

School of Science, Computing and Engineering Technologies

COS10025

Technology in an Indigenous Context Project



Business Case and Project reflection report

Project Title: Digital Solutions for Solving Ecosystem Problems, Tourism, and Marketplace: A Case Study of Vung Tau City, Vietnam

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Declaration

I declare that this report is my individual work. I have not copied from any other student's work or from any other source except where due acknowledgment is made explicitly in the text, nor has any part of this submission been written for me by another person.

Signature:

Thanh Minh

Part A: Business case

Executive Summary

Vung Tau is the coastal city in Vietnam that is facing a number of challenges after COVID 19 pandemic. This report is about the reflection the process of research and include the evidence of the current circumstance within Vung Tau. Challenges are represented in Vung Tau city are environmental pollution, insufficient skilled employee, business recovery. There are some campaigns are created by Vietnam government but still cannot solve the faced problems lead to the increased of problems. The report lists out all the minimum requirement for the budget for getting the project start. All the costs will be presented in a nice table clearly tell factors and costs and estimated cost. This is just estimated costs based on the research from the marketplace and it may change vary on the project requirements or in different circumstance. The report aims to discuss the suitable solution to address the challenges such as environmental protection, developing more affordable housing. It also offers number of recommendations of how to address the challenges that the Vung Tau is facing. Moreover, the report will include the most suitable solution to apply to reality to address the faced problems of Vung Tau city.

Introduction (Project Description & Motivation)

Vung Tau is a famous coastal city in Vietnam which is home to large Indigenous population. Currently, this Indigenous population in Vung Tau is facing several challenges after the Covid 19 Pandemic, including environment pollution, poor quality service, insufficient employees. All the research will conduct from the relevant literature, studies on the environmental problems, COVID 19 impact. This report proposes project ideas to improve the connectivity for the Indigenous population with access to the digital solution and other telecommunications services. The project can be funded by the government grants or business angels for starting to develop and bring it to reality. In addition, share value and benefits will be listed and analysed to convince the reader that this idea is recommended among others.

Summary of project budget (all design ideas)

1. Design idea using Web technologies.

Technology	Cost
Web Development Technology (Front End)	\$3,000 - \$7,000
Back End (Staff, technology)	At least \$5,000
Firebase	Pay as go (\$0.12/GB)
Digital Marketing	\$4,000 - \$7,000

Total estimate cost: \$12,100 - \$19,100

Table 1: Estimate cost for Design Idea 1

2. Design Idea using AR for guiding.

Category	Note	Cost
Feature	Cros-platform (IOS – Android) type of platform: location-based and project-based, integration with other services or APIs (map, GPT, social media, etc)	\$10,000
Design	Number and quality of 3D, models, applications, sounds and effects, user interface	\$20,000
Content	Complexity of the game logic, mechanics, and interaction	Could vary
Development team	Number of necessary team devs	\$15-30/hour
Timeline	Total time investment	\$120,000
Estimation Cost		\$160,000 (+-20%)

Table 2: Estimation cost table for design idea 2

3. Design Idea by applying e-commerce platform.

Factor	Total
Hardware and Equipment	\$15,500
Software	\$7,500
Employee Training	\$1,500
Software Usage Fees	\$5,000
Operating and Maintenance Costs	\$2,000
Shipment Volume Prediction	\$5,000
Costs Related to Project	\$3,000
Total Cost	\$39,500

Table 3: Estimation cost table for design idea 3

4. Design Idea by applying Block-chain technology.

Factor	Costs
Hardware	~ \$8,500
Software	~ \$10,000
Labour	~ \$15,000
Others (Training, Documentation)	~ \$2,000
Total Cost	~\$35,000

Table 4: Estimation cost table for design idea 4

5. Design idea using AI integrated.

Factor	Cost
Data Warehouse	\$10,000
Total Costs	~ \$10,000

Table 5: Estimation cost table for design idea 5

Recommended option to proceed.

I believe that the idea of using web technologies to solve the current challenges would be the most suitable in this case. They are powerful tool that can be used

to improve the connectivity and access to information and economic opportunities for the Indigenous population in Vung Tau.

I believe this is the shared value for this design idea:

- This design idea can contribute to the current economic circumstance of Vung Tau city.
- It would benefit the businesses and residents and create a more inclusive equitable society.
- This design idea also can contribute to the environmental health and economic development of the township especially the tourism sector and business sector.

By creating shared value, businesses can make a positive impact on the communities which they operate and recruit the high skilled employees. This can lead into a future where increased profits, reputation, stronger sense of purpose among employees for developing both the businesses and communities. More connections will be made between the local businesses with wider customer base, expand the businesses reach and generate income while providing residents and tourists with access to a wider range of goods and service. This project idea can become a campaign and raise the awareness about the importance of preserving the natural environment, promote the sustainable tourism practices which would benefit both the environment and the local economy. Moreover, this design idea can help to connect the unemployed people with businesses so that businesses can provide training courses for the people for them to become high skilled employees.

I believe these are benefits for this design idea:

- Access and Equity: This design concept can support equitable access to information and opportunities for all Vung Tau people and enterprises thanks to an interactive website and online marketplace platform. This platform makes it possible for small enterprises to reach a bigger market and engage in competitive competition on an equal footing.
- Appropriateness: This design concept takes into account the unique requirements and peculiarities of the city of Vung Tau. In order to ensure

that the digital solutions are acceptable and pertinent to the township's particular ecological, tourist, and market requirements, they should be tailored to the local environment.

- **Affordability:** The digital solutions we provide are intended to be affordable and available to businesses in Vung Tau of all sizes. We reduce development expenses and offer reasonably priced choices for companies to create an online presence by utilizing open-source technologies like Next JS and Tailwind CSS.
- **Environmental Health:** Our design concepts improve Vung Tau's environmental health by addressing ecosystem issues and advocating sustainable practices. We promote awareness of the value of protecting the environment and promote responsible tourist behaviours through our eco-awareness campaign and virtual reality experiences.
- **Sustainable Livelihoods:** We want to establish a vibrant economy that benefits both locals and businesses. We promote the development of sustainable livelihoods in Vung Tau by providing local companies with access to a larger client base and simplifying simple transactions. The marketplace platform offers businesses the chance to increase their clientele and make money, which helps the township's economy grow.

Part B: Project reflection

Group Work Reflection

Our group has an interesting process, when all of us enter the new part of the assignment for this unit, all the members discuss possible solutions, gaining feedbacks from other members and research about possible technology can be implemented in that idea. However, I sometimes feel like all the members haven't communicated effectively. In some circumstances, exclude the leader, all of us has just listened to other ideas and can't find the possible path to improve on that idea.

If I can be changed for improvement for the next time working in a group, it would be more communication and check on other so that I can advise or give them specific feedbacks so that the group work's quality can be better. I will try to encourage other group members to work on the reports sooner and each of us may have time to create prototype of the design idea so demonstrate to the audience and the lecturer that the idea is possible for us to make and can be applied to the current context.

Based on the performance of our team, the team leader (Cao Phuc Khai Hoan) has tried to connect all the members together, combining ideas. She has tried to spend time strengthen all the team members' ideas. She has tried to manage work of other by checking on them whenever the work is in progress, nearly done or not. In all the meetings, Khai Hoan is the one who is on time and create a Google Meet room for us to join. I am the one who always join right after Khai Hoan created the room and after me was Kim Thu. In all the meeting, we try to communicate in the most efficient way so that we can have more time to put these ideas, speech into words in the reports, slides. Khai Hoan is pro-active in every meeting when she oversaw keep the discussion continue and connected so that everyone in the meeting room can concentrate on listening to others and not distract by other factors. Khai Hoan also tried to keep everyone in the meeting when asking them to feedback on other and how they think the ideas can be implemented. The interesting point is that all the members have stayed until all the discussions are done in all the meetings for listening to other design ideas.

One another point that I was impressed by this group is that when all the members were proposed their ideas, no one argued about the idea is possible or not, all the members try to figure out the way to make the idea possible and realistic as possible. Moreover, when come to the stage where research about the estimated costs of the project, I was impressed by the research of Vinh, Kim Thu, Khai Hoan. Three of them has tried to research in marketplace and list out all the possible costs for the project idea.

When doing the Innovation concept, I believe that this part is the most outstanding point when all the members keep comments, feedback on others work and try to create diagram to visualize the structure, architecture of the ideas. Kim Thu is the one who tried to find beautiful images to decorate on the group work report. Khai Hoan is the one who feedbacks on the images whenever it is suitable or not. Le Minh is the one who has encouraged other members to create suitable charts, diagrams for visualizing the idea and planning out it correctly. For my part, I gave feedbacks on their content whenever the words are appropriate to used, where can change to improve the report.

In the final presentation, all the members have tried to research deeper to convince audience that this idea is suitable with in the current circumstance. All the members including me try to explain the idea clearly. All the members are ready to answer any question about the project and convince the audience that this idea is suitable.

Individual Work Reflection

For the project tasks, I have research the problem identification and identifying learning issue by myself and learning. For this part, I have tried to explain how we would do this part in the report, explain the scope of the project so that all members can understand the project deeper. I also have used the diagrammatic tools to draw out DFD to explain the entities and the process involved in my design idea. I have spent time to look for example of DFD to draw out my diagram in the correct way from level 0 to level 2 and include it the slides. I have found the estimation cost on the freelancer websites to discover

the cost in the most accurate way and estimate it. However, the estimation of cost may change depend on the market.

With the design idea of using AR for guiding, there are already some of this in the market but not in Vietnam so it can be reality. It can help the tourists will understand more about Vung Tau city and impressed with the used technology. Moreover, the application can help to enhance the tourist experience with the interactive and immersive information, entertainment. This may attract more visitors and investment to Vung Tau by creating a distinctive and attractive destination image. With the design idea of applying e-commerce platform, I believe that it can solve the marketplace problems. Connecting businesses together for improving the infrastructure of Vung Tau city. In addition, it can improve a lot of commercial opportunities, health, and safety of the quality of seafood. With the design idea of using Block-chain technology, I do not think that this will be effective for solving Vung Tau's problems. But it can be applied with the design idea using web application for the enhance security feature. It also can increase efficiency, supply chain management and expanded consumer markets. For the last design idea, which is using AI built-in a data warehouse application, government can manage how the marketplace is going on and can identify the problems, opportunities to operate. With the AI built-in to solve the problems and analyse the data, it brings efficient labour distribution, and the power of summarized and consolidated overview of data.

For the contributions to the group, I have done the project overview and the project requirement. Spending time to gather information from research paper, literature and conduct the suitable project overview and project requirement. I have been a lot of active after the week 6 when always is the one who finish the first and correct any error in other work, I also do other part, styling the reports and doing the reference list in correct format and organize it nicely. I believe that my ability to contribute to the whole group is due to my strong analysis skills, my willingness to collaborate and my mindfulness so that I can troubleshoot any occurred problems. I am always willing to listen to the ideas of other members, and I often open to feedback. I am a good listener and always open to the ideas of others, and I can clearly articulate the ideas to the team. In this team, I feel the comfortable to express the design ideas and

receive the feedbacks from other with friendly advice so that I believe my work and other work are high quality.

For the conclusion and recommendation, I believe that my design idea is still the most suitable among other design idea due to the reasonable costs and the benefits it can bring to the Indigenous community in Vung Tau. Moreover, it is the most realistic when it can adapt to the trend of nowadays and solving many problems with Vung Tau. Moreover, this web application can be integrated with other design idea such as Block-chain for enhance the security, link with the AR guiding (for mobile app) and built-in AI for data analysis. The e-commerce platform also can be linked to this idea so that both design ideas would bring a lot more benefits for Vung Tau Indigenous community.

Part C: Unit Learning Outcomes (ULOs)

1. Locate Indigenous knowledge systems and consider how they story the long history of technology, science, and engineering.

I believe that the first step of entering this project is to understand and explore the Indigenous community. By researching about the local areas, residents, events are the fundamental pieces to conduct the report and presentation on the Indigenous cultures and current circumstance. I also need to understand of the Indigenous knowledge systems of Vung Tau so that I can begin to consider how the digital solution can be applied to the project. Before choosing this project title, I have taken into much research about Vung Tau problems to understand the current circumstance of this city so that I can figure out the way to address the problems.

When applying the digital solution to the Indigenous community, it is important to ensure that the design ideas are undertaken in accordance with those Indigenous knowledge systems. By respecting Indigenous culture and traditions, I believe this project includes many design ideas can be beneficial to the Indigenous community.

2. Apply relevant knowledge of emerging technologies to a project within an Indigenous context taking into consideration and acknowledging Indigenous histories, worldviews, standpoints, and cultures.

I believe that the first step in applying the emerging technologies to a project within an Indigenous context is to analyse the challenges and needs of the Indigenous community throughout the reviews, literature, newspaper. This can include the understanding the community's current communication technologies and services as well as their needs for improved communication. Throughout the research, our team have found many problems and challenges that Vung Tau city is facing currently which are poor quality service, polluted environment and many more problems.

Once I have a good understanding of the community's challenges and needs, I can begin to explore the user access, affordability, and appropriateness in

relation to the communication infrastructure, means that the emerging technologies are accessible to the community, affordable, and appropriate for the Indigenous community needs.

3. Communicate within teams, stakeholders using appropriate verbal, written, and technological approaches.

When communicating within teams and discuss about the stakeholders, it is important to contribute to team meetings. I have been active in participating in discussions, sharing ideas, and providing feedback. Moreover, I have spent time to provide feedback on other work and improve the group work's quality to achieve the higher marks and address the issues of the Indigenous community. One of the most important points is to engage with the facilitator throughout meetings, which including attending meetings, listening to feedback, and making changes to the design ideas, report as needed.

In addition to contributing to team meetings and engaging with facilitator meetings, it is also important to be proficient in verbal communication to transfer the ideas, thoughts of each member and deliver it effectively so that the audience can understand design ideas and the project. Being able to give presentation, have conversations and answer questions clearly and concisely are the must points for deliver the messages and solutions effectively.

Moreover, it is also important to be proficient in written communication. Being able to write clear and concise reports, as well as being able to interact with other members online to receive the ideas of how to improve on personal work and fix minor errors.

Tools are optional to be used but our member including me have used to facilitate the communication to enhance the understanding of the design ideas and collaboration to improve on the group work efficiency. We have drawn out visualized graphs and diagram to list out the process within the design idea.

4. Appreciate emerging technologies in a local, global, and sustainable context.

When designing emerging technologies in a local, global and sustainable context, it is important to consider a culturally appropriate design solution, they have to be respectful of Indigenous cultures and traditions and not violate

the culture. Explore sustainable livelihoods in relation to the digital connectivity infrastructure is important point in this project when considering how the digital connectivity infrastructure, digital technologies can be used to support sustainable livelihoods in Vung Tau city. Moreover, with this project, I can take out key things and apply to any other project which benefits the Indigenous community.

Word count: 3155 words

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