



From Farm to Table: Transforming The Shrimp Industry through Food Traceability and Business Differentiation Strategies at PT. Udang Maju Sejahtera

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ABSTRACT: This thesis investigates the development of a food traceability system for the shrimp export industry at PT. Udang Maju Sejahtera (UMS). The primary objective was to enhance the transparency and accountability of the shrimp supply chain, thereby improving product quality and consumer trust.

The study employed a three-pronged approach: formulating a robust business strategy, innovating product development, and restructuring the organization into a cross-functional team. The business strategy focused on aligning the company's operations with the emerging demands for food traceability in the export market. The product development innovation involved the creation of a traceability system that leverages advanced technology to track and record the journey of shrimp from farm to consumer.

The restructuring into a cross-functional team aimed to streamline the decision-making process and accelerate the development cycle. The results indicated that while PT. UMS's strategy aligns with the industry's direction towards increased traceability, the development process was time-consuming and required organizational restructuring.

The study concludes that the integration of a cross-functional team within PT. UMS could expedite the development and implementation of the traceability system, thereby enhancing the company's competitiveness in the shrimp export industry. Recommendations for PT. UMS include enhancing innovation management, investing in advanced technology, collaborating with external partners, and adopting a culture of continuous improvement. Future research should explore the long-term impacts of these recommendations on the company's performance and the traceability system's effectiveness.

KEYWORDS: Export, Food Traceability, Food Sustainability, Product Development, Shrimp, Traceability.

INTRODUCTION

The global demand for transparency and accountability in the food supply chain has been steadily increasing, driven by consumer demand, regulatory requirements, and the need for improved quality control. This trend is particularly evident in the seafood industry, where traceability systems are becoming a critical component of supply chain management. This paper focuses on the development and implementation of a food traceability system for the shrimp export industry at PT. Udang Maju Sejahtera (UMS), a leading player in the Indonesian aquaculture sector.

PT. UMS has been deeply involved in the aquaculture technology sector since 2014, providing it with a technological advantage and a comprehensive database of farmers. This early advantage, when leveraged, can position PT. UMS as a leader in the traceability-focused exporting business. However, the company faces several challenges, including a lack of knowledge in the exporting business and scattered datasets.

The primary objective of this study is to enhance the transparency and accountability of the shrimp supply chain at PT. UMS, thereby improving product quality and bolstering consumer trust. To achieve this objective, the research employs a threepronged approach: formulating a robust business strategy, innovating product development, and restructuring the organization into a cross-functional team.

LITERATURE REVIEW

A. SWOT and BMC Framework

Strategy analysis and design play a crucial role in developing effective business plans and ensuring that an organization's resources are utilized effectively. Two widely used tools for strategy analysis and design are the SWOT analysis and the Business Model

Canvas (BMC). These tools provide a structured approach for organizations to identify their strengths, weaknesses, opportunities, and threats, as well as to map out their value proposition, infrastructure, customers, and finances. SWOT analysis, an acronym for Strengths, Weaknesses, Opportunities, and Threats, which can be seen on Figure II-1, is a strategic planning tool that helps organizations identify their internal and external factors that could impact their success (Houben, 1999). The Business Model Canvas (BMC), developed by Osterwalder and Pigneur (2010), is a visual representation of an organization's business model. It consists of nine building blocks: value proposition, customer segments, channels, customer relationships, revenue streams, key resources, key activities, key partnerships, and cost structure

B. Matrix Organization

Matrix organization is an organizational structure that combines functional and divisional or project-based reporting lines, allowing for increased collaboration, communication, and flexibility across different departments and projects. In a matrix organization, employees typically report to two or more managers, one from their functional area and the other from the project or division they are assigned to (Ford, 1997). This dual reporting structure enables organizations to adapt to changing market conditions, efficiently allocate resources, and enhance decision-making processes.

C. Corporate Innovation Process

Innovation management is a process of managing innovation activities, from ideation to commercialization, with the aim of creating value for the organization and its stakeholders. In the seafood industry, innovation management is essential for addressing challenges such as sustainability, food safety, and traceability. Existing literature suggests that innovation management models and frameworks, such as open innovation and user-centered design, can be effective for managing innovation in the seafood industry. In the study of Innovation Management, it is suggested that enterprise need to build an early warning system and exploration framework for future success, which is the a must so that innovation doesn't fail in the long run (Huber, 2017).

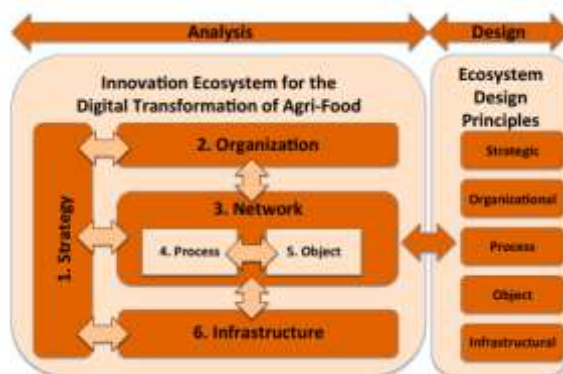
D. Innovation Management Enterprise Model

On the other hand, innovation also needed support from the whole enterprise so that it can built well into the business when commercially viable. In the study, operating model which is used first by Porter, and integrated with innovation process to enable total value chain enabling activities. Some of the main activities in this process is: Inbound Logistic, Operation, Outbound Logistic, Marketing & Sales, Service, with the supporting activities of: Enterprise Infrastructure, Human Resource Management, Procurement, Innovation Process.

E. New Product Development

New product development is the process of bringing a new product or service to market. It involves several stages, including idea generation, concept development, product design, testing, and commercialization. In the seafood industry, new product development can help companies to differentiate themselves in the market, meet changing consumer demands, and comply with regulatory requirements. Factors influencing the success of new product development in the seafood industry include market research, customer feedback, product design, and supply chain management.

F. Innovation Ecosystem for Digital Transformation



Figures 1. Conceptual Framework of Innovation Ecosystem for Digital Transformation



The approach on Innovation Ecosystem in Fig 1 emphasizes the need for organizations to develop effective strategies that address the unique challenges in the food industry, such as ensuring food safety, improving transparency, and optimizing the supply chain. The framework will be mentioned as Ecosystem Innovation Framework. It can be seen on Fig 1, that when building a digital transformation on Agri-Food industry, one of the most important things is interconnection between all elements to make the transformation works. The framework itself is divided into analysis and design, which in turn also help each other. So that when the design of the ecosystem is done and applied, reanalysis and redesign can be done in each element, thus keep improving as more data and feedback getting in.

METHODOLOGY

A. Data Collection

The research methodology involves two main methods: interviews and secondary data collection. Interviews are conducted with key stakeholders in the shrimp export industry, in this case the CEO of PT. UMS. The questions asked during the interviews are adjusted according to how the interview progresses. Secondary data collection involves gathering existing information from various sources, such as regulatory documents, industry reports, and market data available on the internet. This information provides valuable insights into the current state of the market, as well as the regulatory environment governing food traceability. The research combines the rich contextual information from secondary data sources with the nuanced, qualitative insights from interviews to develop a comprehensive understanding of the food traceability problem and create an evidence-based plan to address it.

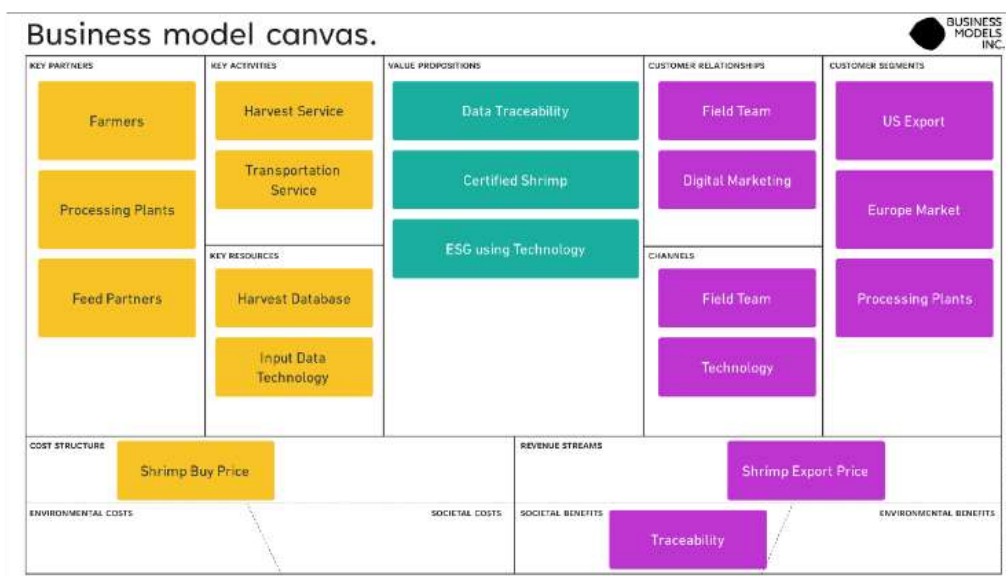
B. Data Analysis

The analysis will consider all elements in Ecosystem Innovation Framework, starting in Strategy using SWOT and BMC with data from interviews and second data. After that Organization review using Matrix Organization to get the best structure to tackle the challenge. Process analysis using Innovation Management to get the right process of innovation inside the organization. Object and Product analysis using New Product Development to get the right product into the market, and finally Infrastructure design to get all the elements inside the organization synchronized. This comprehensive approach to data analysis ensures that the resulting product is both relevant and impactful, ultimately increasing the likelihood of success in addressing the food traceability challenge.

RESULT AND DISCUSSION

A. SWOT and BMC

In the analysis of PT. UMS’s strategy, interview with the CEO is done to collect the data and putting it into analysis with BMC and SWOT framework. The details of the Business Model Canvas are detailed below in Figures 2 & 3.



Figures 2. BMC of PT. UMS Shrimp Export Business

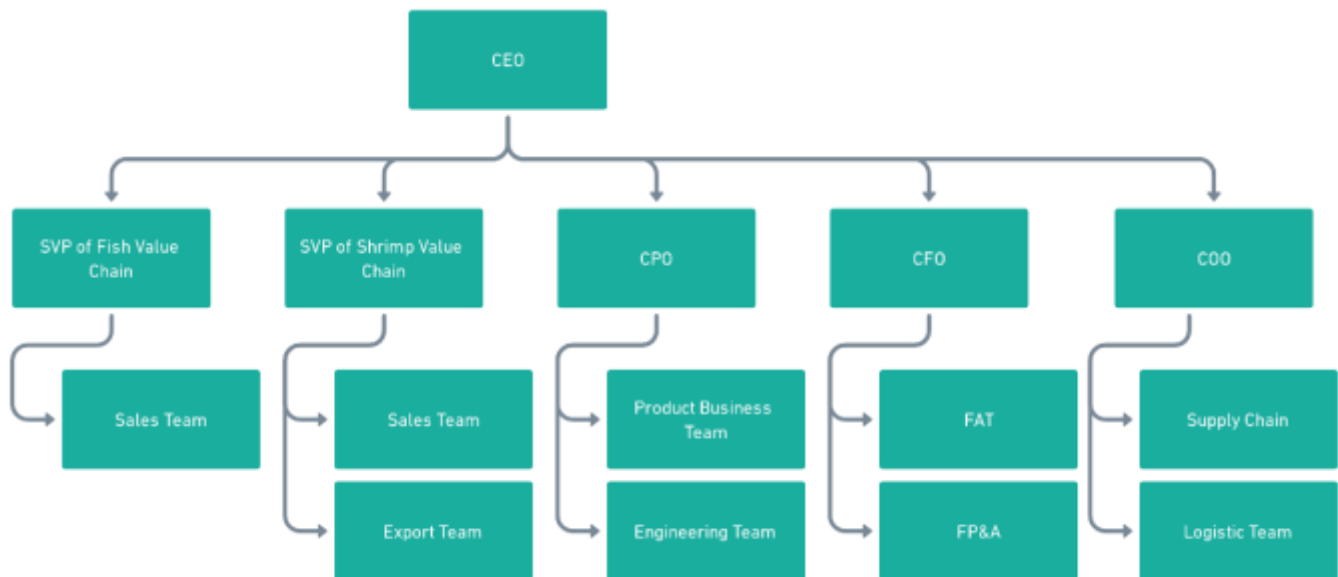


Figures 3. SWOT of PT. UMS Shrimp Export Business

When looking at overall PT. UMS strategy, the overall narratives of food traceability and sustainability can be done correctly, as its strength are also aligned with the opportunity.

B. Organizational Analysis

Organizational Analysis are needed to see how the business execute its plan with its people. The data of structural organization are collected via interview with the CEO of PT. UMS.

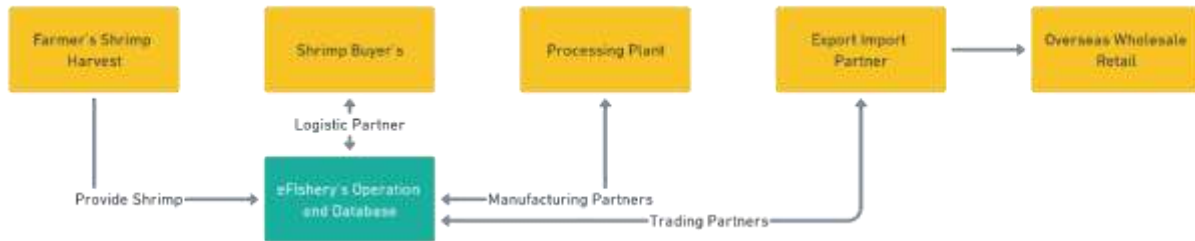


Figures 4. Structural Organization of PT. UMS

Looking at the structure in Figures 4, it can be seen that PT. UMS takes the Functional and Strategic Business Unit Organizational Model. Functions are centralized with different structure of business unit, and commanded by its own directors. Meanwhile, business units are separated into 2, with the commodities based as its separator (shrimp and fish value chain). While this structure work great in achieving its proprietary objectives, collaboration and integration will be the obstacles, which can be seen on what happens on the execution side of the business

C. Stakeholder Analysis

Out of the process in the value chain, there are multiple stakeholders that need to be considered as the user and contributors in the case of shrimp traceability. PT. UMS which will be the main database for all activities in the stream, will also interchangeably connecting with all the stakeholders in this stream. PT. UMS will do partnerships with all the stakeholders, becoming the central activities and database throughout the value chain.

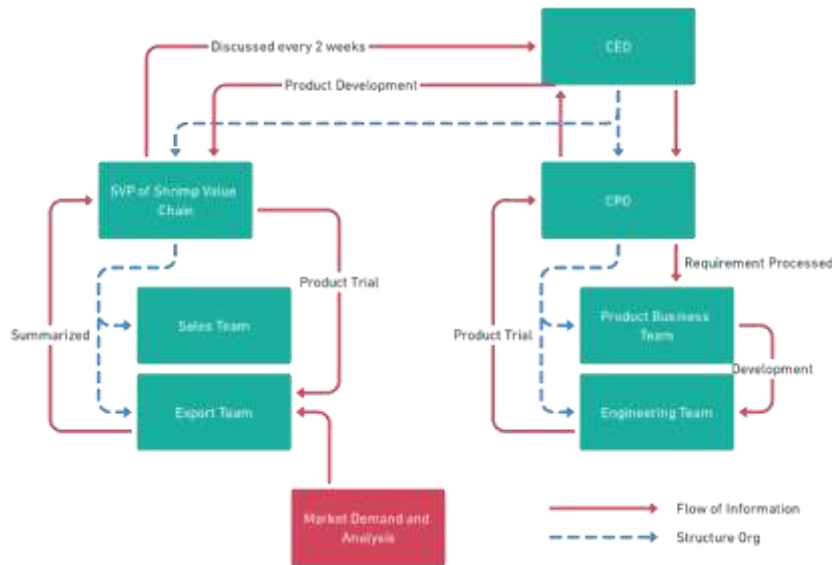


Figures 5. Stakeholder Analysis of PT. UMS

From the diagram in Figures 5, PT. UMS will provide the technology and capital needed for the whole value chain move smoothly and according to the regulations for export and traceability solution.

D. Innovation Process Analysis

As can be seen from the organizational model, PT. UMS focus on strategic business unit and separate function organization. In this case, the organization can move faster to achieve the target, with some integration and collaboration sacrifice. In the interview, one of the main concerns is scattered database, with long time of product development phase. In below graph, it is shown on how the discussion and collaboration done on the Innovation Process within PT. UMS.



Figures 6. PT. UMS Innovation Process in Traceability Solution

As shown in Fig 6, PT. UMS with the forementioned organizational model, is moving slow with its innovation process, as every decision and information need to follow the structure itself. One of the impacted results are the timeline within the innovation process which can be seen below.

Table 1. PT. UMS Food Traceability

No.	Task	Expected Timeline	Actual Timeline
1.	Market and Demand Analysis	Jan 2023	Mar 2023
2.	Technology Product Trial	Jan 2023	Mar 2023
3.	Brand exhibition	Apr 2023	Apr 2023
4.	Export Trial	Apr 2023	June 2023(scheduled)



Looking at the table 1, the actual timeline is quite delayed compared to the expected timeline. The information and decision making are slowed down due to bureaucracy, the timeline for the project to achieve itself is delayed by several months. The information from the market demand needs to be discussed in leadership C-level meeting (every 2 weeks), to be analyzed and decided on what the actual plans are. After the decision itself are made, the information than passed down to the development team (another 2 weeks), which need to build requirement based on the market demand analysis. The development then are going to be tested via field team, which also need knowledge transfer, and takes time to get another feedback, hindering faster iterative process along the way.

E. Business Strategy Design

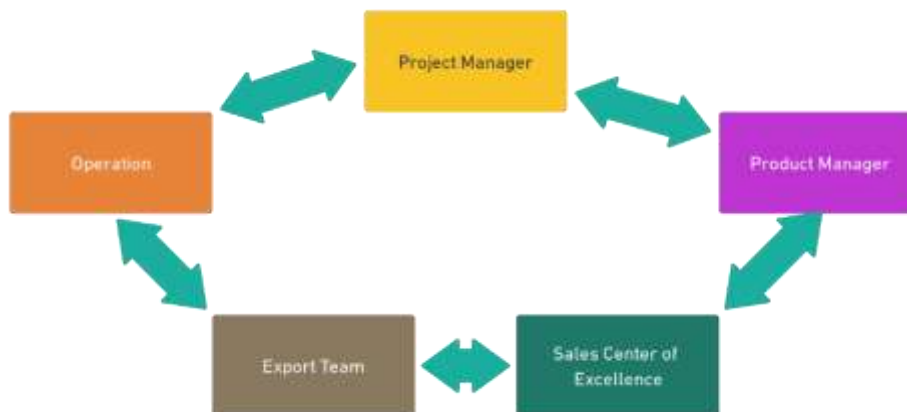


Figures 7. TOWS Analysis of PT. UMS

From figures 7, on the Strength/Organization side, it can be seen that the current business strategy of chasing traceability with current PT. UMS technology is the right choice. Meanwhile, additional business can be created as certification is one of the most important aspects of traceability solution. On the other hand, multiple risks can arise from lack of capability in exporting and regulations which can be seen on the Weakness/Opportunity and Strength/Threat. To minimize the risk of bottlenecking in these side, PT. UMS needs to prepare people with better capabilities in exporting and regulations side to enable the business.

F. Organizational Design

As it can be seen on the analysis chapter, having a functional and dedicated business unit structure can have bad impact on the speed of new product development, in this case exporting using traceability technology. In the case of PT. UMS, one of the solutions that can be done while maintaining the speed of business as usual is to have a small matrix organization on starting the product development. In this case, the team that can be built will be a cross functional team, which has multiple set of skills between individuals, interconnecting with their division, but having decision making starting in the small scale first. In this case, the structure can be seen as below.



Figures 8. Cross Functional Matric Organization

Cross Functional structure which can be seen on Figures 8, will behave independently, with small decision making will be made in the group. The team will consist around 5 to 7 people, with different background and skillset.

G. Product Development Plan and Corporate Infrastructure Design

As the new cross functional team are made, product development can be done with faster speed and better information flow. The diagram below will tell on how the new product development can be done.



Figures 9. New Product Development Plan

Looking at the diagram on Figure 9, it can be seen that the core players for the product development will be the product manager. But in this case, the product manager can have flow of information from the firsthand stakeholders, instead of waiting reports via leadership discussions. With the new product development plan based on cross functional instead of leadership reports, the results will be seen in faster development and information flow, better feedbacks and faster loop.

In product development, not only the technology and engineering things that matter. The way corporate infrastructure can support and integrate with the new product, as the development is usually going faster compared to the bureaucracy it supported, will be necessary. In this case, PT. UMS multiple function will be involved, thus coordination between function will be done in accordance to each member in the cross functional team. The graph below shows how interconnected between the infrastructure of the corporate with the team itself.



Figures 10. Infrastructure Connection with Cross Functional Team

At the end, corporate infrastructure will have collaboration in each member in the team, and building the right product will also need the right foundation of corporate infrastructure.



CONCLUSION

The study concludes that the timeline for the implementation of export traceability within PT. Udang Maju Sejahtera (UMS) was delayed compared to the expected timeline due to bureaucracy and slow decision-making processes. The information from the market demand needs to be discussed in leadership C-level meetings, analysed, and then passed down to the development team, which builds requirements based on the market demand analysis. The development is then tested via the field team, which also needs knowledge transfer and takes time to get feedback, hindering a faster iterative process along the way.

The way the innovation process is done in PT. UMS can be improved. The business strategy that PT. UMS uses is the right path to use, as the capability of what PT. UMS has already aligned with the opportunities presented by the rise of new regulations regarding food traceability and higher awareness of certification and sustainability. PT. UMS needs to consider several things in the SWOT framework, including strengths such as technological advantage and a database of farmers, weaknesses such as zero knowledge in the exporting business and scattered datasets, opportunities such as the rise of new regulations regarding food traceability and higher awareness of certification and sustainability, and threats such as non-tech savvy farmers and hard requirements of new regulations. PT. UMS's current organizational structure plays a significant role in the speed and direction of its movement towards implementing a traceability solution. PT. UMS will do partnerships with all the stakeholders in the shrimp export industry, becoming the central activities and database throughout the value chain.

The study ends with several recommendations for PT. UMS. These include enhancing innovation management, building a cross-functional team, investing in technology, collaborating with external partners, and adopting a culture of continuous improvement. These recommendations are designed to help PT. UMS overcome internal limitations, accelerate innovation, and stay competitive and responsive to changes in the market.

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