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

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Abstract

Sustainable Development Goal (SDG) has been a global scale movement to fulfill the 2030 zero poverty agenda, Institut Teknologi Bandung, in presence of the Research and Community Service Campus's Institution (The LPPM) annually perform certain funding for community service action in order to fulfill SDGs agenda, and also as the duty of the higher education (Tridharma Perguruan Tinggi), the LPPM annually sent teams of lecturers and students to solve issues in the society across the country's rural region. A technology adoption project in the city of Kupang has been made, Kupang as the capital city of Nusa Tenggara Timur (NTT) province, a far east region of Indonesia, is a nice place for experiment on modifying locals behavior that are far from the nation's capital, Jakarta. The province holds a significant problem, which is low GDP and limited market, also undeveloped product management that devalue its price. The project implemented design thinking process scheme, one of which is utilizing recent virtual technology on providing digital space on e-commerce activity, 15 Small Medium Enterprises (SME) under the province's creative committee (The Dekranasda) has been chosen, the SME were provided with a 3D profile in the VR platform.

Keywords: SDG, community service, Virtual Reality, E-commerce, Rural Society, Design Thinking

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. 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 (Yuliawati, 2012).

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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. 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. 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. Collaboration with local authorities and the business sector is the key where the impact can go beyond a prototype-only project (Adisasmito & Ghazali, 2023). 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.

The installment of technology is aligned with the SDG 9 of the development of innovation and infrastructure. Furthermore, the impact of the work can be the act of SDG 8 to provide local economic productivity, which will demand several skills, talents of good work, and providing proper jobs in the local area. Moreover, when the project is executed in a rural place with a minor development rather than a big city, it can propose equality that aligns with SDG 10. Hopefully, it leads to a sustainable city and community as the SDG 11 mandates.

If we talk about innovation in technological progress, the topic has been in high trend in early 2022 (data below). 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.

LPPM ITB Community Service Program for Triple Helix

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.

Indonesia is known for the minimum budget for research, only about 0,3% GDP. It's a responsibility to contribute to society, yet we must be aware of the direction and trend of what technology or innovation that are supported and necessary.

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.

Figure 1
LPPM ITB Program



One of the programs that LPPM ITB has established is the Desapreneur and Desanesha (Figure), which utilize the connection of past and present community service that reside to make a joint forward cooperation for the innovation. In the past years, all villages across Indonesia have an authority of a billion rupiah for each office, called the Dana Desa (Figure). LPPM ITB has an initiative to look forward to the opportunity to put coordinational and knowledge investment to this program so the infrastructure to innovate can be much more effective with the local authorities cooperation. And lastly, brilliant innovation is the key.

Figure 2
LPPM ITB Program



DesaPreneur Part-5: Membangun DESA dengan DEWA-DEWI-DEDI, Memajukan Indonesia menuju Indonesia EMAS

Nyamplung, tamanu, atau Calophylum inophylum tanaman ajaib

Desapreneur-12: Membangun Desa, Memajukan Indonesia menuju Indonesia EMAS (Entrepreneurship, Mandiri, Adil, Sejahtera) 2045

DesaPreneur Part-12: Biodynamic Agriculture, Memajukan Indonesia menuju Indonesia EMAS (Entrepreneurship, Mandiri, Adil, Sejahtera) 2045

Nusa Tenggara Timur Province

East Nusa Tenggara (NTT), the province with the regional symbol of the Komodo dragon, is a region with many islands in eastern Indonesia. This eastern province of Indonesia has 21 regencies and one city spread between the islands. With Kupang City as the provincial capital, NTT has a population of around 5.3 million. One of the regions of Indonesia, which is famous for its many tourist destinations, ironically has quite a large number of 3T (Foremost, Outermost and Disadvantaged) regions.

Figure 3
Regional Symbol Of The Komodo



According to Presidential Regulation (Perpres) Number 105 of 2021 concerning the National Strategy for Accelerating the Development of Disadvantaged Regions for 2020-2024. The areas included in the 3T area are as follows:

1. Papua Region (A total of 30 Regencies)
2. Maluku Region (A total of 8 Regencies)
3. East Nusa Tenggara Region (14 Regencies)

4. West Nusa Tenggara Region (1 Regency)
5. Sulawesi Region (3 Regencies)
6. Sumatra Region (7 Regencies)
7. Wilayah Sumatera (Sebanyak 7 Kabupaten)

Being ranked second with the most 3T areas in Indonesia is a challenge for the people of NTT and the local government that provides policies and regulations. Regions with a lot of tourism potential and only commodities should be enthusiastic about improving themselves so that the status of 3T areas can be abolished in future periods. Regarding tourism, NTT has become the new prima donna for domestic and foreign tourists. Komodo Island, Alor Island, Nembrala Island, Labuan Bajo Island, and many other tourist destinations can be an attraction and an effort to improve the welfare of the people of NTT. Not to mention in terms of only commodities and the abundance of NTT handicrafts, such as woven handicrafts, Sasando musical instruments, and others, can be widely marketed domestically and abroad and can be the primary source of income for the surrounding community.

Dewan Kerajinan Nasional Daerah, Nusa Tenggara Timur

Figure 4
Regional National Crafts Council



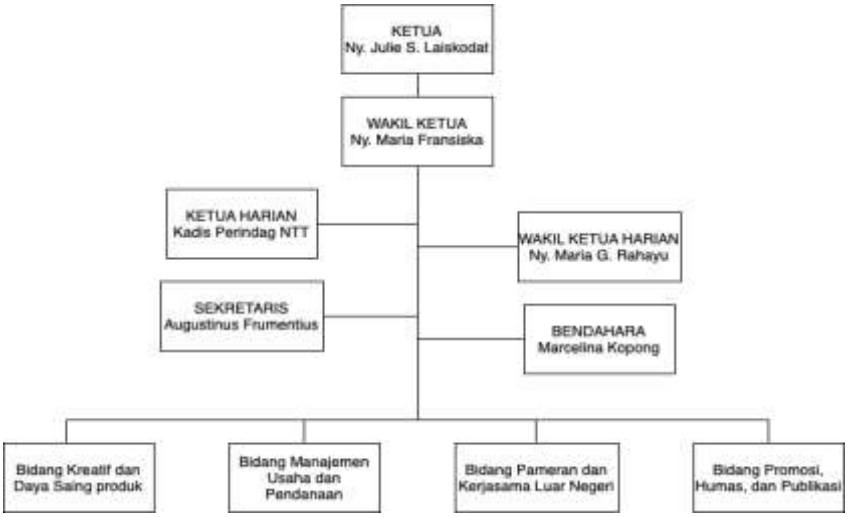
Dekranasda is an extension of the Regional National Crafts Council. Under the control of the National Crafts Council and the government, Dekranasda functions as a place to develop and preserve national and regional crafts, including in its artisans' economic activities and welfare. This study specializes in one of the Regional Craft Councils (Dekranasda) in Indonesia, the Dekranasda of East Nusa Tenggara Province (NTT). The NTT Dekranasda is chaired by the wife of the governor of NTT and a member of the Indonesian Parliament commission IV, Julie Sutrisno Laiskodat. Under Julie Sutrisno Laiskodat, Dekranasda NTT has the following vision and mission:

A. Vision
   The realization of the East Nusa Tenggara handicraft industry, which has high competitiveness and can increase the dignity of regional artisans.
B. Mision
   1. Small Industry Spectrum Expansion: Verified production resources and locally specific technological engineering dynamically and effectively.

2. Improvement of Human Resources.
3. Build professional craft industry and business groups.
4. Optimization of domestic resources (raw materials, labor).
5. Drive regional, national, and international markets.
6. Improving partnership coordination: Relevant agencies, business actors, and the wider community

The main objective of the NTT Dekranasda is to increase the spread of the craft industry based on deepening the structure and technological capabilities to reach the global market. Moreover, organizing household craft businesses in joint business groups (KUB) by empowering Regional Natural and Cultural Resources as the primary target. Until now, towards the end of Julie Sutrisno Laiskodat's leadership as chairman of the NTT Dekranasda, approximately 15 assisted SMEs consisting of various sectors such as weaving crafts, coffee, chocolate, processed moringa, nuts, and others. Not only are these assisted SMEs given a place to market their products, but they are also given training, such as for weaving artisans, to ensure the quality of the products produced and to self-actualize the artisans. In terms of marketing, collaboration, promotion, and publication, the NTT Dekranasda facilitate the assisted SMEs under their respective management structure to prosper the fostered SMEs. The Organizational Structure of Dekranasda NTT is as follows:

Figure 5
Organizational Structure of Dekranasda NTT



Business Issue: Limited Market Growth

Dekranasda NTT has facilitated and supported many of its fostered SMEs to develop and advance in the businesses they run. However, several obstacles still need to be faced, which have caused the growth of the target SME market not to increase appropriately and to experience setbacks for several reasons. One of the most highlighted is the marketing constraints that impact the development of the business itself. So far, the system running at Dekranasda has yet to maximize marketing outside the City of Kupang

and NTT and has only focused on filling in the availability of displays in the Dekranasda office. So far, in terms of promotion and efforts to develop the target SME market, Dekranasda NTT has not optimally utilized digital technology to expand outside NTT. Even though Dekranasda NTT has facilitated its e-commerce application called Lapak Dekra, this application needs to function correctly and is considered to have not had a significant impact on the growth of assisted SMEs.

In addition, because Dekranasda-assisted SMEs vary greatly from various business sectors, several fostered SMEs need to be included in marketing compared to other SMEs. Only a small number of SMEs are considered to be good in terms of marketing and market expansion. One example is the UKM Dapur of Moringa. This UKM has the main product, processed Moringa leaf powder, which can be used for various preparations such as food supplements, drinks, and cosmetic ingredients. The main problem faced by Dapur Kelor is marketing which is less desirable in Kupang City, NTT, but it is also difficult to open markets outside NTT. Obstacles found to expand to Java Island, Dapur Kelor faces the problem of social stigma that considers Moringa to be taboo for consumption which is associated with mystical things and ancestral beliefs. In addition, for expansion activities outside NTT, even though the NTT Dekranasda has supported it to assist marketing, strategy promotion and marketing of the SMEs themselves are still very much needed. So far, Dekranasda NTT has tried to organize various product exhibitions from the assisted SMEs outside NTT. However, several efforts to increase market growth and expand these UKM products are still very much needed.

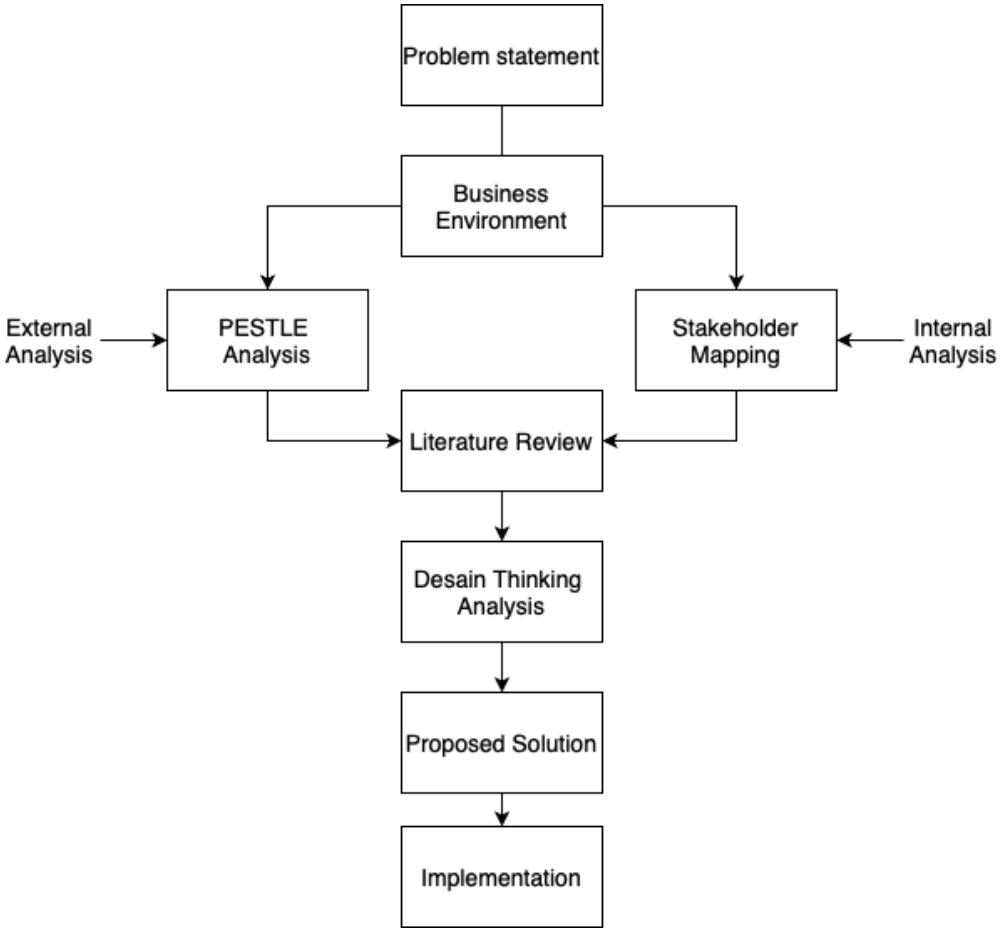
Research Method

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:

Figure 6
Research Design



Data Collection Methods

Overall, the data collection carried out in this study includes:

1. Interviews. Interviews are conducted with the head of the NTT, Dekranasda Julie Sutrisno Laiskodat, and one of the UKM assisted by Dekranasda, Dapur Kelor. This interview was conducted to identify the problems that arose, the business environment, the stakeholders involved, and the characteristics and habits of the UKM assisted by Dekranasda NTT.
2. Observation. Observations were made around the NTT Dekranasda office, located at Jl. Moch Hatta No. 42, Oetete, Kec. Oebobo, City of Kupang, East Nusa Tenggara. In-depth observations were made directly at the Dekranasda NTT office for approximately two meetings in two weeks. Apart from that, indirect observation was also carried out utilizing digital observation by the Dekranasda NTT through the website platform and official Instagram.
3. Literature Review. A literature review is used as an essential reference for theory and material related to research.

In addition to the 3 data collection methods mentioned above, this study also uses several methods for data collection, intending to fulfill the data needed in the analysis

using the design thinking method. Design thinking is a process that includes cognitive, strategic, and practical procedures to process a design. Design Thinking elaborates ideas and innovation. And perceptions in a business and a social context.

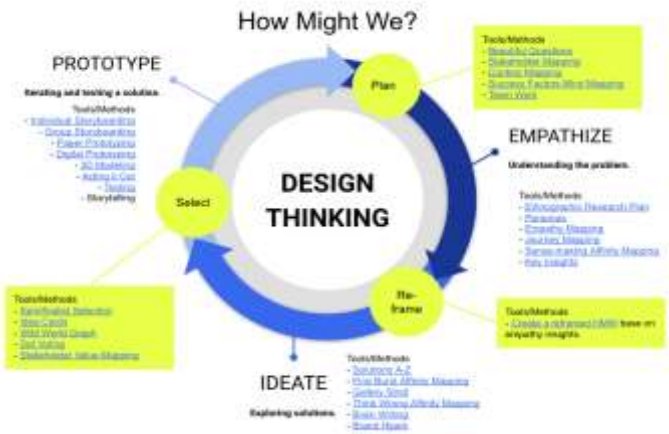
Design thinking start with problem framing as the empathize stage start (figure), then it start to conduct solution-focus thinking in the define stage, and then it perform abductive reasoning to ideate new innovation, last is view the co-evolution of problem and solution to make prototype, last is representative it and model the empirical data.

Figure 7
Design Thinking Comprises



In summary, design thinking comprises 5 stages: empathize to learn about the audience to know what is the subject and what matters, then define what are their needs, and ideate what solution may be possible, and next to prototype the idea and test it in the targeted situation and context . In order to interpret the design thinking method in to action, tools on each process should be made clear and defined, next are several tools that are provided in some resource (figure)

Figure 8
Design Thinking

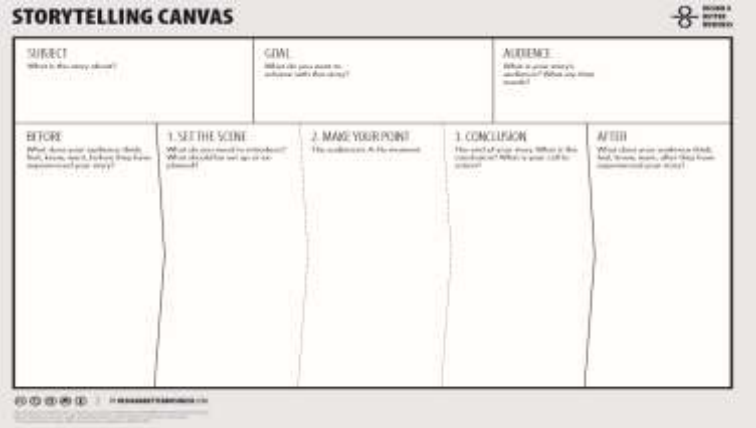


After analyzing the context of this research it is preferable that the emphasize stage can be fulfilled with the journey mapping tools. while the define process can utilize stakeholder value mapping, the next stage of ideate process can be meet by using brainstorming canvas, and last the prototype can be visualized by making the prototype storyboarding, and to test the prototype the research will explore the user's satisfaction through

Empathize using Storytelling Canvas

In the empathize stage, the main focus is trying to position oneself as a user so that one can get an objective and on-target point of view. To get the user's point of view, this study uses storytelling canvas as a tool for analysis. The important things found in the storytelling canvas begin with identifying Subject, Goal, and Audience. Where this area highlights what, who, and goals you want to get from the user. Next is identifying Before, namely formulating what the user feels, knows, thinks, and wants for the problem at hand. Next is Set the Scene, which is identifying the context of the audience, including in terms of ethics, emotions, and facts. Then there's the Make Your Point session, the main idea of the researcher identified as a reference or insight for the user. Continues the Conclusion section, explaining the results of the researchers' thoughts in the form of a problem-solution statement to solve the user problems. The last is After, which contains the desired results after the researcher announces the proposed solution.

Figure 9
Storytelling Canvas



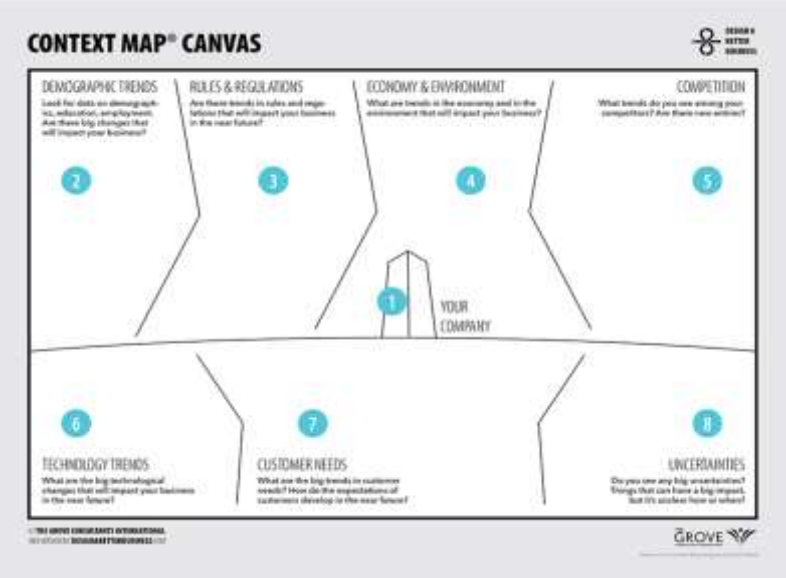
Define using Context Map Canvas

In the Define stage, it is necessary to carry out an analysis of the surrounding environment of the entity or object to be studied. In this research, the object is UKM assisted by Dekranasda NTT which will be analyzed by the conclusions from the previous step, namely empathize. In this stage, by using the context map canvas tool, it is hoped that we can dig deeper into the findings that can be used as a reference for proposing solutions. This tool will also help in identifying the prospective user. The context map is a tool for visualizing the surrounding conditions of the object you want to study, including the perspective of the object itself. The context map was first popularized by the founder

of the grove consultant, David Sibbet. The context map consists of 7 components as follows:

1. Demographics trend, changes or tendencies in a particular trend in terms of demographics such as gender, sex ratio, region, and ethnicity.
2. Rules & regulations, instructions from stakeholders related to the user that can influence the direction of the user's business or the user's target market. For example, local government policies (Perda).
3. Economy & environment, economic or environmental changes that occur around the user that can affect the user's business. An example is an increase in inflation.
4. Competition, the tendency for new trends to emerge which may be opportunities or threats that can be carried out by competing businesses from the user.
5. Technology trends, a change big or small caused by technological advances that are used by users.
6. Customer needs, identifying the needs of the target market user, movements that may occur in the future.
7. Uncertainties, identify things that are not certain to happen which could be opportunities or threats to the user's business.
8.

Figure 10
Context Mapping



The context mapping will define the demographic trend to the situation that is occurring in the object placement, and be aware of the regulation and rule conducted in the location. Competition in the wide area to benchmark and propose improvement, and same as the technological structure as the infrastructure. Next are the customer needs and uncertainties that may happen.

Ideate using Brainstorming Canvas

The next stage is the ideate process, the ideate process will eventually decide what solution will be suggested. Using the brainstorming canvas the problems and its solution will be classified into several concepts and contexts, and further on it will eliminate the many options and lead to a conclusion which solution will be the selected ways to solve the problem and be the prototype. Example (figure)

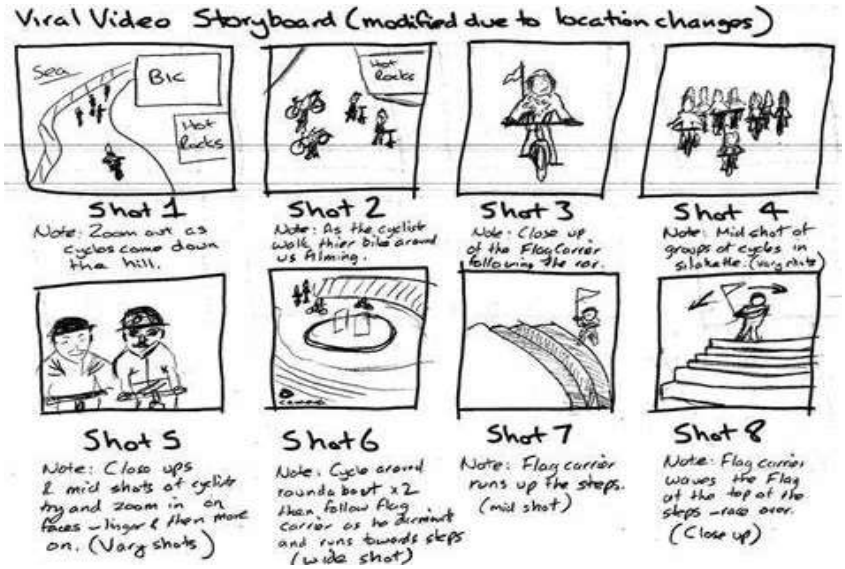
Figure 11
Prototype



Prototype using Storyboarding

To transform the solution idea to prototype it should be first to visualize using the storyboard, which can show, through a sketch, what the idea is and how the idea interacts with the situation. next are the examples of the storyboard (figure)

Figure 12
Storyboarding



Test through The User's Feedback

The test section will consist of showing the final product of the proposed solution to the user, the local authorities as the major stakeholder of making changes in the environment, the result will include the validation, reliability, and justification of this research.

Data Analysis Method

This study uses descriptive qualitative research in data analysis methods. Qualitative methods are considered appropriate for research that requires in-depth observation because it requires more detailed follow-up in analyzing a problem found in the field. The choice of descriptive qualitative research method is also adjusted to the solution to be proposed, which by using digital technology. Therefore, a deep understanding of the user is needed to identify a solution that fits the user's criteria. In this case, research instruments with characteristics have been carried out, including in-depth interviews, observations, and brainstorming ideas. In addition, the characteristics of the solution analysis method using user-centric design thinking align with the characteristics of descriptive qualitative research methods that analyze in-depth research. Using the descriptive qualitative analysis method, this research will describe problem identification, business environment, solution analysis, proposing solutions, and implementing solutions. So that, in the end, it can produce solutions to problems that are right on target, answering the research questions that have been stated previously.

Result and Discussion

Analysis

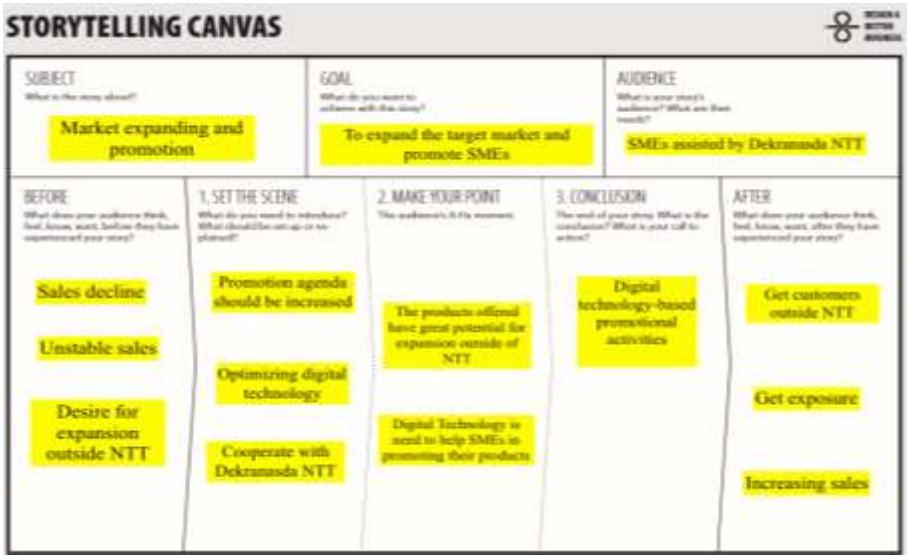
Throughout the business exploration and methodology breakdown, The Chapter IV Findings are conducted with the method of design thinking process which comprise in section IV.1 Analysis that will analyze the needs of the subject, it includes the design thinking stage in IV.1.1 Empathize, IV.1.1 Define, 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.

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.

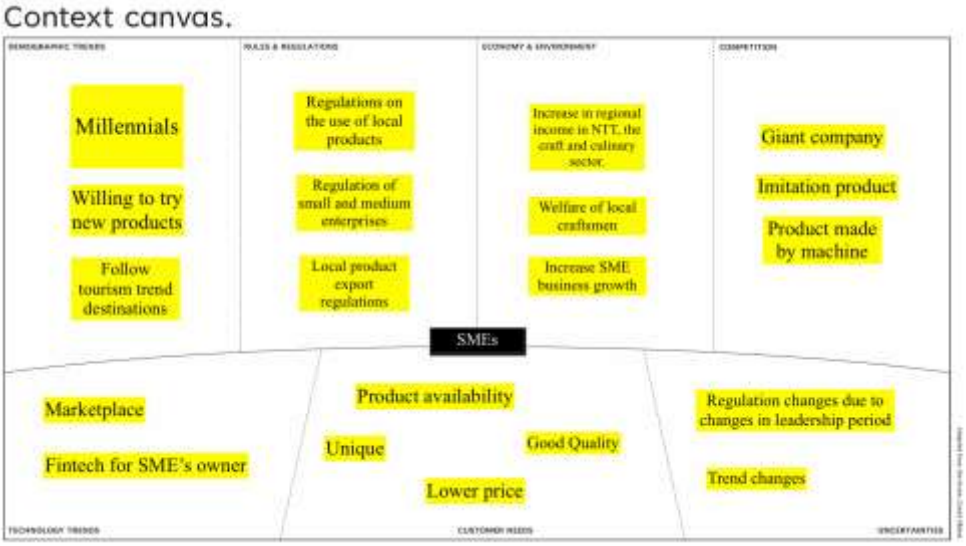
Figure 13
Story Telling Canvas



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 14
Context Canvas

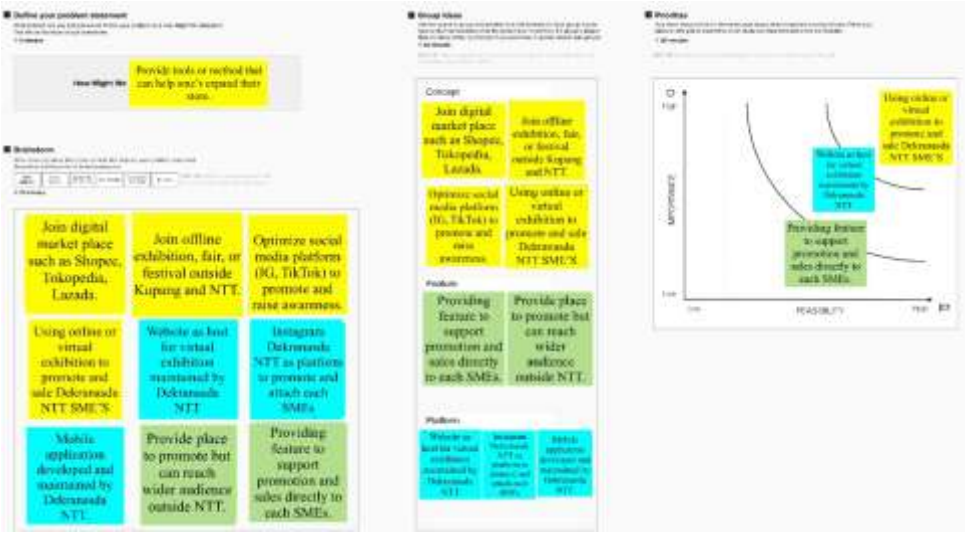


Ideate

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 15
Brainstorming Canvas



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 SMEs'.

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 16
Storyboarding



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 17
Visualized VR Gallery



(1) (2)



(3) (4)



(5) (6)



(7)

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.

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 18
Institut Teknologi Bandung Team



(1)



(2)

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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