



VIRTUAL REALITY (VR) AS E-COMMERCE PLATFORM TO EXPAND SMEs MARKET IN NUSA TENGGARA TIMUR

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Abstract:

In Indonesia, universities hold a duty to make changes in society, crystalized in the Tridharma Perguruan Tinggi, which comprises: education, research, and community service. In order to fulfill the duty, Institut Teknologi Bandung (ITB), through The Research and Community Service Campus's Institution (The LPPM), annually funds projects to deliver educational programs, research implementation, and joint projects with local institutions around the country. Leading to the research objective and questions, which is market expansion and promotion, then the further to the chapter two deepening on the literature which first to breakdown the conceptual framework and theoretical foundation, using stakeholder mapping as internal analysis and PASTEL as external analysis, aspect that are highlighted in this research is business growth, promotion, digital technology, virtual reality, and market expansion. In chapter 3, to define the solution of the previous objective in expansion and promotion, the way is to make action, which is to make a design of tools that can expand and promote the related SMEs, which is necessary to perform the design thinking process. The result is confirmed to answer the research objectives and questions, which using the VR Gallery platform, the Dekranasda and the local SMEs are promoted to another level of technology and also market segment, which make it automatically expand the market far across outside the region. The result is that the VR Gallery itself is real and present, currently operating.

Keyword: Virtual Reality; E-commerce; Platform; Expand SMEs Market

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INTRODUCTION

In Indonesia, universities hold a duty to make changes in society, crystalized in the Tridharma Perguruan Tinggi, which comprises: education, research, and community service (Lian, 2019; Yuliawati, 2012). In order to fulfill the duty, Institut Teknologi Bandung (ITB), through The Research and Community Service Campus's Institution, annually funds projects to deliver educational programs, research implementation, and joint projects with local institutions around the country (Wibawa, 2017).

A University with an enormous scope of research and inventions, such as ITB, holds exhaustion to deliver and proves the work done in the university can be adapted well in society to make changes eventually (Bagilhale, 2002; Bennis, 1966). Through LPPM, exhaustion can meet realizations, but unfortunately, the task is always easier said than done. In order to install technology in society, quality and quantity must be kept assured (Fox-Wolfgramm et al., 1998). Technology adoption in society needs sustainable and intensive action. It requires massive resources and massive environmental involvement. In order to do so, the university funding should only be a minor pioneer action. A triple helix framework (illustration below) must be made (Easton, 2019; Jull Sørensen & Hu, 2014; McCusker et al., 1991). Collaboration with local authorities and the business sector is the key where the impact can go beyond a prototype-only project (Smith & Beazley, 2000). The economy must play its role in catalyzing the utilization of the newly introduced technologies. School of Business Management ITB (SBM ITB) is the hub of various knowledge in ITB. Inventions come true through the startup scheme in SBM ITB programs, the Greater Hub. SBM ITB is the closest faculty responsible for commercializing technology and invention, community building, community service, and community service in SBM ITB must be built in this blueprint (Agranoff & McGuire, 2003; McQuaid, 2000).

If we talk about innovation in technological progress, the Metaverse topic has been in high trend in early 2022. Although it has been a long topic of discussion, the realization of the implementation itself is still under debate. It is likely to take the initiative to define how things work. The crucial element of this new proposed technology is the 3D imaging that represents the real world, a new term known as a digital twin. Likewise stated in the previous paragraph, money circulation must be made to make technological adaptations. The providence of human resources to make 3D imaginary is necessary. First, demand must be made, and the qualification and talent capacity material should be enlarged.

The research is based on the real case activity performed in the LPPM project in the city of Kupang, Nusa Tenggara Timur, Indonesia. Fortunately, the province itself embraces the value of a creative economy. The province's creative committee (Dekranasda NTT) is well known for its souvenir hub, providing the Small Medium Enterprise (SME) marketplace to sell their product. Their leader is really committed to the region's development of the SME and local economy. To promote the local product, the effort of commercialization outside the province is the institution's spirit. The effort is the digitalization of the activity, including providing 3D imaging

of the virtual store of the SME that is aligned with the local vision, and so, to ensure the key success of the project is the mandate of this research (Akhavan et al., 2006; Haney et al., 2003; Sohal & de Vass, 2022).

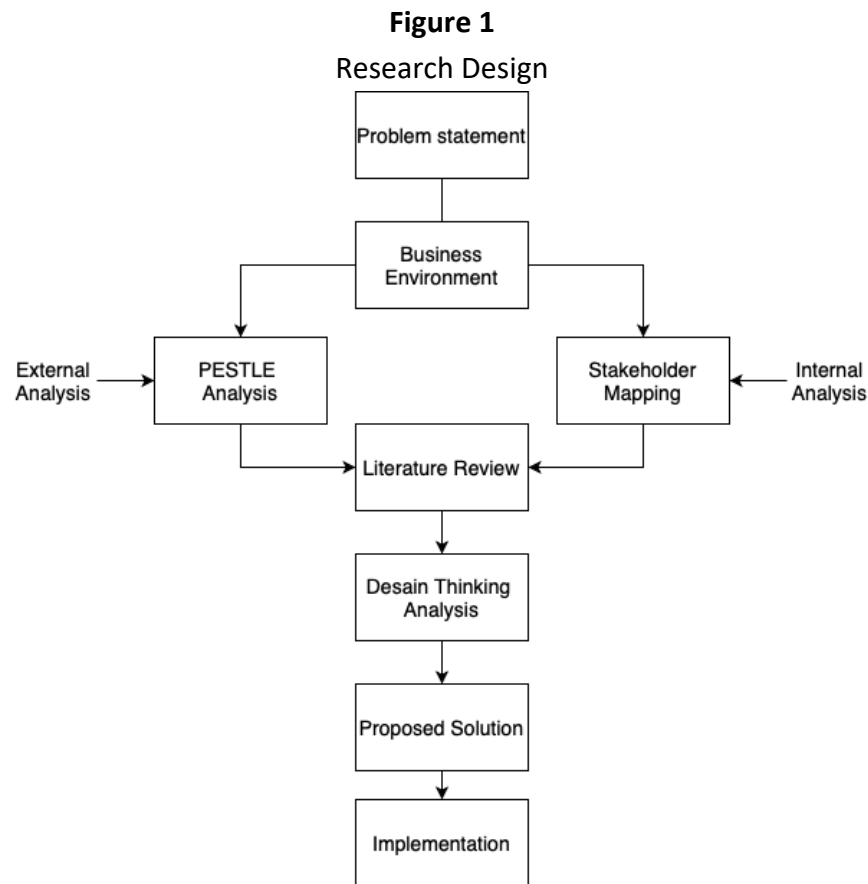
Universities as the holders of advanced knowledge are likely to make changes in society, whether they are well funded or not, especially if not, it should build resiliency and cautiousness, demand pull must be the driving force to develop advancing technologies of all expertise. Universities in the presence of the LPPM had made several efforts to seed and make innovations. LPPM ITB mainly set its popularity in community service and had done several actions all over across Indonesia, even some had cooperation with Serawak, Malaysia. But the idea of innovation is still hard to implement. In many ways, Indonesia is a large country with minimal infrastructure but so much good innovation, to accommodate those potentials is so hard in rural provinces. Many simple things can be a breakthrough, rural and urban provinces can be found so different, even connection or adaptation of technology can be something worth contributing to the local economy.

METHOD

Following the conceptual framework, the most fit methodology to support the outcome of this research is using the design thinking process method. This chapter will provide explanation about the conducted methodology and their supplemental tools to perform the research.

The research consists of 5 chapters. This research contains the first chapter, Introduction, which contains an overview of the background of the problem, company profile, business issue, objectives, and limitations. The next chapter describes the literature review, theoretical foundation, and conceptual framework. Chapter three describes the research methodology, data collection and data analysis methods, and research design. And then, the fourth chapter identifies findings and discussions, analysis, business solutions and implementation, justification, reliability, and validation. The fifth chapter presents conclusions and suggestions.

This study begins with identifying the problems found, then identifying the business environment, then analyzing them using specific research methods associated with a literature review that is in line with the research, then proposing solutions regarding the design thinking method. To help the reader's understanding, the following is a picture of the overall research design flow follows:



RESULT AND DISCUSSION

A. Analysis

Throughout the business exploration and methodology breakdown, The Chapter IV Findings are conducted with the method of design thinking process which comprise in section IV.1 Analysis that will analyze the needs of the subject, it includes the design thinking stage in IV.1.1 Empathize, IV.1.1 Define, and IV.1.1 Ideate. And later on, in the section IV.2 Solution and Implementation Plan as the materialization of the needs it will be the prototype section, last in the section IV.3 Justification of Implementation Plan will clarify the suggested solution throughout the testing stage of the design thinking ending process

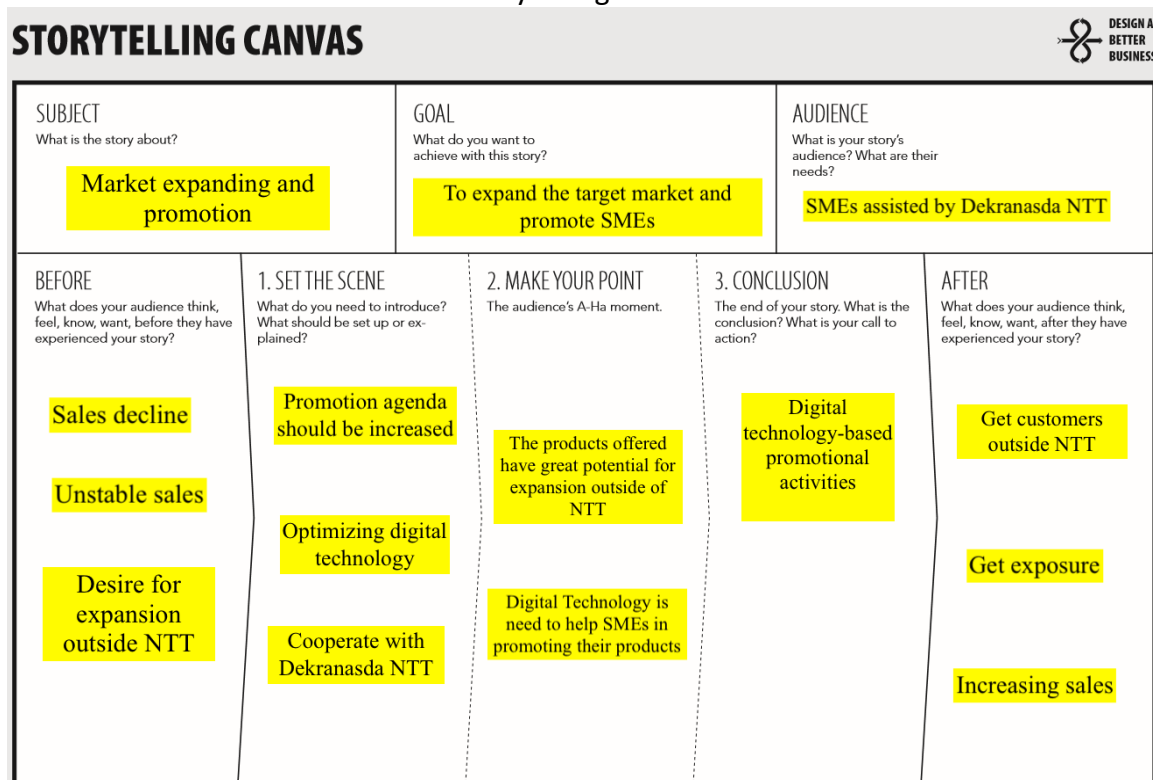
The process of design thinking shows a stepwise approach on forming the object that will be the solution of the problem.

1. Empathize

To empathize the situation that is faced by the practitioner, the story telling canvas

(figure) categorizes that the subject is “Market expanding and promotion, with the goal “to expand and prompt the SMEs”, in which the audience is the “SMEs assisted by Dekranasda NTT”. With the initial state the before, had several highlights which is: sales decline; unstable sales; and desires for expansion outside NTT. Next stage is setting the scene, corridors are made: promotion agenda should be increased, optimizing digital technologies, cooperating with Dekranasda. It leads to the point to: the products offered have great potential for outside expansion; and digital technology is needed to help SMEs product promotion. In conclusion to: Digital technology-based promotion activities. And afterward it hoped to get customers outside NTT and get exposure.

Figure 2
Storytelling Canvas



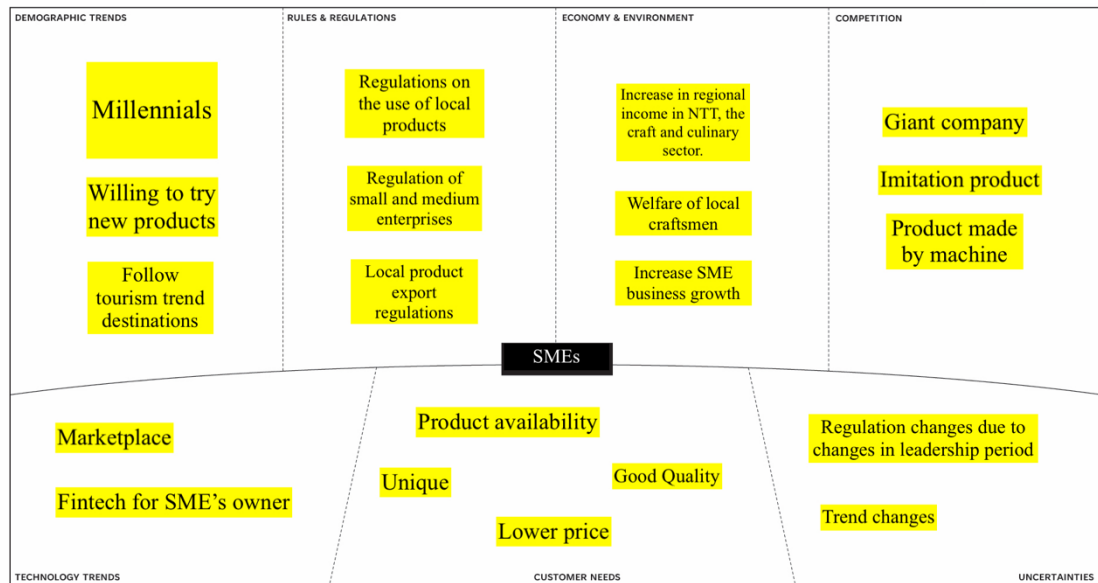
2. Define

Following up the previous stage, the storytelling canvas that lead to a conclusion of promotion activities with digital technology that will lead to custom and promotion outside NTT, the context mapping (figure) will provide breakdowns starting from the demography of the location that claim by the ‘millenials’ group, ‘willing to try new product group’, and ‘follow tourism trend destinations’. And from the rules and regulations trend, there are many beneficiaries and supports which are: ‘regulations to use local products’, ‘regulation for SMEs’, and ‘local export regulations’. While in the economy and environment it will: ‘increase in regional income’, lead to ‘welfare of local craftsmen’, and eventually ‘increase SMEs business growth. The process led to awareness of competition, in which from: ‘giant company’, ‘imitation product’, and ‘machine made product’. So utilizing technology is necessary to use: ‘marketplaces’ and ‘Fintech for SMEs’. Next aspect will be fulfilling customer needs that demand ‘product availability’/stability, ‘uniqueness’, ‘good quality’, and affordable ‘low price’.

last to consider uncertainties, the need to issue 'regulation changes due ruling party shift' and time to time 'trend change'.

Figure 3
Context Canvas

Context canvas.

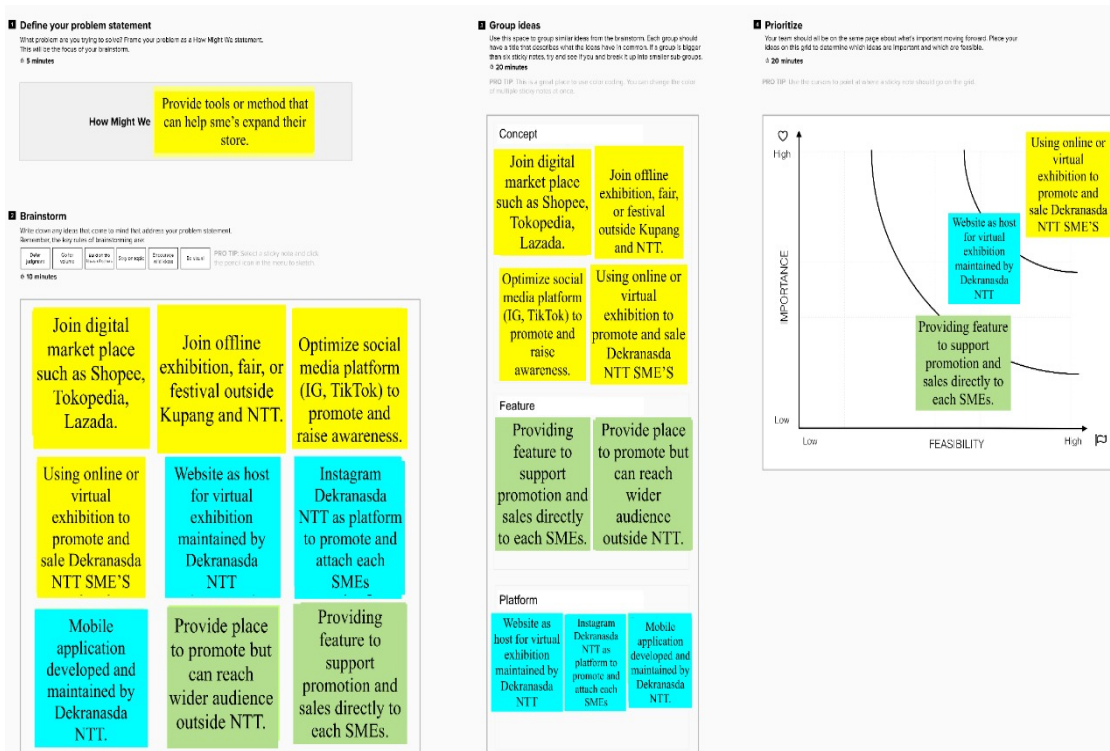


3. Ideate

Following the awareness and statements in the previous section, it is needed to provide tools or methods that can withstand this research objective expanding and promoting the market. Using the brainstorming canvas (figure), rephrasing it in to the definition of the problem 'provide tools or method that can help SMEs expand their store', in the brainstorm session, the ideate phase is occurring, which seed many ideas: 'Join digital marketplace such as Shopee, Tokopedia and Lazada' (1); 'Join offline exhibition, fair, or festival outside Kupang and NTT'(2); 'Optimize social media platform (IG, TikTok) to promote and raise awareness'(3); 'Using online or virtual exhibition to promote and sale Dekranasda NTT SMEs'(4); 'Website as host for virtual exhibition maintained by Dekranasda NTT'(5); Instagram Dekranasda NTT as platform to promote and attach each SMEs'(6); 'Mobile application developed and maintained by Dekranasda NTT'(7); 'Provide place to promote but can reach wider audience outside NTT'(8); and 'Providing feature to support promotion and sales directly to each SMEs'(9).

The idea turns out can be categorized as concept, features, and Platform: which idea (1-4) categorized as the concept, and (7-9) as features, and (5-6) as the platform. From each category then it will be determined which is the most suitable to be chosen, and from several criteria from the previous section that is arranged to the level of importance vs the level of feasibility it follows the idea (5), (8), and (4) respectively to prioritize.

Figure 4
ideate



B. Business Solution and Implementation Plan

Following the final idea in previous sections which is 'Website as host for virtual exhibition maintained by Dekranasda NTT', 'Provide place to promote but can reach wider audience outside NTT', and 'Using online or virtual exhibition to promote and sale Dekranasda NTT SME'S'.

1. Prototype

The prototype follows the 3 determined ideas, briefly translated as the statement of making UI/UX of the virtual exhibition gallery on storyboarding (figure). In the storyboard, the customer journey is provided, with 6 stage which is first: to shows "brief overview" (1), then provide the main focal point the 'customer service' (2), next the 'store selection' (3), followed by 'store feature' (4), from store feature it can link to other needs such as, product display, contact, transaction, shipping option etc. as 'link to business' (5). Last is the detail of each sale product and the information: 'Product Information and Store Bio'. The following stage then is compiled to the developer and produced to be the VR websites gallery.

Figure 5
Prototype



C. Justification

To Justify the process, the concept and idea of the prototype is translated directly to the product, which is the VR Gallery website that is visualized as follows (figure). Which the storyboard one 'brief overview' is translated in to the (1); the storyboard two 'customer service' is translated in to the (2); the storyboard three 'store selection' is translated in to the (3 and 4); the storyboard four 'store feature' is translated in to the (5); the storyboard five 'link to business' is translated in to the (6); and the storyboard one 'product information and store bio' is translated in to the (7).

The result of the compilation is quite good, but due to the limited time and resource it uses several template features that are presently exist in the system, some feature isn't fulfilled such as displaying detailed product information up to the prices in the virtual gallery pages, but still can be maintained with the linked private version in each stores social media or marketplaces platform.

Figure 6
Justification



1. Test

The making of the VR Gallery is successfully fulfilled, and has been tested on the market in Kupang with nice feedback from Dekranasda NTT. in the first three days the website had a crash and web lag due to over visits up to hundreds of visits in a time, it proves a massive market enthusiasm.

2. Validation and Reliability

The credibility of this work can be proven because many stakeholders are related and the beneficiary of each related stakeholder are kept in a good condition. Mutual contact and upcoming work are still maintained.

The evidence is an inauguration ceremony took place on 23th of September 20222 (Figure), which was attended by each side (1), the Institut Teknologi Bandung Team and the receiving party from Dekranasda (2).

Figure 7 Validation and Reliability



CONCLUSION

After a long journey of the thesis writing, breakdowns about regional situations and each side's related to this project interest, from the chapter one can synthesize the objective of this research, which is derived from the business issue in the present situation, a limited growth in the SMEs economy in the region. Leading to the research objective and questions, which is market expansion and promotion, then the further to the chapter two deepening on the literature which first to breakdown the conceptual framework and theoretical foundation, using stakeholder mapping as internal analysis and PASTEL as external analysis, aspect that are highlighted in this research is business growth, promotion, digital technology, virtual reality, and market expansion. In chapter 3, to define the solution of the previous objective in expansion and promotion, the way is to make action, which is to make a design of tools that can expand and promote the related SMEs, which is necessary to perform the design thinking process. The result is confirmed to answer the research objectives and questions, which using the VR Gallery platform, the Dekranasda and the local SMEs are promoted to another level of technology and also market segment, which make it automatically expand the market far across outside the region. The result is that the VR Gallery itself is real and present, currently operating.

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