Government Readiness and Strategies in E-marketplace Planning using SWOT Analysis and Technology Readiness Index Model

Government Readiness and Strategies in E-marketplace Planning using SWOT Analysis and Technology Readiness Index Model

K C Dewi[1] and N W D Ayuni[2]

[1]Business Department, Politeknik Negeri Bali, Indonesia
[2]Accounting Department, Politeknik Negeri Bali, Indonesia

cahyadewi@pnb.ac.id

Abstract. E-marketplace technology can be utilized by tourism person and government in facing the development of Industrial revolution 4.0. The development of e-marketplace requires proper preparation and strategy, including reengineering the ongoing business processes. This research took a case study in Nusa Dua which is a tourism area in Bali. The research objectives was to determine the readiness and strategies of the Nusa Dua government in e-marketplace planning by using SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis and Technology Readiness Index (TRI) model. The research was conducted by qualitative descriptive approach through observation, in-depth interview and Focus Group Discussion. The research validity was done by transferability, confirmability, credibility and dependability test. The research started from describing the SWOT with TRI model consideration, then mapping into EFAS and IFAS matrix to got the government readiness position. The research continued with government strategies formulation. Based on SWOT analysis with TRI model consideration, it can be concluded that the government readiness was in strong position to be a provider of e-marketplace. It was very possible for the government to carry out aggressive growth because they had the opportunities and strengths needed. The government strategies were Growth Oriented Strategy that built from TWOS matrix.

1. Introduction

E-marketplace is one of the new technological trends that affect the relationship between buyers and suppliers. The e-marketplace unites buyers and suppliers so they can participate in each stage of the supply chain that occurs. It can eliminate some of the inefficiencies in the supply chain [1]. Simply stated by [2], that the core service of e-marketplace is to provide market space so that e-commerce activities can be carried out.

E-marketplaces are widely implemented in various domains including product selling domain [3], manufacturing domain [4], inventory domain [5] and procurement domain such as in [6] research. Besides research by [7] that also disscussed the pilot e-marketplace project in the health and social care domain.

E-marketplace technology can be utilized by tourism person and government in facing the development of Industrial revolution 4.0. The development of e-marketplaces requires proper preparation and strategy, including reengineering the ongoing business processes.

Business Process Reengineering (BPR) is the analysis and design of workflows and processes within an organization [8, 9, 10, 11]. Business processes are a series of logically related tasks performed to achieve clear business results (aligned with the overall goals and vision of the business) [9]. The McKinsey Business Process Reengineering (BPR) approach is one of the methodologies used in reengineering existing business processes. One of the stages in the McKinsey BPR lifecycle is the diagnostic phase which is the initial phase to diagnose an ongoing process including assessing the readiness and strategy of the developer.

This research takes a case study in Nusa Dua Village which is a tourism area in Bali. Referring to the policy of the President of Indonesia regarding Industrial revolution 4.0 in developing digital villages, the village of Nusa Dua had plan to create an e-marketplace that can facilitate tourism activities providers to market and sell their products. The research question was how government readiness and strategies in e-marketplace planning using SWOT analysis and Technology Readiness Index model. The research objectives was to determine the readiness and strategies of the Nusa Dua government in e-marketplace planning by using a SWOT analysis and a Technology Readiness Index model.

2. Method

The research was a case study qualitative research. The research was conducted by qualitative descriptive approach. The subject of research was government as e-marketplace provider, while the object of research was Government Readiness and Strategies on E-marketplace Planning. The research was held from March until July 2019. The technique of data collection was done by observation, in-depth interview and Focus Group Discussion (FGD) with selective participant.

The research took a case study in the village of Nusa Dua which is a popular tourism area in Bali. Respondents at the interview stage were the head of Village Community Development Agency (CDA) and the headman of the village. Respondents at the FGD stage were 40 people that were consisting of the head of Village CDA, the society economics and labor division of CDA, the headman of the village and staff, the CSR (Corporate Social Responsibility) team, and also IT experts.

The variables research were the Strengths, Weaknesses, Opportunities and Threats of the research object while considered the four factors of Technology Readiness Index (TRI) model which were Optimism, Innovativeness, Discomfort, Insecurity as described in research [12,13] as shown in figure 1.

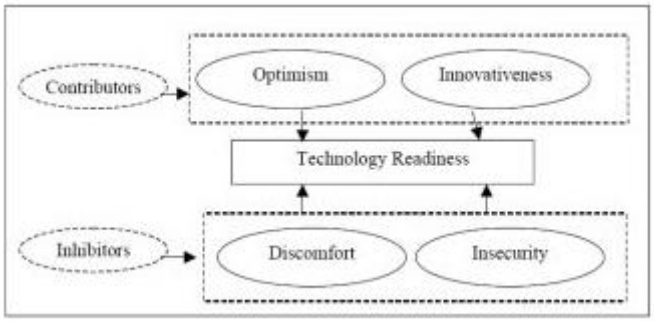

Figure 1 Technology Readiness Index (TRI) model

The data analysis used was descriptive qualitative analysis as delivered by Miles and Huberman. As Miles and Huberman qualitative analysis, the research divided into three activities namely data reduction, data display and conclusion. The research started from describing the Strengths, Weaknesses, Opportunities and Threats of the research object, then mapping into EFAS (External Factors Analysis Summary) and IFAS (Interval Factors Analysis Summary) matrix to get the government readiness position. After knowing the readiness position, the research continued with government strategies formulation that done by TWOS Matrix. As on [14] research, in matrix TWOS

there were four (4) strategies which are SO Strategies, WO Strategies, ST Strategies, and WT Strategies. All of them could be use for formulating the government growth strategy. The research framework is shown in figure 2.

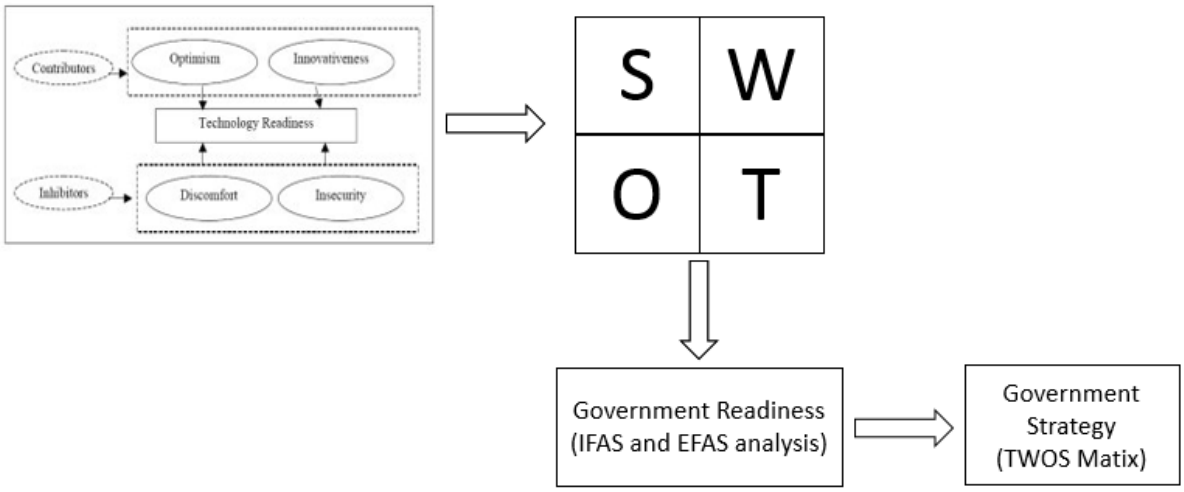

Figure 2. Research Framework

The research validity was done by transferability, confirmability, credibility test and also dependability test. The credibility test was conducted by triangulation model that assessed the data with some different technics such as observation, in-dept interview, and also FGD. The dependability test was done by audit from the experts.

3. Result and Discussion

Technology Readiness Index (TRI) model had four factors namely optimism, innovativeness, discomfort and insecurity. Based on [15] each factor on TRI model described as follows. Optimism is a positive vision of technology and the belief that it offers people more control, flexibility and efficiency in their lives. Innovativeness is the tendency towards being a pioneer in the use of technology, a leader or opinion-former. Discomfort is a perception of lack of control over technology and the feeling of being pressured or oppressed by it. Insecurity is distrust of technology and scepticism of one's own ability to use it properly.

Those four factors of TRI used as variables on research. Based on interview, respondent said that the government is optimistic in using e-marketplace for promoting and expanding products & services promotion. It supported by the availability of human resources that would operate the e-marketplace. Beside that they have already had survey to the society and got the results that 87.17% of business people in Nusa Dua accepted e-marketplace as a means of business marketing and the level of readiness of entrepreneurs in using e-marketplace as a means of business marketing was 87.58%. Therefor the government is ready to run and develop e-marketplace innovations.

Based on interviews, observations and FGDs that have been carried out, it can be described the results of the SWOT analysis by considering the TRI model in Government readiness on e-marketplace planning in Nusa Dua as follows in table 1 and table 2.

Table 1
SWOT Analysis of Government Readiness on e-marketplace planning in Nusa Dua (Strengths and Weaknesses)

Strengths (S)	Weaknesses (W)
1. There are Human Resources that will handle the e-marketplace	1. There's no SMEs database in Nusa Dua
2. The village office has been connected to the internet network	2. There's no specific infrastructures for developing e-marketplace
3. The staff of Community Development Agency (CDA) has already fluent in using website, social media and also e-marketplace	3. There's no budget for funding e-marketplace from the government
4. CDA has special division for developing SME which name is "Bidang pemberdayaan ekonomi kerakyatan dan tenaga kerja (society economics and labor division)"	4. There's no human resources that expert in computer and networking
5. The government is optimistic in using e-marketplace for promoting and expanding products & services promotion.	
6. The government is ready to run and develop e-marketplace innovations	

Table 2
SWOT Analysis of Government Readiness on e-marketplace planning in Nusa Dua (Opportunities and Threats)

Opportunities (O)	Threats (T)
1. Tourists who traveling to Nusa Dua are familiar and capable in IT (comfort)	1. Existing e-marketplace (popular e-marketplace)
2. The average SME owner has known the internet for 8.07 years	2. Data security issues
3. 66% SME owners in Nusa Dua have already known e-marketplace	3. Brokers or illegal marketing personnel
4. The level of readiness of entrepreneurs in using e-marketplace as a means of business marketing is 87.58%	
5. 87.17% of business people in Nusa Dua accept e-marketplace as a means of business marketing	
6. Research collaboration with Politeknik Negeri Bali in developing e-marketplace	

From the SWOT presentation, it was continued with the creation of an EFAS (External Factors Analysis Summary) and IFAS (Internal Factors Analysis Summary) matrix to determine the current position of government as an e-marketplace provider. EFAS matrix is shown in table 3 and IFAS matrix is shown in table 4.

Table 3
EFAS Matrix

No	Factors	Weight	Rating	WxR
O1	Tourists who traveling to Nusa Dua are familiar and capable in IT (comfort)	0,25	4	1
O2	The average SME owner has known the internet for 8.07 years	0,05	2	0,1
O3	66% SME owners in Nusa Dua have already known e-marketplace	0,15	2	0,3
O4	The level of readiness of entrepreneurs in using e-marketplace as a means of business marketing is 87.58%	0,1	3	0,3
O5	87.17% of business people in Nusa Dua accept e-marketplace as a means of business marketing	0,3	4	1,2
O6	Research collaboration with Politeknik Negeri Bali in developing e-marketplace	0,15	3	0,45
	Opportunities (O) Total	1		3,35
T1	Existing e-marketplace (popular e-marketplace)	0,4	1	0,4
T2	Data security issues	0,25	3	0,75
T3	Brokers or illegal marketing personnel	0,35	2	0,7
	Threats (T) Total	1		1,85
	O – T Total			1,5

Based on EFAS matrix on table 3 after calculation and analysis, it is known that the most influential opportunity factor for e-marketplace planning was the acceptance value of business people in Nusa Dua in using e-marketplace as a means of business marketing. The total of opportunities after the calculation is 3,35. While the most prominent factor threat indicator against the Government e-marketplace planning was the data security issues. As for total number of threats after the calculation is 1,45. From both indicators of threat and probability of positive value is found that the indicator of opportunity greater than the threat of 1,5. This opportunity should be captured by Nusa Dua Government.

Based on IFAS matrix on table 4 after calculation and analysis, it is known that the most influential Strength factor for e-marketplace planning was the village office has been connected to the internet network. The total of strengths after the calculation is 3,7. While the most prominent factor weakness indicator against the Government e-marketplace planning was There's no specific infrastructures for developing e-marketplace. As for total number of weaknesses after the calculation is 1. From both indicators found that the indicator of strength was greater than the weakness of 2,7.

The results of the EFAS and IFAS matrices showed that government was in quadrant I that had prospective market opportunities and had the competence to do it. This quadrant was the best position, because the object was in a region that was "strong" and "have opportunity". In this area, it was very possible for the government to carry out aggressive growth because they have the opportunities and strengths needed. It's mean that the government of Nusa Dua was ready in strong position to be a provider of e-marketplace in Nusa Dua.

Table 4
IFAS Matrix

No	Factors	Weight	Rating	WxR
S1	There are Human Resources that will handle the e-marketplace	0,2	4	0,8
S2	The village office has been connected to the internet network	0,3	4	1,2
S3	The staff of Community Development Agency (CDA) has already fluent in using website, social media and also e-marketplace	0,15	4	0,6
S4	CDA has special division for developing SME which name is "Bidang pemberdayaan ekonomi kerakyatan dan tenaga kerja (society economics and labor division)"	0,1	4	0,4
S5	The government is optimistic in using e-marketplace for promoting and expanding products & services promotion.	0,05	2	0,1
S6	The government is ready to run and develop e-marketplace innovations	0,2	3	0,6
	Strengths (S) Total	1		3,7
W1	There's no SMEs database in Nusa Dua	0,1	1	0,1
W2	There's no specific infrastructures for developing e-marketplace	0,4	1	0,4
W3	There's no budget for funding e-marketplace from the government	0,3	1	0,3
W4	There’re no human resources that expert in computer and networking	0,2	1	0,2
	Weaknesses (W) Total	1		1
	Total S – W			2,7

Because of the government readiness was in strong position, the strategies that must be set in this position is a Growth Oriented Strategy. Government strategies built from TWOS matrix which are SO strategies, WO strategies, ST strategies and WT strategies. SO strategies namely:

1. Utilize existing internet connections maximally to develop e-marketplaces to attract more and more IT-literate travelers
2. Take advantage of research collaboration opportunities with Politeknik Negeri bali in improving staff's ability to manage e-marketplace and digital marketing through e-marketplace

WO strategies namely:

1. Take advantage of research collaboration opportunities with Politeknik Negeri Bali in the development of e-marketplace as pilot project with purpose to cover the lack of human capabilities, availability of infrastructure and funding problems
2. Providing special training for government and SMEs in the field of use and utilization of e-marketplaces and computer network management
3. Actively involving the SMEs in the Nusa Dua region in the development of e-marketplace to make it easier in creating an SMEs database
4. Prepare a funding budget for sustainable e-marketplace development

ST strategies namely:

1. Use the existing popular e-marketplace as a benchmark so that users do not need to adapt much in using the new e-marketplace
2. Invite Brokers or illegal marketing personnel to join as partners in the e-marketplace by adding affiliate facilities
3. Developing e-marketplaces by prioritizing data security and preparing special personnel who handle data security.

WT strategies namely:

1. Using a cloud server e-marketplace with data security facilities
2. Using outsourced personnel in developing and maintaining e-marketplaces

4. Conclusion

Based on SWOT analysis with TRI model consideration, it can be concluded that the government readiness was in strong position to be a provider of e-marketplace in Nusa Dua. It was very possible for the government to carry out aggressive growth because they have the opportunities and strengths needed. The government strategies were Growth Oriented Strategy namely

1. Utilize existing internet connections maximally to develop e-marketplaces to attract more and more IT-literate travelers
2. Take advantage of research collaboration opportunities with Politeknik Negeri bali in improving staff's ability to manage e-marketplace and digital marketing through e-marketplace
3. Take advantage of research collaboration opportunities with Politeknik Negeri Bali in the development of e-marketplace as pilot project with purpose to cover the lack of human capabilities, availability of infrastructure and funding problems
4. Actively involving the SMEs in the Nusa Dua region in the development of e-marketplace to make it easier in creating an SMEs database
5. Prepare a funding budget for sustainable e-marketplace development
6. Use the existing popular e-marketplace as a benchmark so that users do not need to adapt much in using the new e-marketplace
7. Invite Brokers or illegal marketing personnel to join as partners in the e-marketplace by adding affiliate facilities
8. Developing e-marketplaces by prioritizing data security and preparing special personnel who handle data security.
9. Using a cloud server e-marketplace with data security facilities
10. Using outsourced personnel in developing and maintaining e-marketplaces

Acknowledgments

Gratitude is dedicated to DRPM DIKTI who has funded this research and LPM Kelurahan Benoa who are willing to guide us in the implementation of research, and also Politeknik Negeri Bali which gives full permission and support for this research.

References

[1] Mirza B, Murtaza, Vipul, Gupta, Richard C and Carroll 2004 E-marketplaces and the future of supply chain management: Opportunities and challenges *Business Process Management Journal* **10** 325-35

[2] Brunn P, Jensen M and Skovgaard J 2002 E-marketplaces: Crafting a winning strategy *European Management Journal* **20** 286-98

[3] Nisafani A S, Wibisono A and Revaldo M H T 2017 Analyzing the effectiveness of public e-marketplaces for selling apparel products in Indonesia *Procedia Computer Science* **124** 274–79

[4] Bauer W and Dorn J 2016 Requirements for product-service description at e-marketplaces in the manufacturing domain *Procedia CIRP* **47** 406–11

[5] Liu Y and Zhang J 2014 An incentive mechanism designed for e-marketplaces with limited Inventory *Electronic Commerce Research and Applications* **13** 110–27

[6] Candra S and Gunawan F E 2017 The impact of e-procurement practice in Indonesia government: A preliminary study (The case of electronic procurement service at Bekasi district) *J. Phys.: Conf. Ser.* **801** 012023

[7] Ferreira L, Miranda I , Simoes R and Cruz-Cunha M 2015 GuiMarket specification using the unified modeling language *Procedia Computer Science* **64** 1263–72
[8] Fitzgerald B and Murphy C 1996 Business process reengineering: The creation and implementation of a methodology *INFOR: Journal of Information Systems and Operational Research* **34** 3-14
[9] Kumar D and Bhatia A 2011 Role of IT in business process reengineering *International Conference on Recent Trends in Information Systems*
[10] Li C, Feng L and Ma L 2013 Business process eeengineering for better sale of China lubricant enterprises *International Conference on Computational Intelligence and Communication Networks*
[11] Borgianni Y, Cascini G and Rotini F 2015 Business process reengineering driven by customer value: A support for undertaking decisions under uncertainty conditions *Comput. Industry*
[12] Parasuraman A 2000 Technology readiness index (TRI): A multiple-item scale to measure readiness to embrace new technologies *Journal of Service Research* **2** 307-20
[13] Parasuraman A and Colby C L 2001 Techno-ready marketing: how and why your customers adopt technology *New York: Free Press*Another reference
[14] Nofrizal and Soviyanti E 2018 External-internal environmental analysis: prudential life assurance indonesia corporate strategy *IOP Conf. Series: Earth and Environmental Science* **175** 012091
[15] Pires P J, da Costa Filho B A and da Cunha J C 2011 Technology Readiness Index (TRI) factors as differentiating elements between users and non users of internet banking, and as antecedents of the Technology Acceptance Model (TAM) *ENTERprise Information Systems* 215–29