technologies and firm performance: The role of digital organizational culture	Martínez-Caro, et al. (2020)	A1	4
The relationship between organizational culture, sustainability, and digitalization in SMEs: A systematic review	Isensee, C., et al. (2020)	A2	8
Digital transformation of organizational culture under conditions of the information economy	Trushkina, N., et al. (2020)	A3	5
Corporate Culture's Role on Digital Transformation, Lesson Learnt for Vietnam Businesses	Phan, Y.L. (2021)	A4	6

Corporate Culture: Impact on Companies' Readiness for Digital Transformation	Stoianova, O., Lezina, T. and Ivanova, V. (2020)	A5	7
How to Establish a Digital Organizational Culture: Insights from a Multiple Case Study	Knecht, J. and Hund, A. (2022)	A6	4
Nexus of digital organizational culture, capabilities, organizational readiness, and innovation: Investigation of SMEs operating in the digital economy	Zhen, Z., et al. (2021)	A7	4
Exploring the antecedents of digital transformation: Dynamic capabilities and cultural aspects to achieve digital maturity	Weritz, P., et al. (2020)	A8	3
Explorative case study on the digital transformation of Austrian SMEs with digitalization	Lanza Blengini, M.V. (2020)	A9	3
A theoretical perspective on organizational culture and digitalization	Grover, V., et al. (2022)	A10	10
Transforming into Digital Organization by Orchestrating Culture, Leadership and Competence in Digital Context	Saputra, N. and Saputra, A.M., (2020)	A11	4
Digital corporate culture as an element of transforming organization in the context of digitalization	Chernyavskaya, S.A. and Yakhievna, F. (2021)	A12	4

This research also explored the distribution of certain DOC methods across various publications, as shown in Table 2. The findings suggested that various research methodologies, namely conceptual, survey, interview, and literature review, appeared mainly in unindexed publications. More specifically, indexed publications (Q1) are more acceptable for empirical studies using surveys and interviews than the conceptual ones, making it the most common empirical DOC study methodology.

Table 2: Distribution of DOC Study Methodology in Publication Quality

Study methodology	Publication Quality		
	Q1	Not Indexed	Total
Conceptual	1		1
Interview		3	3
Survey	2	3	5
Grounded Theory		1	1
Literature Review	1	1	2
Total	**4**	**8**	**12**

Table 3 shows the synthesis and analysis results of DOC characteristics. Similar traits and recurring indicators were rearranged among the 12 articles and presented under the same names, containing 27 DOC characteristics in Table 2. Based on these criteria for data analysis, the suitability of the elements used to determine the characteristics evaluated for model development was determined by at least three different sources.

The results found that 10 DOC characteristics include cross-functional collaboration, digital leadership, digital innovation culture, employee digital skills, digital technology change orientation, digital data management, risk-taking, customer digital experience focus, flexibility agility, and digital mindset. Among these traits, cross-functional collaboration (f=10) had the highest frequency, followed by digital leadership (f=6), digital innovation culture and employee digital skills (f=5).

Table 3: Results of DOC Characteristics

No	Characteristics	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	Total
1	Cross-functional collaboration	√	√	√	√	√	√	√			√	√	√	10
2	Dare to take risks			√							√		√	3
3	Act fast			√										1
4	Digital innovation culture	√			√	√		√			√			5
5	Open culture				√									1
6	Fast digital experiment										√			1
7	Focus on Customer digital experience			√	√						√			3
8	Low hierarchy									√				1
9	Agility Flexibility				√		√			√				3
10	Internal ability		√											1
11	Digital leadership	√	√				√	√	√		√			6
12	Building employee loyalty					√								1
13	Delegate decision making			√										1
14	Transformation motivation					√								1
15	Score		√											1
16	Norm		√											1
17	Digital technology change orientation	√	√					√					√	4
18	Data-driven decision making										√			1
19	Digital data management								√		√	√	√	4
20	Behavior		√											1
21	Digital Mindset				√		√					√		3
22	Digital practice											√		1
23	Digitally progressive										√			1
24	Attitude		√											1
25	Knowledge sharing system					√								1
26	Employee digital skills					√			√	√	√	√		5
27	Talent attraction					√								1

These DOC characteristics are then used to propose a model in the post-COVID-19 period by combining the three levels of culture from Schein's research (2010). These are artifacts, espoused values, and underlying assumptions, as shown in Figure 2.
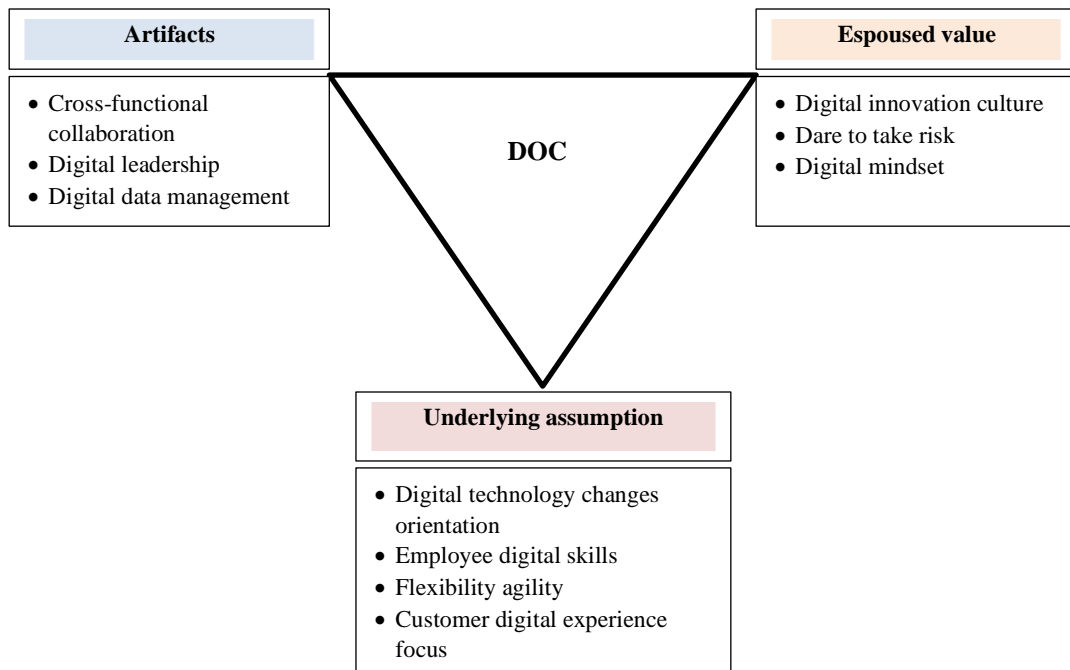

Figure 2: 10 Characteristics of DOC in the Post COVID-19

Therefore, for the benefit of further research development, each DOC characteristic is clarified as follows:
1. Cross-functional collaboration
   Organizations share digital strategies and form cross-functional teams that exchange information capable of supporting and maintaining the use of digital technologies.
2. Digital leadership
   Organizational leaders have a broad vision to implement a digitalization strategy by analyzing environmental changes and digital technology disruptions. This is in addition to reacting quickly and investing resources to ensure transformation.
3. Digital innovation culture
   Organizations embrace and develop values closely linked to digital innovation capable of fueling the development of new products, services, and business models.
4. Employee digital skills
   The organization supports and encourages a continuous learning environment where employees can develop and apply new digital skills to the business environment.
5. Digital technology changes orientation
   Organizations have a short and long-term orientation in adopting digital technology to maximize the opportunities in the transformation process.
6. Digital data management
   Organizations have access to monitor and analyze big data constantly and turn it into digital information to provide valuable insight into the industry, determine its market position and facilitate decision-making.
7. Dare to take risks

The organization encourages a culture of accepting failure by motivating employees to take risks, try new things related to digital innovation and develop risk management strategies.

8. Customer digital experience focus

   Organizations encourage digital technology to constantly increase "points of contact" with customers to improve their experience in the digital ecosystem.

9. Agility flexibility

   Organizations increase agility and flexibility to react more quickly to changes, thereby threatening competitors.

10. Digital mindset

    The organization has an open mindset toward digital technology and solutions.

CONCLUSION

This systematic literature review combines descriptive and exploratory elements to provide an overview of previous studies on DOC in terms of definition, supporting elements and methodology. A total of 63 papers on the digitalization trend that has developed significantly, especially during the COVID-19 period, were reviewed. The majority was carried out by empirical studies using qualitative and quantitative survey methods.

The findings showed that DOC studies on the pandemic are still evolving but have received significant attention from numerous international journals. Most of the entities in which articles are published are not indexed, and although the number of publications has increased yearly, their citation index is still relatively low. The results showed that of the 62 DOC elements taken from 12 journals, 10 characteristics met these criteria, namely cross-functional collaboration, digital leadership, digital innovation culture, employee digital skills, digital technology change orientation, digital data management, risk-taking, customer digital experience focus, flexibility agility, and digital mindset. Furthermore, this research proposes a characteristic model of "Ten Characteristics of Digital Organizational Culture in the Post COVID-19 period." The findings of this systematic review are expected to be used as a basis for future research and implementation of DOC to increase its practical relevance. These include its effect on the success of digital transformation and organizational performance, especially in the post-COVID-19 period.

LIMITATION

This study has several limitations, firstly, it uses only the Google Scholar electronic database, which is unlikely to cover all studies of DOC extensively. Secondly, it relies on certain keywords in the search stage to provide answers to research questions, which may exclude some topics. Thirdly, the nature of the research is theoretical, hence it is limiting in practice.

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DECLARATION OF CONFLICTING INTERESTS

The authors declare that there is no conflict of interest.

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Appendix 1. DOC Elements of 12 Selected Articles

Author(s)	DOC Elements	Numbers
Martínez-Caro, et al. (2020)	(1) Functional team collaboration; (2) Orientation of digital technology changes in the corporate culture; (3) Innovation culture; (4) The organization shares digital strategy with the team.	4
Isensee, C., *et al.* (2020)	(1) Attitude; (2) Behavior; (3) Collaboration; (4) Norms; (5) Internal Ability; (6) Leadership; (7) Orientation; (8) Values	8
Trushkina, N., et al. (2020)	(1) Customer focus where employees shape product development and improve the quality of customer service, putting themselves in their place; (2) Delegate decision making within the organization; (3) Dare to take risks, quickly overcome failure, and learn from mistakes; (4) Act quickly beyond planning; (5) Collaborative through teamwork and exchange of information between departments and divisions.	5
Phan, Y.L. (2021)	(1) Focus on customers; (2) Innovation; (3) Collaboration; (4) Open culture; (5) Digital Mindset (6) Flexibility agility.	6
Stoianova, O., Lezina, T. and Ivanova, V. (2020)	(1) Employee Development; (2) Building employee loyalty; (3) Talent attraction; (4) The existence of a knowledge sharing system within the company; (5) Motivation and support for transformation; (6) Cross-functional collaboration; (7) A systems approach to the development of corporate culture.	7
Knecht, J. and Hund, A. (2022)	(1) A high level of agility in individual teams as well as throughout the organization to adapt quickly to changing environmental conditions; (2) Interest in digital technology to maximize opportunities that arise in the context of digital transformation; (3) Employees need to operate internally and externally in a special network characterized by open and transparent communication in order to achieve a high level of speed in the exchange of knowledge and information; (4) Leadership in culture. Leaders act as coaches and consultants to empower teams and employees to act independently.	4
Zhen, Z., et al. (2021)	(1) Functional team collaboration; (2) Orientation of digital technology changes in the corporate culture; (3) Culture of innovation and digital change; (4) Organizations share digital strategies with teams.	4
Weritz, P., et al. (2020)	(1) Continuous learning and development means that the organization supports and encourages a learning environment where employees can develop and apply new digital skills and exchange ideas; (2) Ethics and data governance as important aspects to achieve digital maturity; (3) New digital leadership as a relevant aspect as a digital advisor with direct vision, who analyzes environmental changes and digital technology disruptions and reacts quickly and invests resources to ensure organizational transformation.	3
Lanza Blengini, M.V. (2020)	(1) A flexible structure is required for the digitization project; (2) Low hierarchy i.e. having an adequate balance between management and autonomy; (3) Skill balance i.e. it is important to have people who understand the technology and know-how to translate it to the business environment.	3
Grover, V., et al. (2022)	(1) Embracing digital innovation; (2) Digitally progressive; (3) Fast digital experimentation (4) Risk-taking strategy but with great potential (5) A work environment that facilitates collaboration; (6) Data-based decision making; (7) Customer	10

	digital experience; (8) Distributed leadership; (9) Empowering employees' new ideas; (10) Strong data security	
Saputra, N. and Saputra, A.M., (2020)	(1) A digital-first mindset, (2) Digital practices, (3) Empowered talent, and (4) Data access and collaboration tools across the organization	4
Chernyavska ya, S.A. and Yakhievna, F. (2021)	(1) The possibility of joint work of company personnel and clients of the organization, as well as the rapid exchange of information in the process of such economic interaction; (2) The ability to process large amounts of digital information quickly in a short time, which facilitates delegation of authority and reduces the level of bureaucracy in a company; (3) Orientation on short-term planning and operational activities of the organization by reducing the time for information processing and the complexity of management work; (4) Focus on overcoming the fear of risky activities related to digital innovation.	4

Appendix 2. 4 Step research for literature review using Indarti et al. (2020)

Stages	Description
Step 1: Data search and retrieval	• Search and select BOD studies using Google Scholar and Publish or Perish (PoP) software. • Five combinations of keywords and title words were used, including "digital organizational culture", "digital corporate culture", "organizational culture and digitalization", and "organizational culture and digital transformation". Meanwhile, the title words are "digital organizational culture" and "digital corporate culture". • From the combination of these searches, there were 63 articles from journals, proceedings/conferences, symposiums, books, working papers, dissertations, and citations.
Step 2: Article selection	• Ensure article quality and review validity using three search criteria, namely article universality, publication-quality, and relevance. The universality of the article is represented by the use of "language (English)," while the quality of the publication is represented by the "index value" (eg. Scimagojr). • Based on these criteria, 12 articles were selected for further analysis. Consists of 4 articles from Scopus indexed journals (Q1), and 4 from sources that are not Scopus indexed. Based on their relevance, also included 4 articles from the conference, symposium, and proceedings. • Related articles were collected during the COVID-19 pandemic in the range of 2020 to June 2022 which provide information about the BOD elements used to analyze the data.
Step 3 : Article digitization	• The digitization process is then carried out by entering and storing data from 12 selected articles which include information from abstracts, keywords, sources, and methodologies. • Journal rating, publisher, and summary information are also stored. • Data is saved in Excel and CVS formats.
Step 4 : Data processing and analysis	• An interpretive content analysis was then carried out to conclude several BOD elements from each article. • Then the data synthesis and analysis were carried out to develop a BOD characteristic model. • Content analysis using matrix synthesis method with resource index technique. • Consistency of key elements from at least three sources forms the basis for proposing further models.