

International Journal of Business and Economy (IJBE)
eISSN: 2682-8359 | Vol. 4 No. 4 [December 2022]
Journal website: <http://myjms.mohe.gov.my/index.php/ijbec>

DART MODEL OF VALUE CO-CREATION ON DIGITAL MSMEs

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Article Information:

Article history:

Received date : 27 November 2022
Revised date : 4 December 2022
Accepted date : 15 December 2022
Published date : 19 December 2022

To cite this document:

Mulyana, D., Taufiq, A. R., & Harison, E. D. (2022). DART MODEL OF VALUE CO-CREATION ON DIGITAL MSMEs. *International Journal of Business and Economy*, 4(4), 62-74.

Abstract: *The purpose of this study is to determine the form of value co-creation in Micro, Small and Medium Enterprises (MSMEs) in Indonesia's digital ecosystem using the DART (Dialogue, Access, Risk Assessment and Transparency) model as a strategy for product innovation and development as well as to evaluate the implementation of the value co-creation strategy. The method used in this research is a survey by distributing questionnaires to 222 respondents who are stakeholders in the digital MSME ecosystem, namely as many as 84 MSME actors, 18 digital business platform managers, and 120 end consumers as platform users. The analytical tool used is Confirmatory Factor Analysis (CFA) to test the representativeness of dimensions for the main variable, value co-creation. The results of this study indicate that the four constructs are proven to reflect the value co-creation variable. Risk assessment followed by access is the main dimension that underlies the effectiveness of value co-creation activities in the digital MSME ecosystem.*

Keywords: value co-creation, DART, digital MSMEs.

1. Introduction

Amid economic challenges during the Covid-19 pandemic, Indonesia has the opportunity to rebound, especially for Micro, Small and Medium Enterprises (MSMEs). Among the various new opportunities, at least five have the potential to continue to sell well during a crisis. The five business options are selling cloth masks, ready-to-eat food, private lessons, frozen food and literal coffee. When it comes to cloth face masks, it is understood why these items are selling so well. Personal protective equipment, such as face masks, is essential during the pandemic.

The spirit of MSMEs to return to life this year is essential after the slump due to the pandemic over the past year. Based on the UNDP survey in 2020, it is known that more than 88 percent of MSMEs experienced a decrease in profit margins during the pandemic until August 2020 (katadata.co.id). The government's attention to the development of MSMEs is also getting more intense by issuing policies that make it easier for MSMEs to scale up their business. One of them is determining the target of 2 million MSMEs going digital through the Proudly Made Indonesia (BBI) movement initiated by the government, which has exceeded the target. Therefore, the future trend of the movement of MSMEs into the digital ecosystem will continue to increase. In addition, the soaring trend of online shopping during the Covid-19 pandemic is believed to boost the number of MSMEs that will go digital.

Increasing the quantity of MSMEs in this digital ecosystem raises new challenges. Every business actor is required to have high literacy in digital business processes because it is much different from the initial conventional business processes. The number of parties that play a role in the digital business process must always be well identified by each MSME actor because every element that has a role in this digital business process is believed to be able to make a specific contribution to the business development of MSME business actors.

The biggest challenge for every MSME is the ownership of limited resources. This situation is forcing businesses to rethink their survival strategies. Collaboration between MSMEs can be an alternative strategy to utilize this capacity. The MSME community in this digital ecosystem can provide many opportunities for its members to interact and create value together, which can be called value co-creation activities. It is expected to stimulate an integrated innovation process that can lead to long-term survival.

Value co-creation is a form of collaborative creativity initiated by companies and customers to enable innovation, not just to satisfy their customers (Prahalad & Ramaswami, 2004). Value co-creation itself can be created through the process of key building blocks of co-creation. In addition, the value of togetherness and cooperation from within Indonesia's culture, especially for MSME actors, seems to increase the value creation potential of the MSME community, where actors can play diverse roles. For example, MSME owners do not only act as producers but also as consumers or suppliers for other entities. The multi-role development in the value co-creation strategy is expected to accelerate the growth of MSMEs in Indonesia's digital ecosystem. Therefore, this study aims to determine the form of value co-creation in MSMEs in Indonesia's digital ecosystem using the DART model (Dialogue, Access, Risk Assessment and Transparency) as a strategy for product innovation and development as well as evaluating the implementation of the value co-creation strategy.

2. Literature Review

The definition of value co-creation can be interpreted from three perspectives: service logic, service-dominant logic, and customer dominant logic. Based on the perspective of service-dominant logic, value co-creation is a general concept that includes certain theories and empirical events in which companies and customers generate value through interactions (Vargo and Lusch, 2008). In the business context, the interaction occurs between the customer and the company, where both relate to each other for business reasons and have the opportunity to influence each other's processes (Gronroos, 2011). Then in a subsequent study, Lusch and Vargo (2014) asserted that value co-creation is a collaboration that facilitates the removal of barriers, opens access to new opportunities and resources, and also increases understanding of

how to integrate resources effectively, create new resources, improve service quality, and reduce errors in service delivery. Meanwhile, according to Dollinger et al. (2018), value co-creation is an active, creative and social process based on collaboration between producers and users initiated by the company to generate value for customers. In addition, according to Prahalad and Ramaswamy (2004), value co-creation is an active dialogue between customers and companies in creating shared value. Therefore, value co-creation can be defined as the process of creating shared value by customers and companies (Mulyana et al., 2019).

Vargo and Lusch (2016) also conceptualize value formation in the context of multi-actor interactions in ecosystems. When this conceptualization is linked with Arnould and Thompson (2007) contention that community is an effective way of creating movement in market-mediated networks, the co-creation of value within communities demonstrates the potential to overcome the limitations of SMEs. If multi-actor interactions are the key to service exchange and resource integration, this can encourage the innovation process as a sustainability strategy for MSMEs.

Several researchers have defined the relationship between value co-creation and the innovation process. Frow et al. (2015) describe value co-creation as an innovation platform that provides opportunities for business actors to integrate resources. Co-creation in the context of co-production and co-creation activities. Verma et al. (2012) define co-creation as a resource that comes from interaction with customers to take advantage of product and market success rates that contribute to innovation and to understand customers' future needs. Fidel et al. (2015) point to customer collaboration in the innovation process as an influential antecedent to knowledge building that leads to positive marketing outcomes. Meanwhile, Romero and Molina (2011) conceptualize networking as a source of value co-creation and co-innovation as well as a means of accessing knowledge, skills, technology, and markets through risk-sharing and integrating competencies. This situation provides the impetus for continuous, user-driven and collaborative innovation. Small businesses need an innovation ecosystem to develop their business models; therefore, value co-creation is essential to building their business. Value co-creation not only facilitates the achievement of common goals and benefits financial support but also garners commitment from the actors involved (Radziwon et al., 2017) to be part of the continuous innovation process. SMEs need an innovation process because they have limited resources compared to large companies; however, they play an important role in economic growth, particularly in emerging Asian markets (Hitch et al., 2017).

According to (Prahalad and Ramaswamy, 2004), the indicators used to measure value co-creation are called the DART concept, including the following:

1) Dialogue

Dialogues or talks between customers and companies must focus on both interests, and companies must do more than listen to consumers. In addition, it is hoped that there will be rules of engagement and productive interaction. Dialogue means interactive, deep engagement, and a tendency to act on both sides. Empathy is needed to build experiences around what consumers are experiencing, recognizing the emotional context and social and cultural experiences.

2) Access

Access begins with the existence of information and equipment, which can be in the form of the internet. A company can provide access to data about processes and designs to consumers. The traditional focus of enterprises and value chains is to create and transfer ownership of products to consumers. Today, the consumer's goal is access to the desired experience, not necessarily product ownership. Therefore, the idea of access to ownership must be abandoned.

3) Risk-Assessment

Freedom to exchange information, whether to debate or share risks. When consumers and companies become co-creators of value, the demand for information about potential risks will increase, and they can also better predict future risks. The risk here refers to the probability of harming consumers. Managers have traditionally assumed that companies can better assess and manage risk. Therefore, companies focus only on articulating benefits while communicating with consumers, ignoring risks.

4) Transparency

Transparency is carried out to create consumer and company trust, for example, regarding prices. Besides, transparency is also to facilitate if potential disturbances come in the interaction. So that information about products or services and business systems are more easily accessible, thereby creating a new level of transparency that increases consumer demand. Transparency of the value of information changes related to the co-creation process increases consumers' willingness to accept the quality of their products and services (Prahalad and Ramaswamy, 2001).

3. Methods

3.1 Sampling and Data Collection

The object of this research is the development of a value co-creation strategy in the digital MSME ecosystem. This study was designed using a survey method on 222 respondents who were divided into three main groups in the digital SME ecosystem, namely MSME actors, providers and users (Prahalad & Ramaswamy, 2004; Karhu et al., 2011; Lenkenhoff et al., 2018; Dommett et al., 2020). So that the research objectives can be achieved by the formulation of the problem proposed, then the data and information obtained about the respondents will be taken through the distribution of questionnaires obtained from samples of the population. The population in this study are stakeholders (main actors of the digital MSME ecosystem) spread throughout Indonesia.

The sampling technique used is purposive sampling. Data processing techniques to determine the weighting of respondents' answers to the questionnaire were carried out using the Bipolar Adjective scale with the use of 10 scales. The analytical tool used in this research is Second Order Confirmatory Factor Analysis (SO-CFA), which aims to test the representativeness of the construct dimensions that make up the research variables.

3.2 Measurement

The derivation of constructs in this study is testing indicators from the dimensions of dialogue, access, risk assessment and transparency (DART) as the main dimensions of the value co-creation variable. Factors or indicators of the dialogue dimension, namely interactive communication, engagement and empathy. The access dimension includes information, tools, facilities and experience. The risk assessment dimension consists of risk-sharing, risk probability and responsibility. The last dimension, transparency, includes interaction, transaction system and convenience.

4. Results

Characteristics of respondents are to describe or provide an overview of the identity of respondents in this study because by describing the identity of respondents who became the sample in this study, it will be known to what extent the identity of respondents in this study. Therefore, the description of the identity of the respondents in this study can be grouped into three main groups based on the main stakeholders, namely MSME actors, digital business platform managers and end consumers as stakeholders in digital business; a total of 222 respondents. For MSME actors, the characteristics are divided into several parameters based on the type of business, monthly income, length of business and the number of digital media used from 84 selected respondents.

Table 1: Characteristics of MSME Actors

MSME Characteristics		Total	Percentage
Type of business	Culinary	41	49%
	Fashion	37	44%
	Craft (Creative)	6	7%
Income	< Rp 5.000.000	20	24%
	Rp 5.000.001 – Rp 10.000.000	35	42%
	Rp 10.000.001 – Rp 15.000.000	15	18%
	> 15.000.000	14	17%
Business Length	< 1 year	16	19%
	1 – 10 years	47	56%
	> 10 years	21	25%
Digital Media	1 Media (single)	2	2%
	2-5 Media	68	81%
	> 5 Media	14	17%

Source: Results obtained from the data collected for this study.

The quantitative results of collecting data on the characteristics of respondents in this study show that MSME actors are dominated by females with 54%. Meanwhile, based on age, the number of respondents was dominated by the age range of 29-34 years, as much as 38%. The number of respondents is also dominated by the type of culinary business, as much as 49%. The business income per month is dominated by those with incomes in the range of IDR 5,000,001 – IDR 10,000,000 by 42%. Most of the respondents have run their business for 1-10 years with a percentage of 47% and have used 2-5 digital media in their business operations, amounting to 81% of the selected respondents.

For stakeholder groups managing digital business platforms, the characteristics are divided into several parameters based on platform category and duration of operation of the 18 selected respondents. Characteristic results from the data obtained show that digital business platform managers are mostly engaged in the advertising management category, which is 50%. On average, they have been operating for about 5-10 years, with a percentage of 72% of the total respondents managing the selected platform.

Table 2: Characteristics of Digital Business Platform Manager

Digital Business Platform Manager Characteristics		Total	Percentage
Category	Marketplace	6	33%
	Advertising	9	50%
	Utility/On-demand	3	17%
Operating Time	1-5 years	2	11%
	5-10 years	13	72%
	>10 years	3	17%

Source: Results obtained from the data collected for this study.

For the last stakeholder group, namely the end consumer, the characteristics of the respondents are divided into several parameters based on gender, education, income, occupation and account ownership on digital business platforms from 120 selected respondents. Table 3 reveals the details of the parameters.

Table 3: Characteristics of End Consumer Respondents

End Consumer Characteristics		Total	Percentage
Gender	Man	48	40%
	Woman	72	60%
Age	18-22 years old	18	15%
	23-28 years old	46	38%
	29-34 years old	28	23%
	35-40 years old	21	18%
	> 40 years	7	6%
Education	High School Degree	12	10%
	Associate Degree	14	12%
	Bachelor Degree	72	60%
	Master Degree	14	12%
	Doctor Degree	8	7%
Income	< Rp 5.000.000	38	32%
	Rp 5.000.001 – Rp 10.000.000	43	36%
	Rp 10.000.001 – Rp 15.000.000	22	18%
	15.000.001 – Rp 20.000.000	11	9%
	> 20.000.000	6	5%
Occupation	ASN	21	18%
	Private sector employee	25	21%
	Entrepreneur	44	37%
	BUMN employees	28	23%
	Other	2	2%
Account Ownership	1 platform account (single)	5	4%
	2-5 platform accounts	87	73%
	> 5 platform accounts	28	23%

Source: Results obtained from the data collected for this study.

The quantitative results of collecting data on the characteristics of respondents to end consumers in this study show that users of digital business platforms are dominated by women, namely as much as 60%. Meanwhile, based on age, the number of respondents is dominated by the age range of 23-28 years, as much as 38%. It is understood that, in that age range, respondents are already of working age and earning, so they are more likely to satisfy their desire to shop compared to other age ranges. Respondents also dominate the number of respondents with bachelor's degrees, as much as 60%. In addition, respondents are also dominated by those with incomes in the range of Rp. 5,000,001 – Rp. 10,000,000 by 36%. Other results show that most of the respondents are entrepreneurs with a percentage of 37%. In addition, they have 2-5 digital business platforms that account for as much as 73% of the selected respondents.

Based on the Critical Factor Analysis (CFA) analysis results, it is known that the Critical Ratio value for normality testing for both skewness and kurtosis obtains the largest score limit of 2.21. It does not exceed the Cut of Value, which is 2.58, and it can be said that the research data has a similar distribution – normal. Testing the measurement model of the variables of each research variable resulted in a loading factor score of more than the cut of value (0.4) or was declared to have passed this test.

Table 4: Research Construct Measurement

Variable	Indicators	LF
Dialogue	Interactive communication	.849
	Engagement	.754
	Emphaty	.808
Access	Information	.699
	Tools	.624
	Facility	.685
	Experience	.625
Risk Assessment	Risk Sharing	.712
	Risk Probability	.701
	Responsibility	.685
Transparency	Interaction	.840
	Transaction System	
	Convenience	.606
		.672

Source: Results obtained from the data collected for this study

Table 4 shows that the loading factor (LF) for measuring each dimension of the value co-creation variable is reused to measure the validity, reliability and variance extracted as one of the assumptions that must be met. The value of LF is a confirmation value for validity testing. Reliability testing based on the remaining LF values produces the construct reliability and variance extracted values that are greater than 0.5. Based on the results of the CFA analysis that has been carried out for testing the model and the hypothesis of the relationship between the constructs of research variables, it was found that the Goodness of Fit Index values obtained were Chi-Square = 136,094, GFI = 0.919, AGFI = 0.878, RMSEA = 0.076 and CMIN/Df = 2.268. Therefore, the testing of this research model is still acceptable because the values of GFI, AGFI and RMSEA meet the minimum criteria for model eligibility even though the other criteria values are a marginal fit.

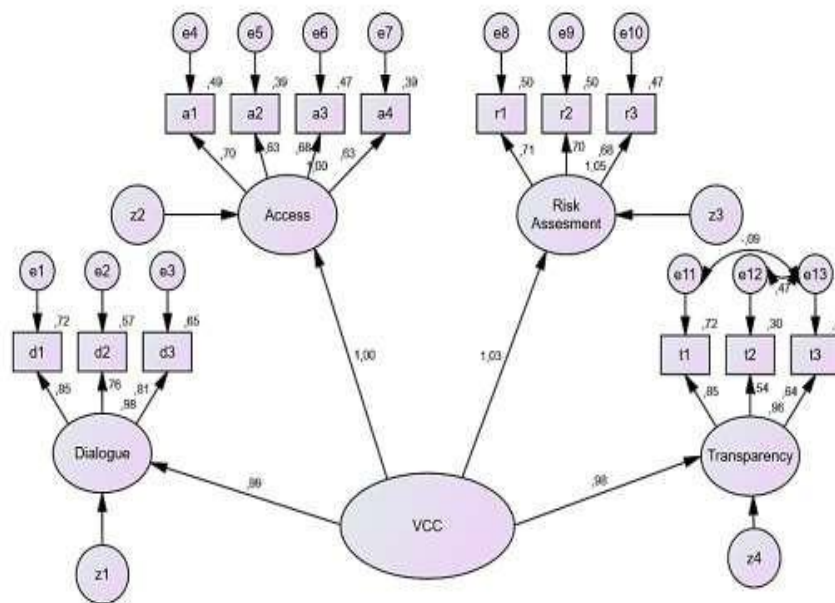


Figure 1: CFA Second-Ordered Analysis Results

Source: Obtained from the data collected for this study.

The CFA analysis has been carried out for testing the model. The hypothesis of the relationship between the constructs of research variables found that the Dialogue dimension is proven to reflect the value co-creation variable with a p-value (0.000) less than the sig- α value, which is 0.05 with an estimated value of 0.992. Access can also be proven as a dimension that reflects the co-creation value with a p-value of (0.000) less than the sig- α value of 0.05 with an estimated value of 1.001. The Risk Assessment dimension is also proven to reflect the co-creation value with a p-value of (0.000) less than the sig- α value of 0.05 with an estimated value of 1.026. Furthermore, the Transparency dimension is also proven to reflect the co-creation value with a p-value of (0.000) less than the sig- α value of 0.05 with an estimated value of 0.978. These results show that the Risk Assessment dimension has a larger estimate value than the other dimensions, followed by the Access dimension. This means that the evaluation of risk and accessibility is the main factor in the value co-creation process for digital SMEs. Therefore, every actor involved in digitizing the MSME business can emphasize the value of risk evaluation and ease of access between stakeholders.

5. Discussion

The dialogue dimension in this study is represented by interactive communication, engagement and empathy factors. Communication between actors is an important key in the early process of implementing value co-creation (Ge and Gretzel, 2018). Continuous and process-oriented interactive communication can develop relationships and create reciprocal value (Ballantyne et al., 2011). This interactive nature will symbolize the closeness between MSME companies and consumers, as well as strengthen relationships with digital service providers. Empathy is also an important requirement in the dialogue between actors when the value co-creation process occurs. The sense of concern is that MSME actors and platform provider companies have a tangible form of attention given to consumers as users. Likewise, the feedback that consumers will give is a strong form of empathy for the company and platform provider, which will then become a valuable asset in the future, namely the emergence of commitment as the

basis for the strength of the relationship between actors (Emami et al., 2021). Furthermore, engagement is also a determining factor for the success of dialogue in value co-creation. A high level of engagement can strengthen the value of dialogue, strengthening the sense of ownership between actors (Zhang et al., 2018). Engagement symbolizes the willingness to sacrifice from consumers always to be bound together with MSME actors and platform providers.

Access in this study is a dimension that greatly contributes to carrying out the value co-creation strategy. Access is formulated into several main indicators, including information, tools, facilities and experience. Access to information is the main indicator in this study and is in line with the results of Pinho et al. (2014), which state that the main factor in value co-creation will be closely related to obtaining better quality information. Every actor, especially the consumer as a user, needs complete and clear information when involved in the value-creation process. Consumers will feel proud and recognized when given broad access to information that they may not have had before. Access can also be represented by supporting tools such as internet channels and different additional applications always to be involved with other actors in value co-creation activities (Gutiérrez et al., 2017). Facilities in access are also an important factor in value co-creation (Polese et al., 2018). Companies can provide access to database facilities regarding processes and designs to consumers. This can also be done by MSME actors with platform provider companies by providing additional facilities for sharing activities and supporting openness in each party. The last factor of the access dimension is to provide new and valuable experiences for each actor. This finding is in line with the research of Dean et al. (2016), which states that experience is well recognized as an important and complex component of value that can provide value in certain contexts and can continue to emerge over time. Experience for all actors is also valuable in continuous evaluation for better results. In addition, this is also due to consumer goals regarding access to the desired experience and not always related to product ownership. Consumers are more focused on seeking an emotional experience that can be a source of pride and pleasure for themselves when involved with the company or by the service provider.

The success of value co-creation in this study will be largely determined by the risk assessment dimension, which includes the exchange or sharing of risks from each actor, the size of the risk that is shared, and the responsibility of all parties. Risk sharing in value co-creation activities is a sensitive matter, but it is important to pay attention because it will determine the continuity and level of involvement of stakeholders. The main tendency of this risk is in the sharing of financial risk. This is in line with the research of Banerjee and Sharma (2015), which suggests that risk sharing in financial form is the main risk that must be considered in the implementation of co-creation activities. In addition, another important factor is to consider the risks together so that it can be estimated how much risk will arise and become an obstacle in value co-creation (Albinsson et al., 2016). MSME companies, service provider companies and consumers as the main actors will know the risks they will get and try to take steps to anticipate or minimize these risks. The last thing that becomes a concern in the risk assessment dimension is the clarity of responsibility, which is the basis for trust in co-creation. This is also in line with the findings of Albinsson et al. (2016), which state that the existence of responsibility regarding risk control will clarify the role of both companies and consumers in the success of value co-creation.

The last dimension of value co-creation in this research is transparency which includes interaction, transaction system and convenience. The interaction indicator is a key factor in the openness dimension between actors (Ramaswamy, 2009; Rantala and Karjalainen, 2016). Transparency in interaction can be interpreted as the openness of each party regarding everything related to the need for value co-creation activities, such as prices, product quality, service costs and others. Transactions are another important thing that must have transparency between actors in value co-creation. This transaction is defined as the product, which can be seen as a tangible bound relationship (Vargo and Lusch, 2010). Better transparency in the transaction system can convince all actors, especially consumers, to be more bound together with MSME companies and service provider companies. In addition, transparency can also be seen from the convenience of stakeholders during the value co-creation process. Convenience will be easily seen as a form of high involvement of consumers in the application of value co-creation (Saarijärvi, 2012). Not only for consumers, but the convenience will also apply to MSME actors and service provider companies as long as the value co-creation process goes well.

6. Conclusion

The results of the analysis for testing the model and the hypothesis of the relationship between the constructs of the research variables found that the dimensions of dialogue, access, risk assessment and transparency have been proven to reflect value co-creation. Dialogue in this study can be represented by interactive communication, deep engagement and empathy.

The access dimension consists of the availability of information, supporting tools, facilities and experience. The risk assessment dimensions consist of risk-sharing, risk probability and responsibility. Furthermore, the transparency dimension is seen from the interaction, transaction system and convenience. The results of this study indicate that the dimensions of risk assessment and access are the main dimensions in value co-creation activities. This means that the evaluation of risk and accessibility is the main factor in the value co-creation process for digital SMEs. Therefore, every actor involved in digitizing the MSME business, be it companies, platform providers, or consumers, can emphasize the value of risk evaluation and ease of access between stakeholders. Dialogue and Transparency also cannot be ignored in value co-creation because they are factors that are integrated with other dimensions. Every stakeholder in value co-creation must communicate well and interactively to maintain a strong relationship and concern between actors. Openness and convenience in interacting and transacting will also determine the success of value co-creation in the digital MSME ecosystem.

7. Limitation

This research has limitations in several technical and substantial aspects. The technical aspect in question is in the scope of research on the digital MSME ecosystem, which only involves 3 main actor groups, namely MSME companies, platform provider companies and consumers as end-users. MSME companies that can be accessed in this study are in the culinary, fashion and craft categories. Meanwhile, the platform provider companies that can be accessed are companies that are included in the marketplace, advertising and utility/on-demand categories.

Further research can be developed by applying to different business categories but still by considering digitalization interventions that are current and future needs. Substantially, the development of value co-creation in this study is still using the basic concept of the DART model, which has become the main benchmark for discussing value co-creation so far. Future research can explore other dimensions that might be an update of the DART model that has been used so far. Other research can also be developed by connecting the DART model with other conceptual models as both an antecedent and a consequence.

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