

Critical Success Factors of E-Commerce Collaboration in Indonesia

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Abstract

E-commerce development in Indonesia continues to be the center of Southeast Asia's attention, with its potential in both B2B and B2C models. With predicted growth up to US \$ 300 billion in 2020, many e-commerce aims to create new value in a new product/service. It is widespread for startup e-commerce launch partnerships or collaboration programs to increase e-commerce opportunities to grow even more. Some e-commerce has launched their collaboration program with significant results in quality growth. The decision making in e-commerce collaboration tends to be intuitive, centralized, and not using strategic management tools. This research aims to identify critical success factors (CSF) as primary considerations in making collaborative decisions between e-commerce companies by developing a questionnaire with employees and decision-makers using TOE framework in e-commerce collaborations. The object of this research is B2B and B2C company that conducted collaboration partnership in the last 1 year. While research limited to ranking of CSFs, further studies by using another method need to be conducted for more comprehensive analysis.

Keywords

Critical Success Factors, E-commerce, Partnership, Collaboration.

1. Introduction

Startup companies, or startup, typically are the companies that chase rapid company growth by implementing "disruptive" nature but "solving problems" ideas in an existing market and industry (Nurcahyo. et al., 2018; Tech in Asia, 2018). Startups that dominate in Indonesia came from the financial technology (fintech) & e-commerce industry (Cohive, 2018). E-commerce acts as a provider of facilities in the proses of digital transaction either for online sellers or buyers, it brings many benefits such as personalization, increased product variety and information, and interactivity (Dachyar, et al., 2019). E-commerce tends to include commercial activities, collaborates with business partners and clients (Qwords, 2018). The development of e-commerce in Indonesia continues to be the center of Southeast Asia's attention. In Southeast Asia, Internet economy growth based on GMV parameters or market value growth has increased from US \$ 32 billion in 2015 to US \$ 100 billion in 2019 and predicted to exceed US \$ 300 billion in 2020 (e-Conomy SEA, 2019).

The e-commerce competition in Indonesia is currently dominated by 6 Unicorn startup companies (having a business valuation of over \$ 1 billion), 3 of which are startups in business-to-consumer (B2C) e-commerce, and 1 in the fintech area integrated with other e-commerce (DailySocial, 2020). In 2019, Indonesia already had at least 27 startups with valuations above \$ 100 million (Startup Centaur), with six companies engaged in e-commerce (Daily Social, 2020). Other than B2C, one segment of e-commerce can develop rapidly: business-to-business (B2B). Number of B2B transactions, potentially growing almost three times greater than B2C (Katadata, 2019). In Indonesia, the term B2B is familiar but not yet popular because known by around 65% of smartphone users. According to the McKinsey & Co Report, the potential for e-procurement through online B2B channels in Indonesia will reach \$ 125 billion by 2025. (DailySocial, 2019).

Collaboration or partnership with startup partners currently tends to be intuitive and centralized. In decision making, startup companies often do not use strategic management tools because startups take a more flexible and adaptive path in decision-making with centralized decision-making (Nurcahyo et al., 2018). CSF is one of the strategic tools that engage the company in decision-making process. Based on the background described and additional literature searches, the authors found several research gaps as part of further research suggestions in startups. First, in the journal Chen & Wang, (2012) and Kim, et al. (2018), critical success factors (CSF) can be used in various types of businesses. However, their use in e-commerce startup companies is still limited to the stage

of making a business design. It is also necessary to study e-commerce startups' characteristics after entering the market and their success factors in running into more sustainable operations (Bang, et al., 2009). Based on previous research history, the authors conclude that collaboration is an important factor that needs to be studied further, because it can bring e-commerce to create innovative products to meet customer needs that can penetrate new market segments.

1.1 Objectives

This research aims to identify critical factors as primary considerations in making collaborative decisions between e-commerce companies' collaboration to create the latest yet sustainable products/services for users/customers. The problem formulations determined in this study are:

1. What are the critical factors in the collaboration between e-commerce startups?
2. What is the priority level of each factor for e-commerce startups?

2. Literature Review

2.1 CSF

Critical Success Factor (CSF) appeared in literature in 1980, which can be describe as "anything that must be done if a company is to be successful", it must be in a small amount, can be measured and controlled (Selim, 2007). CSF need to be considered by organizations to ensure business continuity (Sebora, 2008). CSF usually divided into three classifications: strategic, managerial, and operational. The strategy represents a formulated plan, while an organization is an aspect that emphasizes qualitative measurement. The CSF approach is widely accepted in various fields of study, but no standard rules for identifying the CSF that have been developed. In this case, the CSF approach can also be made to grow the e-commerce business, so that decision making is not always centralized and intuitive (El-Abidi, 2018).

In e-commerce, CSF is used to identify the success factors of e-commerce and obstacles in developing an e-commerce business. Al-Qirim (2007), identifies the factors that most influence the adoption of e-commerce in SMEs in New Zealand, namely entrepreneurial factors measured in leadership innovation and leadership involvement in developing SMEs in e-commerce. A study by Sung (2003), regarding the success of e-commerce in Japan, South Korea, and the United States, states that there are five determinants of successful e-commerce (1) customer orientation, (2) ease of use of applications, (3) product or service variations, (4) product and service delivery and (5) service speed aspects for Asian countries and service security aspects for the United States. Nir Kshetri (2005) explained the constraints factor on the development of e-commerce. The inhibiting factors for e-commerce related to the development of e-commerce products/services are (1) economic barrier as the inability of information technology infrastructure to provide services to the consumer level. Thus, the adoption rate of e-commerce is shallow. (2) Another barrier is the socio-political aspect at the business level, which is interested in developing relationships among business actors to develop e-commerce.

2.2 E-Commerce Collaboration in Indonesia

The globalization of startups has increased, with new value creation as an engine of growth; therefore, the design is an essential factor in startups (Kim, et al., 2018). To create this value, startups need to consider cooperating in the technological aspect to overcome the production process's constraint; however, this constraint can be overcome by collaborating with outside technical service consultants or similar service providers. Because startups are established with limited capital so that they have limited facilities within the company, startup leaders need to consider using their funds to develop technology with the cooperation of third parties (Akbar, 2015). While facing large competitor, startups need to carry out diversification as a new digital service that is optimal or unique can be created to foster customer loyalty. In Indonesia, operational collaborations in the pilot world are often carried out to target new markets for dynamic e-commerce.

Partner support is one factor that significantly influences a startup. With a fast development phase, minimal business experience, and few resources in starting a business, startups (including e-commerce) need partners to accelerate a business's growth. Therefore, it is common for startup e-commerce launch partnerships or collaboration programs that will increase startup opportunities to find the right target market and financial support (Nalintipayawong, et al., 2018).

During 2018-2019, some leading and growing e-commerce in Indonesia initiated the collaboration to create new products that create impactful growth for the business. With some examples such as Bukalapak-Happyfresh with increasing transaction up to 3.5 times, Fabelio-Cashlez with increasing cash-on-delivery user to 23%, Ralali-Futuready that protects more than 160.000 users, and Lazada-Chilibeli with a growing number of more than 1500

orders in just three months. Also, numerous e-commerce was conducting collaboration with payment service (fintech) and delivery service (courier) (Tech in Asia, 2018; KataData, 2019).

2.3 Framework of CSF

As the first step, the objectives of evaluation have been determined based on the literature review in section 2, in which the author identified the CSF. CSF will be classified in some categories, with a level of framework divided into four levels as follow:

1. The first level is the ultimate goals and objectives.
2. The second level is the framework construction of CSF.
3. The third level shows the specific CSF within each category (Chen & Wang, 2010; Hussain & Subramoniam, 2014).

To create the construction of the CSF, the TOE framework was selected for this research. The TOE framework can be used to study the diffusion of various information systems/information technology innovations, including technical tasks and innovations integrated into the core business (Sila & Dobni, 2012). It is advantageous over other adoption models in studying value creation from technology, and it is free from industry and firm-size restrictions. TOE framework has been widely tested in information technology or information system adoption studies and has reported consistent empirical support (Al-Hujran, et al., 2018).

2.4 Data Processing

This research use some of analysis method that will be described as follow:

1. Means score analysis.

This analysis is useful for obtaining the average value of respondent's ratings of an attribute, such as indicators of successful implementation and scale of CSF importance. In this research means score analysis were done by Geometric Mean. The geometric mean is an average value using a centering measure that can only be done for data that has a positive value (X_1, X_2, X_3, \dots). Geometric mean is used to measure the distance between objects with heterogeneous genus features so that the metric distance function is found effectively and can optimize solutions in closed form for each metric distance. This method can provide a better average approach because it can eliminate the deviations that occur in the data obtained from the respondent's assessment in the questionnaire. The measuring average or geomean is the average obtained by multiplying all the data in a sample group then the square root with the number of sample data points. Mathematically the geometric measuring mean is formulated as follow:

$$G = \sqrt[n]{(x_1)x(x_2)x \dots \dots (x_n)}$$

with:

G = geometric mean

n = sample

$X_i = i_{th}$ sample

2. Spearman Correlation

Spearman correlation is used to determine the suitability between two variables. This correlation is used to determine the suitability between the perceived importance of CSF according to company respondents and respondents from e-commerce partners.

3. Methods

The research is conducted to rank the CSF in collaboration with e-commerce to create new products or services for the customer by identifying the factors considered by e-commerce before deciding the party that will collaborate. In this research, the methodology steps are as follows:

1. Literature Review and Hierarchy Design.

In this stage, the author will identify which CSF gets considered by some companies to make decisions related to the partnership with other companies. Using the TOE framework, the output of the identified CSF will be shown in the CSF summary table criteria.

2. Develop Questionnaire for Respondents.

After the CSF has been determined in literature, the questionnaire is arranged based on the hypothesis and refers to the research's objective. Questionnaire will be conducted for both e-commerce and partner party, with additional criteria, such as:

- Both businesses are currently undergoing a collaboration with the other companies or partnerships that previously conducted within the last one year.
- Collaboration creates a new product feature or new service as the output.

3. Conclusion

The result of CSF will be analyzed to obtain the conclusion that will answer the research's objectives.

4. Results and Discussion.

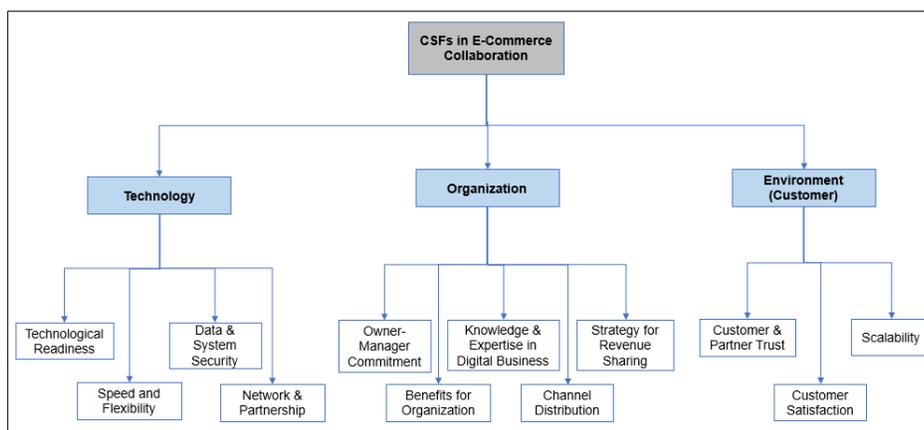
The first hierarchy of this research can be described as the CSFs of e-commerce collaboration in Indonesian company. In this research, the TOE framework as the second hierarchy construction was distributed to 12 critical factors as described in Table 1.

Table 1 CSF based on literature review

Factors	Definition	References
Technological Readiness (T1)	In general, readiness to use new technology uses four personality traits: optimism, innovativeness, discomfort, and insecurity, including IT infrastructure integration, joint customer service operation, and online payment mechanism. The factor also describes the recognition and will to accept new technology development based on customers' trends.	AlGhamdi, et al., 2013 Kim, et al., 2018 Sila & Dobni, 2012 Vize, et al., 2013
Speed and Flexibility (T2)	<ul style="list-style-type: none"> • Speed refers to conducting business in "Internet Time" while architecting technical business models, interaction systems, and IT integration. • Flexibility refers to the need to develop custom solutions and increase global competition. 	Damanpour, 2001
Data & System Security (T3)	Data security refers to security issues associated with transactions conducted over the Internet. E-commerce needs to ensure the protection of e-commerce and data about e-commerce customers and transactions were safely preserved.	MacGregor & Kartiwi, 2010 Masudin & Saputro, 2016 Sila & Dobni, 2012
Network & Partnership (T4)	<ul style="list-style-type: none"> • Network reliability is the firm's ability to successfully transfer critical business applications to and from its supply chain partners over the Internet and partners. • Partnership selection is an essential step in creating a successful alliance since it enables a more excellent range of distribution and facilitates the convergence of strategic resources, capabilities, and competencies. 	Huang, 2006 Janita & Chong, 2013 Sila & Dobni, 2012
Owner-Manager Commitment (O1)	A positive attitude from top management to the managerial level toward change creates an organizational environment receptive to innovation. It is crucial during the implementation stage when coordination across organizational units and conflict resolution is necessary.	Dubelaar, et al., 2005 Janita & Chong, 2013 Sila & Dobni, 2012
Benefits for Organization (O2)	Degree of acceptance of the possible benefits that e-commerce technology can provide for the organization (such as an increase in efficiency, market growth, and better quality of customer service). The company allocates resources such as managerial, financial, and technological resources.	Al-Qirim, 2007 Janita & Chong, 2013 Kumar, et al., 2018 Rahayu & Day, 2015
Knowledge & Expertise in Digital Business (O3)	The organization's ability to adopt e-commerce, expertise in ICT, and penetrate the market with the cultural technology of an organization. The factors also described the IT team's capability to will the uncertainty and risk in technology adoption.	Janita & Chong, 2013 Kumar, et al., 2018 Rahayu & Day, 2015
Channel Distribution (O4)	The ability at dispatch, information feedback and promotion in the target market, and the responsive efficiency of distributing patterns. It also concerns all cost-controls in distribution/channel and capability to host the power and allocate the pipeline's profits.	Chen & Wang, 2010
Strategy for Revenue Sharing (O5)	The optimal solution of revenue under consideration for best business strategy (partition charge) and revenue sharing is structured around the number of customers, services utilized, and how much of the data center assets are allocated.	Chen & Wang, 2010 Damanpour, 2001 Pramudita, et al., 2019

Customer & Partner Trust (E1)	Trust customer place on the transaction and after-sale service of the startup, which affects market opportunity. Partner trust believes that partners will act to achieve positive outcomes and actions that avoid adverse consequences that can yield long-term benefits, and the organization is continuing a track record with excellent output.	AlGhamdi, et al., 2013 McKnight, et al., 2017 Nalintippayawong, et al., 2018 Sila & Dobni, 2012
Customer Satisfaction (E2)	Satisfaction of customer from the business' service, which positively affects the customer's opinion of the company and leads to loyalty. Factor also describes the quality and value of the product that the customer recognizes, which affects the market opportunity of e-commerce.	Nalintippayawong, et al., 2018 Pramudita, et al., 2019
Scalability (E3)	Economies of scale and scope provided by the Internet that integrates product with numerous entities such as customers, suppliers, retailers, etc. and the ability of collaboration to find a new segment of the market.	Sila & Dobni, 2012 Masudin & Saputro, 2016 Nalintippayawong, et al., 2018

Figure 1 Hierarchy of CSF based on TOE Framework.



After the CSF has been determined in the hierarchy structure, the questionnaire will be developed to gain detailed topics from the determining factors. The questionnaire scope was limited to employees who were involved in e-commerce collaboration from any level of management. The questionnaire will be delivered by using a Likert scale from 1 to 5. The "lowest critical factors" will be represented with 1, while "highest important" is represented with 5. Questionnaire analysis defined perception of each party in implementation of CSF in e-commerce collaboration. Questionnaire results were averaged overall and ranked from the largest to smallest average. The average, by using Geomean, are resumed in Table 2.

Table 2 Resume of Factors Score and Rank

Factors	E-Commerce		Partner		Gap
	Score	Rank	Score	Rank	
T1	4.01	8	4.00	4	4
T2	3.91	11	3.87	8	3
T3	4.09	3	3.66	11	8
T4	4.04	7	3.83	10	3
O1	4.05	6	4.35	1	5
O2	4.07	5	4.26	2	3
O3	4.14	2	3.89	6	4
O4	3.95	9	3.87	7	2
O5	4.31	1	4.15	3	2
E1	4.09	4	3.83	9	5
E2	3.93	10	3.92	5	5
E3	3.88	12	3.62	12	0

To measure the instrument's reliability in e-commerce, Cronbach's Alpha was calculated based on the average value (geomean) of parties. The Cronbach Alpha's was 0.63 for e-commerce and 0.95 for the partner. The result shows that the instrument used in this research is sufficiently reliable since the alpha coefficient is > 0.50.

The table shows that the most important factors from the e-commerce party are the strategy for revenue sharing (O5), followed by knowledge and expertise in digital business (O3), and data and system security (T3). In comparison, the most critical factor from the partner party is owner-management commitment (O1), followed by benefits for the organization (O2) and strategy for revenue sharing (O5).

However, the spearman correlation test, resulting in a weak correlation between the perception of critical factors from e-commerce with the perception of critical factors from partners, with only 0.28 (strong correlation if > 0.5). This result shows that when one variable increases or decreases, there is a lower likelihood of a relationship with the second variable. Hence, the study of the critical success factors of e-commerce collaboration has different perspectives from both parties.

The factors ranking result are conducted for both sides: e-commerce and partner, and it has been compared to each other. Authors found the gap in the rank between each party from 0 (smallest gap) to 8 (largest gap) from the data. The smallest gap is the scalability factor (E3), in which that this factor is the lowest rank from both parties. However, since scalability factors ranked lowest from both parties, scalability was not an important factor.

Several factors have a significant gap in the ranking; there are two factors with less gap, which could be defined as a more important gap: Strategy for revenue sharing (O5) and channel distribution (O4). O5 ranks much higher from both factors than O4, which indicates O5 becomes a higher important factor. Factor O5, could be considered as the most substantial factors for e-commerce collaboration, followed by O4.

The average of the gap was 3.67; this become threshold of that smaller gap indicated that factors are more important and become more priority than other factors. Other factors that indicate a smaller gap < 3.67 are benefits for organization (O2), network and partnership (T4), and speed and flexibility (T2), respectively.

Factors that have gap as large as 4 or 5 were considered as moderate factors. Technology readiness (T1) and knowledge and expertise in digital business (O3), as more moderate factors, while owner-manager commitment (O1), customer partner and trust (E1), customer satisfaction (E2) ranks as lesser moderate factors. The highest gap as large as 8 can be considered the least important factor: data and system security (T3). T3 factor can be considered in the future, or depend on parties, to be ignored just like scalability factors. From the CSF ranks form both parties can be concluded in Table 3:

Table 3 CSF Grouping Ranks

Factors	Rank
O5, O4	Highly important factors
O2, T4, T2	Important factors
T1, O3, O1, E1, E2	Moderate factors
T3	Least important factors
E3	Not important (can be ignored)

Underestimated factors by e-commerce are customer satisfaction (E2), speed and flexibility (T2), and scalability (E3). However, since the speed and flexibility rank were rank as much higher importance, it could be ignored as a lower factor. The underestimated factor of scalability shows that e-commerce did not put the partner's size and partner's ability to find a new segment as important factors. E-commerce accepted the local partners with a smaller size of service scale. For the customer satisfaction from the partner, e-commerce less considered this as collaboration factor though customer satisfaction also described the quality of service of the partner.

Underestimated factors by the partner are network and partnership (T4), data and system security (T3), and scalability (E3). Since we can ignore the scalability factors, therefore network and partnership were not important for partner sides. When deciding to collaborate with e-commerce, Partners is not taking care network that e-commerce currently has nor considering the allies of e-commerce, which has strategic resources and competencies. For partners, data and system security are the least important factors since data security is being provided to provide a more secure data system for e-commerce that partner has as expertise.

5. Conclusion

This study aimed to understand the vital rank of CSF for e-commerce collaboration with partners. To achieve this goal, the authors researched both e-commerce and partner parties. Research also ignored the business model such as B2B, B2C, or C2C.

The authors believe that the study presented could be useful for e-commerce organizations. E-commerce could consider two critical factors (strategy for revenue sharing and channel distribution) for future decision making. By observing the TOE framework, the environment framework has moderate to null importance according to the result. This result defined that for both e-commerce and partners, technology and organization are the far more important framework to be considered before conducting the collaboration.

The research was limited to factors through literature review. In contrast, future research could observe other factors from more experienced management of e-commerce and partner, expert, and business owner of e-commerce.

Further discussion for this research is to find a qualitative method for the factors affecting e-commerce collaboration. Thus, creating a complete result for decision making for e-commerce. This research's limitation is that the authors only calculate each factor using geomean and rank from the gap between two parties. The authors suggest using other methods, such as the Analytical Hierarchy Process (AHP), to deeply analyze decision-making factors in e-commerce collaboration and getting more insights into what other factors should be considered for e-commerce collaboration apart from implementing the TOE framework or not.

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Biography

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