Virtual Incubation Aggregator Platform Quality Analysis: a Customer Experience (CX)

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| ARTICLE INFO	ABSTRACT
	Introduction: The global rise of digital marketplaces has revolutionized business operations, enabling companies, especially small and medium-sized enterprises (SMEs)-to innovate, grow, and expand their market reach. By leveraging digital technologies, businesses can optimize resources, reduce costs, and strengthen competitive advantage through effective networking and customer relationship management. **Objectives**: This paper aims to measure customer experience in utilizing a web-based business partner matching platform from potential users, specifically SMEs. The platform supports downstream business activities and serves as a networking hub for SMEs to collaborate on upstream activities. This platform is expected to become an effective matchmaking medium for SMEs, catering to both B2B and B2C interactions. **Methods**: This research employs two approaches to illustrate customer experience. First, it utilizes the critical factors affecting online shopping intention proposed by Nga & Tam (2024). Second, it incorporates the Net Promoter Score (NPS) to measure customer loyalty. Assessing customer loyalty can identify weaknesses in the customer experience that require improvement (Dellyana et al., 2021). **Results**: Only 5.77% experience an optimal level of customer experience, which in turn reflects their loyalty towards the use of the virtual incubation aggregator platform for web-based business partner matching. There is a need to enhance the customer experience to improve user loyalty. It is anticipated that increasing user loyalty will transform a significant portion of passive users (40.38%) into promoters. **Conclusions**: Platform is deemed useful however, not all features meet user needs. To enhance user loyalty, web-based business partner matching platforms should prioritize the establishment of a Discussion Forum - Interactions not only foster community engagement but also build trust and satisfaction, which are essential components of customer loyalty. Platforms should improve CRQ by fostering commitment, trust, and satisfaction among users. **Keywords:** virtual business incubator, customer experience, net promoter score, customer relationship quality.

INTRODUCTION

The worldwide rise of the marketplace continues to be a persistent trend [1]. It has transformed how business is conducted, leading major companies around the globe to rely heavily on digitalization for most of their operations [2]. For small and medium-sized enterprises (SMEs), the utilization of the marketplace, as digitized technology, can increase their capacity to innovate and grow through efficiency, competitiveness, and wider market reach [3].

Indeed, as it posits that SMES utilize digitalization beyond product marketing, although it predominantly manifests itself within these domains [3]. Moreover, digitalization plays a pivotal role in facilitating expansion and diversification [4]. Leveraging these technologies has empowered enterprises to optimize resource allocation, minimize redundancy and waste, and ultimately lower operational costs [5] [6].

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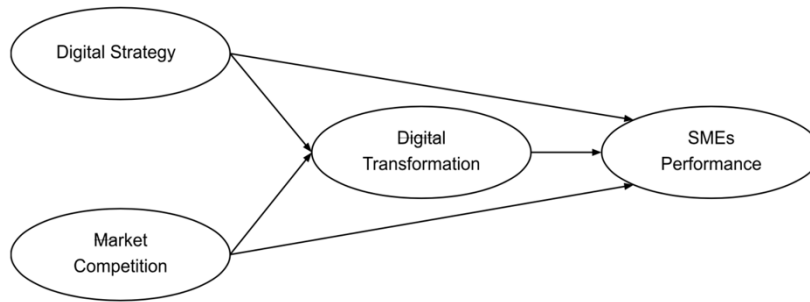
Figure 1. Digitalization's Role in SMEs' Performance

Source: Prihandono, et al. (2024)

Successful businesses in today's market rely heavily on effective networking [7]. Network effects are essential for maintaining competitive advantage, necessitating robust customer relationship management practices to ensure sustained user engagement. Furthermore, ensuring the consistent and active participation of multiple service providers on the platform is critical for enhancing the overall scale and diversity of the marketplace [8].

OBJECTIVES

The objective of this research is to measure customer experience in utilizing a web-based business partner matching platform from potential users, specifically SMEs. As previously explained, the platform supports downstream business activities and serves as a networking hub for SMEs to collaborate on upstream activities. This platform is expected to become an effective matchmaking medium for SMEs, catering to both B2B and B2C interactions.

METHODS

This research employs two approaches to illustrate customer experience. First, it utilizes the critical factors affecting online shopping intention [9]. Second, it incorporates the Net Promoter Score (NPS) to measure customer loyalty. Assessing customer loyalty can identify weaknesses in the customer experience that require improvement [10].

Table 1. NPS Calculation

NPS = %Promoters - %Detractors
Note:
Promoters *(Scores 9-10) are loyal fans who will continue to make purchases and refer others, driving growth.*
Passives *(Scores 7-8) are satisfied customers who lack enthusiasm and are vulnerable to competitive offers.*
Detractors *(Scores 0-6) are dissatisfied customers who can harm the company's brand and impede growth through negative word-of-mouth.*

Based on this approach, users are provided with a questionnaire with the following details:
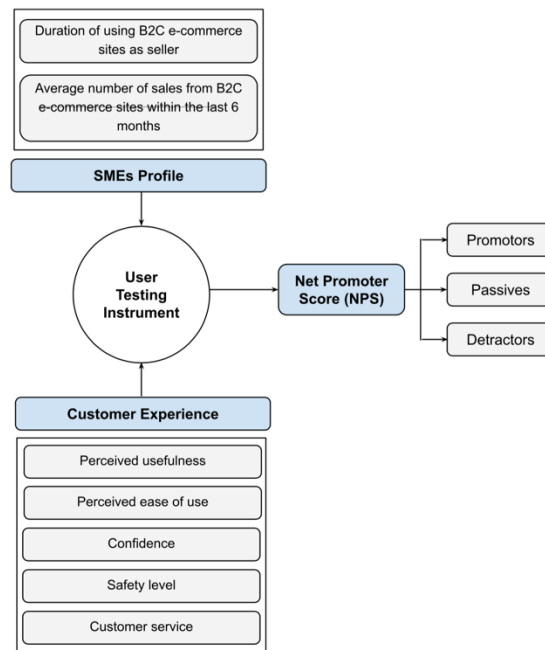
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Figure 2. Research Framework

Table 2. User Testing Instrument

Questions	Description
Respondent Profile	
Q1	Average revenue for 1 year Micro (less than IDR 300 million) Small (IDR 300 million - 2.5 billion) Medium (IDR 2.5 - 50 billion) Big (more than IDR 50 billion)
Q2	Form of business entity CV Limited liability company (Tbk) Limited liability company (Non-Tbk) Not yet available
Q3	Duration of using B2C e-commerce sites as a seller Less than 1 year 1-3 years > 3 years
Q4	Average number of sales from B2C e-commerce sites within the last 6 months Less than 10 products 10 - 50 products 51 - 100 products Over 100 products
Customer Experience	

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Q1	How do you rate the usefulness of WEB-BASED BUSINESS PARTNER MATCHING?
Q2	Do you think WEB-BASED BUSINESS PARTNER MATCHING is easy enough to use?
Q3	How much confidence do you have in using WEB-BASED BUSINESS PARTNER MATCHING?
Q4	Do you think WEB-BASED BUSINESS PARTNER MATCHING can provide the level of security you need?
Q5	Do you feel that WEB-BASED BUSINESS PARTNER MATCHING can provide you with the level of customer service that you require?
Net Promoter Score	
Q1	On a scale from 0 to 10, how likely are you to recommend a virtual incubation aggregator platform to a friend or colleague?
Q2	Based on the scale that you gave, could you please give some reasons why?
Q3	To improve your experience of using the virtual incubation aggregator platform, what do you think we need to do?

RESULTS

Literature Review

Online shopping refers to the process in which users access the internet to search, select, purchase, utilize, and dispose of goods and services to meet their needs and desires. However, during this process, consumers face various risks that can influence their shopping behavior. Different types of risks evoke varying levels of fear among consumers engaged in online shopping [11]. The primary concerns include financial loss due to credit card fraud, product performance that does not meet expectations, and the lengthy processes associated with returns and product delivery [12]. To mitigate these fears, e-commerce platforms need to offer high-quality websites that address consumer concerns regarding these risks. Extensive research has defined and measured various dimensions of e-service quality or website quality—sometimes referred to as web service quality, web interface quality, customer interface quality, functional quality, information systems quality, information quality, buying environment characteristics, and web experience [13].

Customer experience can be effectively analyzed through the customer journey framework, which identifies three critical phases: pre-purchase, purchase, and post-purchase [14] [15]. The pre-purchase phase involves all interactions between the customer and the brand before the transaction, including need recognition, information search, and evaluation of alternatives, setting the stage for subsequent decision-making. The purchase phase encompasses the actual transaction, characterized by selection, ordering, and payment, where the customer's decision is finalized. Finally, the post-purchase phase includes all interactions after the transaction, such as product usage and post-purchase engagement, which are vital for determining customer satisfaction and loyalty, as well as the brand's ability to retain customers [15].

If a website effectively communicates a sense of safety and care, it can foster a distinctive and superior shopping experience, thereby enhancing purchase intent [16]. When customers engage in online shopping, B2C e-commerce sites offering high-quality products and services expedite the purchasing process. Additionally, comprehensive and reliable information provided by these sites simplifies the search and retrieval process, addressing customer queries promptly. Consequently, the completeness of website functions, coupled with elegant and professional design, contributes to effortless usability, reduced transaction times, and lower associated costs [17]. Customer experience is influenced by e-service quality, customer engagement, and customer loyalty to B2C e-commerce [18]. Factors

influencing customer experience are also evaluated to assess the performance of the banking industry in India [19]. Customer experience is categorized into three indicators: functional (convenience and credibility), humanistic (employee competence and empathy), and mechanical (service context). Among these categories, functional indicators are the most significant predictors of discretionary customer behavior.

Although the quality of a website depends entirely on its creator, it is essential to recognize that users' attitude significantly influences online shopping intentions. This influence is similarly affected by factors such as ease of use and perceived benefits to customers [9].

Table 3. Customer Experience: A Literature Review

Author	Year	Topic/ Purpose	Experience Factors
Mohd Shoki Md Ariff Michele Sylvester Norhayati Zakuan Khalid Ismail Kamarudin Mat Ali	2007	Level of fear according to different types of risks when consumers are doing online	Financial risk Performance risk Time risk Delivery risk Privacy risk Psychological risk Social risk
Qingji Fan Jeoung Yul Lee Joong In Kim	2013	The impact of website quality on flow-related online shopping behaviors in C2C e-marketplaces	Convenience Contents Aesthetics Interactivity Customization
Saba Fatma	2014	Antecedents of customer experience	Pre-experience activities: Brand performance Multichannel interaction Service interface Physical environment Price and promotions Customer experience activities Value Sources Emotional Functional/ Pragmatic Rational Post experience: Customer loyalty Customer satisfaction Customer equity
Lemon, Katherine N. Verhoef, Peter C.	2016	Understanding Customer Experience Throughout the Customer Journey	Previous experience (t-n) Current experience (t) Future experience (t+n)
Yilei Pei Wanxin Xue Dandan Li Yong Su	2016	Modelling of Customer Experience for B2C E-Commerce Enterprises	Website usefulness Website ease of use Transaction costs Internet word of mouth

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Author	Year	Topic/ Purpose	Experience Factors
			Customer involvement
Pratibha Wasan	2017	Predicting customer experience	Functional Clue: Customization Credibility Convenience Mechanic Clue: Context Humanic Clue: Compassion Competence
Jacinda Sukendi Nanang Harianto Susi Wansaga Willy Gunadi	2021	The Impact of E-Service Quality On Customer Engagement, Customer Experience, and Customer Loyalty	Web Design Fulfilment/ Reliability Customer Service Security/ Privacy Customer Engagement Customer Experience Customer Loyalty
Lu Phi Nga Phan Thanh Tam	2024	Critical factors affecting online shopping intention	Perceived usefulness Perceived ease of use Confidence Safety level Customer service

User Testing

A trial of the web-based business partner matching platform for small-scale users in West Java was conducted alongside the Coaching Clinic for SMEs Batch 12 at the Labtek XIX SBM ITB building, Ganesha Street, Bandung City, on Wednesday, October 2, 2024. This Coaching Clinic program, which included participation from 150 SMEs, provided direct guidance from 30 professional coaches drawn from the academic community of SBM ITB and experienced entrepreneurs. The initiative aims to enhance the quality and impact of SMEs' development in West Java.

The Coaching Clinic for SMEs in West Java 2024, Batch 12, is designed to support the growth of small and medium enterprises by offering intensive training and mentorship. Participants receive tailored coaching to help them improve their business capabilities and adapt to global market challenges. The program is part of a broader commitment by SBM ITB to foster a sustainable entrepreneurial ecosystem in Indonesia, recognizing that SMEs are crucial contributors to the nation's GDP.

The event underscores the importance of innovation and strategic business development for SMEs aiming to compete on a global scale. By equipping these enterprises with essential skills and knowledge, the Coaching Clinic seeks to empower them to thrive in an increasingly competitive environment.

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Figure 3. Website Usage Demo

Respondent Profile

Through a survey of SMEs in West Java, it was revealed that a significant majority (88.5%) reported annual revenues of less than IDR 300 million, categorizing them as micro-scale businesses. Only 9.6% of the respondents were classified as small businesses, while 1.9% fell under the medium enterprise category. This finding is consistent with the observation that a large portion of these SMEs do not have formal business entities, with 76.9% lacking any legal structure. Among those that do, only 15.4% operate as limited liability companies (non-public), and 7.7% are organized as partnerships.

The profile of SMEs in West Java suggests that the role of digitalization in their operations is not being fully leveraged to foster business growth. Most SMEs have only recently begun utilizing e-commerce for sales, with many having done so for less than a year; during the last six months, the average number of products sold was fewer than ten. This indicates a critical gap in adopting digital tools that could enhance their market reach and operational efficiency.

These insights align with broader research indicating that while SMEs are vital to economic activity, contributing significantly to employment and GDP, they face substantial challenges in accessing financing and adopting modern business practices. For instance, studies have shown that while micro and small enterprises are crucial for economic stability, many struggle with financial constraints and a lack of formal recognition, which hampers their growth potential [20].

Customer Experience

Based on the respondents' usage experience, the web-based business partner matching platform tends to be user-friendly. Additionally, its benefits are perceived to be highly effective in supporting SMEs. However, respondents rated their level of trust and security as neutral. Overall, the respondents reported a suboptimal experience in delivering the necessary services.
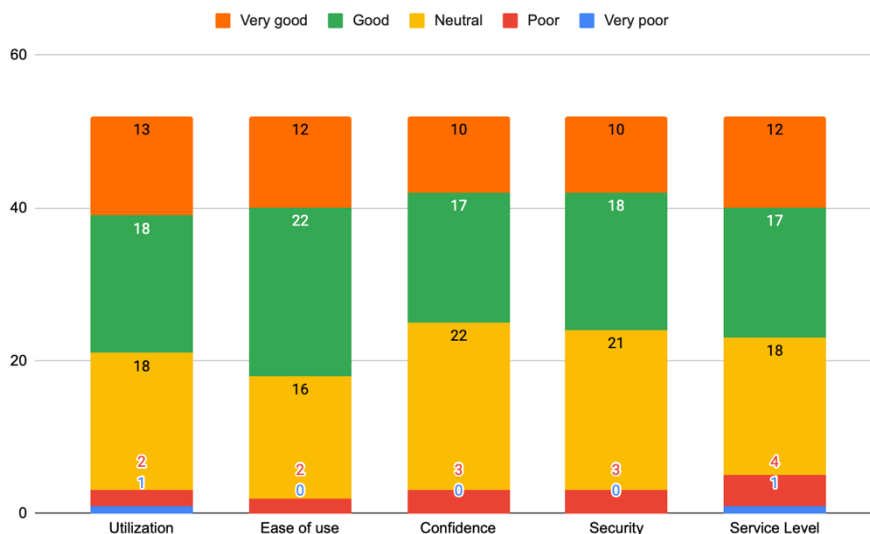

Figure 4. User Experience

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Net Promoter Score (NPS)

Based on the results of the questionnaire, it is evident that the virtual incubation aggregator platform for web-based business partner matching has achieved a score of 5.77%. This indicates that only 5.77% of customers experience an optimal level of customer experience, which in turn reflects their loyalty towards the use of the virtual incubation aggregator platform for web-based business partner matching. There is a need to enhance the customer experience to improve user loyalty. It is anticipated that increasing user loyalty will transform a significant portion of passive users (40.38%) into promoters.

Table 4. NPS Calculation Result

Detractors (26.92%)							Passives (40.38%)		Promoters (32.69%)	
0	1	2	3	4	5	6	7	8	9	10
NPS = % Promoters - % Detractors = 32.69% - 26.92% = 5.77%										

DISCUSSION

Based on user testing conducted with SMEs in West Java, the majority of prospective users fall into the categories of Detractors and Passives rather than Promoters. Overall, the platform is deemed useful; however, not all features meet user needs. During the demo, approximately 66.7% of prospective users reported that they still did not understand how to navigate the website. As a result, 22.2% have yet to experience its benefits, and 11.1% remain uncertain about the advantages of using the website.

While the user interface is relatively easy to navigate, its efficiency is perceived to be lacking. It is recommended that when a user clicks on a supplier, they should be taken directly to the relevant page without needing to click twice across two different pages. Additionally, it would be beneficial to include a comments section from curators regarding the suppliers' businesses. The website has the potential to serve as a connector among SMEs; however, the registration process remains challenging, with errors occurring during phone number input.

To enhance user loyalty, web-based business partner matching platforms should prioritize the establishment of a **Discussion Forum**. This forum will serve as a crucial space for users to share ideas, express opinions, and engage in open discussions about projects. Such interactions not only foster community engagement but also build trust and satisfaction among users, which are essential components of customer loyalty. Additionally, implementing effective social media marketing activities (SMMAs) can significantly influence customer relationship quality (CRQ), thereby enhancing loyalty. Research indicates that dimensions such as interaction, entertainment, and word-of-mouth positively impact CRQ in e-commerce contexts.

Furthermore, platforms should focus on improving CRQ by fostering commitment, trust, and satisfaction among users. Actively seeking and incorporating customer feedback can enhance perceived security and service quality, which are critical for building trust. Regular monitoring and management of the platform's reputation through transparent communication will also encourage repeat usage and strengthen user loyalty. By adopting these strategies, platforms can create a more engaged and loyal user base, ensuring long-term success in a competitive landscape.
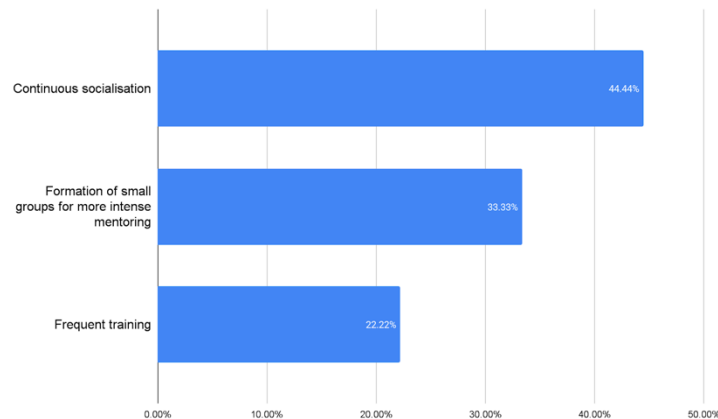
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Figure 5. User Recommendation

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APPENDIX

Appendix 1. Survey Result

Name	CX					NPS	
	Q1	Q2	Q3	Q4	Q5		
Respondent 1	3	4	4	4	3	8	*Passives*
Respondent 2	3	4	5	4	3	8	*Passives*
Respondent 3	4	4	4	4	4	8	*Passives*
Respondent 4	3	3	3	3	5	9	*Promoters*
Respondent 5	4	4	2	2	2	4	*Detractors*
Respondent 6	2	5	3	4	2	9	*Promoters*
Respondent 7	3	3	3	3	3	8	*Passives*
Respondent 8	3	3	3	3	3	5	*Detractors*
Respondent 9	3	3	4	4	3	8	*Passives*

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Name	CX					NPS	
	Q1	Q2	Q3	Q4	Q5		
Respondent 10	4	3	4	3	3	6	*Detractors*
Respondent 11	2	2	2	2	2	2	*Detractors*
Respondent 12	5	4	4	4	4	8	*Passives*
Respondent 13	5	4	4	4	4	9	*Promoters*
Respondent 14	4	4	4	4	4	10	*Promoters*
Respondent 15	4	4	3	3	3	5	*Detractors*
Respondent 16	4	4	3	3	3	6	*Detractors*
Respondent 17	4	3	4	4	4	8	*Passives*
Respondent 18	5	4	5	5	5	9	*Promoters*
Respondent 19	3	3	3	3	3	5	*Detractors*
Respondent 20	3	3	3	3	3	7	*Passives*
Respondent 21	3	3	3	3	3	7	*Passives*
Respondent 22	3	4	3	3	3	8	*Passives*
Respondent 23	5	5	3	5	5	10	*Promoters*
Respondent 24	4	4	4	4	4	9	*Promoters*
Respondent 25	5	5	5	5	4	7	*Passives*

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Name	CX					NPS	
	Q1	Q2	Q3	Q4	Q5		
Respondent 26	3	4	3	3	4	6	*Detractors*
Respondent 27	3	3	3	3	3	6	*Detractors*
Respondent 28	4	4	4	4	4	8	**Passives**
Respondent 29	4	4	4	4	4	2	*Detractors*
Respondent 30	4	4	4	4	4	9	*Promoters*
Respondent 31	4	4	5	4	5	8	**Passives**
Respondent 32	5	5	5	5	5	9	*Promoters*
Respondent 33	5	5	5	4	5	10	*Promoters*
Respondent 34	4	4	3	3	4	8	**Passives**
Respondent 35	3	3	3	3	4	7	**Passives**
Respondent 36	3	3	3	3	3	6	*Detractors*
Respondent 37	3	3	3	3	3	6	*Detractors*
Respondent 38	1	5	2	2	1	2	*Detractors*
Respondent 39	3	3	4	4	4	10	*Promoters*
Respondent 40	3	4	3	4	4	7	**Passives**
Respondent 41	5	5	5	5	5	8	**Passives**

▪ *: Bad and very bad experience*

Note:
Q1   : Utilization
Q2   : Ease of Use
Q3   : Confidence
Q4   : Security
Q5   : Service Level

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Name	CX					NPS	
	Q 1	Q 2	Q 3	Q 4	Q 5		
Respondent 42	4	4	4	3	3	7	*Passives*
Respondent 43	5	5	5	5	5	10	*Promoters*
Respondent 44	5	5	4	5	5	10	*Promoters*
Respondent 45	4	2	3	3	2	7	*Passives*
Respondent 46	4	4	4	3	3	7	*Passives*
Respondent 47	5	4	3	5	4	8	*Passives*
Respondent 48	5	5	5	5	5	10	*Promoters*
Respondent 49	5	5	5	5	5	10	*Promoters*
Respondent 50	4	3	3	3	4	10	*Promoters*
Respondent 51	4	5	4	4	5	9	*Promoters*
Respondent 52	3	3	3	3	3	6	*Detractors*

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Appendix 2. The Web-Based Business Partner Matching Platform