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HANDELSHÖGSKOLAN

Eco-Innovation

Eco-Innovation through the Scary Seafood Platform: Catalyzing the Innovation
Ecosystem



GM1361 V24 Master's Degree Project in Knowledge-Based Entrepreneurship

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Abstract

Improvements in health care, nutrition availability, and increased life standards have led to significant growth in the global population during the last few decades. For the same reason, the exploration of new sources of nutrition becomes crucial. The need for environmentally friendly innovation through a collective approach and increased usage of underutilized resources laid the foundation for the development of the Scary Seafood project. The purpose of this study is to gain a comprehensive understanding of the outcomes of scary seafood as a platform of eco-innovation and its potential contributions to the innovation ecosystem of Västra Götaland. The combination of eco-innovation, a platform for collaboration, and innovation ecosystem theories laid the foundation for the theoretical framework. The triangulation method of this study consists of an integration of semi-structured interviews (9 participants) and an online survey questionnaire (63 respondents). Thematic analysis was used to analyze the interview results while descriptive statistics were used to analyze the online questionnaire results. The findings of this study indicate the Scary Seafood initiative is a platform for eco-innovation. The contributions of the Scary Seafood platform to the innovation ecosystem are the identification of the existing gap in the supply chain, highlighting the need for new investments in the maritime industry, and the need for evaluation and review of current policies to develop new policies and regulations in the water and sea fields.

Key Words: Eco-innovation, Innovation ecosystem, Platform for collaboration, Regulatory Push, Market Pull.

Table of Content

1. Introduction	1
<i>1.1 Disposition.....</i>	<i>1</i>
<i>1.2 Background.....</i>	<i>2</i>
<i>1.3 Delimitation of the study.....</i>	<i>4</i>
2. Problem Formulation & Research Question.....	5
3. Literature Review	10
<i>3.1. Eco-innovation</i>	<i>10</i>
3.1.2. Technology Push.....	12
3.1.3. Regulatory Push.....	13
3.1.4. Market pull	14
<i>3.2. Innovation Ecosystem.....</i>	<i>16</i>
<i>3.3. Collaborative Platform.....</i>	<i>17</i>
<i>3.4 Conceptual Framework.....</i>	<i>18</i>
4. Method.....	20
4.1. Research Strategy.....	20
4.2. Research Design.....	21
4.3. Selection of Interviewees and Sampling.....	22
4.3.1. Qualitative sample	23
4.3.2. Quantitative sample	23
4.4. Data Collection	23
4.4.1. Primary Data Collection	23
4.4.2. Survey.....	26
4.4.3. Secondary data collection.....	26

4.4.4. Integrating primary and secondary data	26
4.5. <i>Data Analysis</i>	27
4.5.1. Thematic Analysis	27
4.5.2. Descriptive Statistics	27
4.6. <i>Research Quality</i>	27
4.6.1 Qualitative Research Quality.....	28
4.6.2 Quantitative Research Quality.....	29
4.6.3 Mixed-Methods Research Quality.....	30
4.7. <i>Ethical considerations</i>	30
5. Empirical Findings	32
5.1. <i>Thematic Analysis</i>	32
5.1.1. Theme 1. Implementation and Scalability	34
5.1.2. Theme 2. Educational and Awareness Efforts	36
5.1.3. Theme 3. Innovation and Product Development	38
5.1.4. Theme 4. Market Acceptance and Consumer Behavior	38
5.1.5. Theme 5. Regulatory Challenges and Policy Development	41
5.1.6. Theme 6. Stakeholder Collaboration and Community Engagement	42
5.1.7. Theme 7. Sustainability and Environmental Impact	43
5.2. <i>Descriptive Statistics</i>	44
5.2.1 Demographics	44
5.2.2 Preferred Information Sources	45
5.2.3. Attributes Associated with Eco-Friendly Seafood Products.....	45
5.2.4. Decision Factors for Eco-Friendly Product Purchases	46
5.2.5 Numerical data.....	47

6. Analysis & Discussion.....	49
6.1. <i>Eco-innovation</i>	49
6.2. <i>Regulatory Push</i>	50
6.3. <i>Market Pull</i>	52
6.3. <i>Platform of Eco-innovation</i>	54
7. Conclusion	56
7.1. <i>Research Conclusions</i>	56
7.2. <i>Practical Implications</i>	58
7.3. <i>Theoretical Contribution and Future Research</i>	58
7.4. <i>Limitations</i>	59
References.....	61
Appendix 1 – Interview Guide.....	68
Appendix 2 – Online Questionnaire.....	70
Appendix 3 – Online Questionnaire Tables.....	74

List of Images:

Figure 1 – Structure of the study.....	1
Figure 2 - Eco-Innovation	11
Figure 3 – Thesis Conceptual Framework	19
Figure 4 – Mix-methods framework	22
Figure 5 - Adjusted Theoretical Framework	57

List of Tables:

Table 1 – Interview Chart.....	24
Table 2 - Results of the Thematic Analysis	32
Table 3 – Preferred Information Sources	45

Table 4 – Attributes Associated with Eco-Friendly Seafood Products.....	46
Table 5 – Decision Factors for Eco-Friendly Product Purchase	46
Table 6 – Numerical Variables	47

1. Introduction

This section introduces the critical importance of sustainable seafood consumption in the face of global population growth and diminishing natural resources. Only 2% of the food society consumes comes from the ocean. Therefore, it highlights the project Scary Seafood, a potential solution for seafood consumption, setting the stage for a comprehensive analysis of its impact on the food industry and regional development.

1.1 Disposition

This study includes seven chapters as illustrated in *Figure 1*. The first chapter describes the problem background and the importance of the study. In the second chapter, a discussion of the problem and identified research gap within the literature followed by an explanation of the purpose of the study and an introduction of the research questions. In the third chapter, theories, and development of the theoretical framework have been discussed. Furthermore, the fourth chapter elaborates on the research design and strategy, an in-depth discussion of the chosen methodologies followed by an illustration of the integration and analysis strategies. The fifth chapter includes a comprehensive overview of the empirical findings, followed by the presentation of the themes and statistical results of the data. The sixth chapter consists of discussions and analysis of the data by integrating the theoretical framework. Finally, in the seventh chapter, the research questions have been answered followed by recommendations and implications of this study.



Figure 1 – Structure of the Study

1.2 Background

The improvements in health care, nutrition availability, and increased life standards have led to significant growth in the global population during the last few decades (Dong et.al., 2016). The increase in life expectancy is of utmost importance and the world's population is expected to surpass 9.5 billion people by 2050. However, as the population grows, the resources available decrease; the reduction does not only mean fewer resources available per individual in the short term, but a grand challenge in the long term as it challenges the lives of future generations (Maja and Ayano, 2021).

Additionally, the next generations will not only face challenges in terms of resources but also in terms of environmental challenges as a result of the industrial development of humans during the last century. Research shows there is a direct correlation between increased population, utilization of non-environmentally friendly materials, and increased consumption to increased emissions and pollution, which has a direct correlation to global warming as well as other environmental threats humanity is facing at the moment (Goodenough et.al., 2017). Among plenty of concerns regarding resource management, sustainable food consumption will be one of the biggest challenges. For instance, since 1995 the fish consumption per capita increased from 13.4 kilograms to more than 20.5 kilograms per year (World Ocean Review, 2021). Even though seafood consumption has increased, only 2 percent of today's food comes from the sea. Therefore, the oceans have an untapped potential in enhancing global food dynamics mostly when considering that the globe's surface is about 71 percent water and 29 percent land. Thus, seafood consumption will play a pivotal role in the world's economy (Scary Seafood, 2019).

Considering these challenges, the need for sustainable development becomes even more important. It is essential to everyone, but mostly for future generations and the long-term survival of humanity. Sustainable development cannot be achieved by just any type of innovation. This is because innovations from the past have helped create some of the challenges society faces today. Innovations can have negative effects as well as positive ones. However, it is clear that sustainable development, driven by environmentally friendly innovation such as eco-innovation, takes into account the environment during its

life cycle is necessary. Muscio et.al. (2010) argue that the food industry, as noticed by Sweden, needs this type of innovation to face the upcoming resources challenges.

Sweden, one of the most innovative countries in Europe with an innovation performance above the average (WEF, 2022), acknowledges the need for innovation and new resources in the food industry. This has been shown previously through the investment of Västra Götaland Region council in the previous West Swedish Maritime Cluster. The expiration of the Maritime Cluster has given space to the Västra Götaland Region (VGR) to invest in new initiatives such as Viable Seas, Offshore West, and SWEMARC, (VGR, 2024). These initiatives share similar values to the previous initiative where the goal of stimulating innovation and sustainable development has been the core. For instance, VGR (2024) states that the seafood industry development needs to intensify new production methods, such as algae cultivation, precision agriculture, and large-scale processing of by-products. This statement indicates the importance of exploring new sources of food and the need for increased attention required for the increasing consumption of seafood.

According to Blå Mat (2021), Swedish consumers eat mainly farmed salmon, wild-caught cod, herring, and shrimps. According to RISE (2019), this portfolio of species dominates 75% of the total seafood consumption in Sweden. However, seafood is still not a major source of nutrition as its being consumed only once a week, which is in contrast with the recommendation of 2-3 times a week (Swedish National Food Agency, n.d.). Given the fact that such a small portion of food is being supplied from the sea, the EU funds and Government incentives from the Västra Götaland Region have invested in the Scary Seafood project. The project aimed to highlight new species as eatable products to expand the food portfolio of consumers (University of Gothenburg, n.d). With this investment, Sweden has taken a step further to explore new marine resources to reduce the pressure on the existing sources of nutrition on land and sea.

This thesis explores the Scary Seafood project, initiated in 2017 and concluded in 2021. It was a pivotal initiative within Sweden's innovative approach to sustainable seafood. It examined how the project has fostered eco-innovation and contributed to the innovation ecosystem in the Västra Götaland Region. Engaging a diverse number of stakeholders, including universities such as Chalmers University of Technology and University of

Gothenburg, research institutes like the Research Institute of Sweden (RISE), governmental agencies including the West Sweden Tourist Board and SWEmarc, as well as private sector entities like Fisk Idag, Skärgårdsidyllen Kyak & Outdoor, and Restaurant Vrå, the project aim was to utilize underexploited marine resources to inspire entrepreneurship and enhance tourism in West Swedish coastal communities, emphasizing sustainable practices (University of Gothenburg, n.d).

By integrating qualitative and quantitative data, this research aims to provide comprehensive insights into how collaborative initiatives like the Scary Seafood project can drive socio-economic benefits and address grand challenges. The project serves as a dynamic platform where diverse stakeholders converge, amplifying its impact through their collective contributions. This not only showcases the interplay between innovation and sustainability efforts at a regional level but also positions the Scary Seafood project as a model of platform exploration. It is hoped that the findings from this thesis might offer valuable perspectives that could inform and encourage similar practices in other regions.

1.3 Delimitation of the study

The next section will start to illustrate the Problem Formulation and then lead to the research question. As the study developed, through the literature review and the conceptual framework formulation, the researchers, for reasons that are further explored and explained, decided not to approach the Technology Push determinant of the Eco-innovation theory. Although the researchers recognize the importance of this determinant, due to the attribute and scope of the Scary Seafood project this aspect was purposely excluded from this study. Nevertheless, as described in the literature review, all three aspects of the Eco-innovation framework from Rennings (2000) have been properly reviewed and discussed. A comprehensive understanding of Eco-innovation theory and Platform for collaboration laid the foundation for this study to explore in what ways the Scary Seafood Project acted as a platform. Furthermore, through a triangulation data collection method, the researchers mapped the potential contributions of Scary Seafood to the Innovation Ecosystem.

2. Problem Formulation & Research Question

This chapter explains the problem formulation delving into the challenges and opportunities of the Scary Seafood project, it integrates some relevant theories, and finally introduces the thesis research questions.

The Scary Seafood project has managed to gather various stakeholders from different sectors through a collaborative approach to explore and evaluate the potential of underutilized resources from the sea to contribute to the social and economic state of Västra Götaland. This is due to the awareness of the upcoming challenges discussed previously. However, relying solely on the shared interest in stimulating the economic state of Västra Götaland is not enough to face major challenges ahead. Achieving the project ambitions required extremely high levels of collaboration and resources in terms of funds, data, knowledge, etc.

The financiers of the Scary Seafood project were primarily Leader Bohuskust och Gränsbygd/European Maritime and Fisheries Fund, Västra Götaland region (The Västra Götaland Region), Göteborgs universitet (University of Gothenburg), and Tillväxt Norra Bohuslän (Growth Northern Bohuslän). The project was initiated and conducted under the auspices of the previously called Maritime Cluster (ScarySeafood, 2019). The financing aspect of the project illustrates the footprint of the government and EU which are considered policymakers and indicates that the goals of the project are aligned with the current objectives of the Swedish government (Government Offices of Sweden, N.D).

According to OECD (n.d.) Västra Götaland is the second most important economic region in Sweden with a SEK 711,221 billion GDP. This indicates the crucial role of this region for the Swedish economy. Hence, it justifies the investment made by the government in combination with EU funds as a rational move. Additionally, the Scary Seafood project aimed to contribute to entrepreneurship in the region on a big scale, hoping to create value in terms of economic growth while increasing resource efficiency and promoting the use of maritime resources in the area (Scary Seafood, 2019).

Investing in entrepreneurship and the creation of new products with the hope of economic growth is one contributing factor to the Innovation Ecosystem of Västra Götaland. The

concept of an Ecosystem is a well-known subject in the literature, originating from biology (Li, 2009). An ecosystem is defined as a set of relationships among living organisms, resources, and residents of an area whose functional goal is to maintain equilibrium (Deborah, 2011). According to Chen et.al. (2018), an ecosystem thrives on its participants' collective co-creation and interdependencies, driven by shared knowledge, resources, and talents (Rubens et.al., 2011). The strategic alliances and the network of actors lead to shared risks and synergistic knowledge, leading to the acceleration of innovation (Eisenhardt and Schoonhoven, 1996).

However, it shall also be discussed that the goal is not to create value through any type of innovation but rather an innovation that can be seen as a driver toward the elimination of the current challenges. Such a challenge requires environmentally friendly products from production to the end of the life cycle called eco-innovation. Kemp and Pearson (2007) define eco-innovation as the production and assimilation process, service, management, or business method that is novel to the organization to develop and adopt so the innovation results in the life cycle that reduces the environmental risk, pollution, and other negative aspects of the resource utilization including energy compared to the other type of innovation.

Therefore, it is arguable that the Scary Seafood project outcomes have the characteristics of eco-innovation. Although viewpoints might vary, this study considers Scary Seafood as an eco-innovative project assuming different implications of the project. For instance, the project took into consideration sustainable development in terms of aquaculture when approaching the food portfolio expansion. It also took into account the reduction of pressure on the current seafood (salmon, cod, and shrimps) as well as to improve the resource utilization, etc. Aiming for economic growth through entrepreneurship and innovative approaches without damaging the environment and ecosystem has been one of the important dimensions of the project (Scary Seafood, 2019). Sustainable development, resource utilization, and environmentally friendly dimensions of the project including its innovative aspect lead the outcomes of the projects to fit within the category of eco-innovation.

Eco-innovation has become an important term in the sustainable development literature as it takes into consideration energy and resource input through an environmentally friendly approach. By doing so, the outcomes will have less impact on the environment during the life cycle and more likely after the life cycle (European Commission, n.d.). Mishra et.al. (2023) argue that Eco-innovation is an important factor in using resources efficiently and is crucial for the transition toward the circular economy.

Rabadan et.al. (2019) describe the food industry as resources and territory heavy where processing the raw materials and supplying the food directly and indirectly impacts the environment. This is because there is a direct correlation between food production and natural resources. Furthermore, the need for stimulating efficiency in the food production system is discussed, including the use of energy and water throughout the whole chain. The approach taken by the Scary Seafood project takes into consideration these aspects of the food industry by trying to achieve eco-innovation in terms of food supply (Rabadan, et.al., 2019).

According to Nambisan (2009) the collective approach of the Scary Seafood project can be defined as a platform for collaboration where each stakeholder acts as a piece of a puzzle. Furthermore, Nambisan (2009) states these stakeholders come together to in the first step create a shared definition of the problem/challenge and eventually work on a solution together, similar to the case of the Scary Seafood project. Scary Seafood (2019) described a joint R&D process through a series of workshops where stakeholders from restaurant industry, research institutions and universities come together to co-create value as product by exchanging expertise and knowledge. As one of the main components of an ecosystem (Tiwana, 2013), platforms act as enablers of value creation within the ecosystem (Perks, et.al., 2017). Value creation is achieved through a network of activities (Perks, et.al., (2017), including joint R&D centers, forums, and competitions (Chen et.al., 2017). Chen et.al. (2017) add that a platform consists of an abundance of innovation-related resources, such as information, finance, and specialized services in marketing and distribution channels. Platforms are beneficial for the entire ecosystem as they have the capability to lay the foundation for complementary innovations within an ecosystem (Gawer and Cusumano, 2013). The perspective in which the study is based on is that the

Scary Seafood project unites stakeholders in a platform to co-create value through shared collaboration.

In brief, the purpose of this study is to gain a comprehensive understanding of the outcomes of the scary seafood as a platform of eco-innovation and its potential contributions to the innovation ecosystem of Västra Götaland. First, it is acknowledged that the collaborative approach toward collective innovation is not a new subject in literature as it is a well-known concept among researchers. For instance, different types of platforms such as industry Platforms (Cusumano and Gawer, 2013) business platforms (Kretschmer et.al., 2020) digital platforms (Nambisan, et.al., 2018), and innovation platforms (Klerkx, et.al., 2013) have been explored previously. However, there seems to be a gap in the research when the subject of the discussion is a collaborative project with a variety of stakeholders from several industries. As a result, there is a lack of research in the literature that consider a project with a dynamic similar to the Scary Seafood project as a platform. For the same reason, to fill this gap, the study argues for the Scary Seafood project to have the same characteristics as a platform for collaboration following Nambisan's (2009) perspective.

Secondly, given the importance of platforms in an ecosystem this study takes one step further toward measuring the outcomes of the Scary Seafood as a platform for collaboration in the innovation ecosystem of Västra Götaland. The outcomes of the platforms contain the characteristics of an eco-innovation due to their specific features. Simultaneously, beyond eco-innovations, it is believed that additional contributions have been made to the regional innovation ecosystem. Thus, this paper aims to answer the following research questions through a holistic and exploratory approach:

RQ 1: In what ways can the Scary Seafood project be considered a platform for eco-innovation?

The first research question indicates this study's assumption, which is the embedded idea of eco-innovation as an outcome of this project. Furthermore, the answer to this question illustrates the possibility of considering similar projects as platforms.

RQ 2: What are the contributions of the Scary Seafood platform of eco-innovation to the innovation ecosystem in Västra Götaland?

Additionally, as a result of the first research question assuming the outcome of the platform can be considered eco-innovation the second question maps the potential contribution of such innovation to the innovation ecosystem in Västra Götaland.

3. Literature Review

In the literature review, key concepts such as eco-innovation, innovation ecosystems and platforms concepts are explored. This section reviews existing literature to frame the Scary Seafood project within the broader academic context. Further, a conceptual framework for this study is presented, illustrating how the Scary Seafood project functions as a collaborative platform within the innovation ecosystem.

3.1. Eco-innovation

Horbach et.al. (2012) define eco-innovation as a new or significantly improved product (good or service), process, organizational method, or marketing method that creates environmental benefits compared to other innovations. Environmental benefits such as pollution and waste reduction (Horbach, 2008; Horbach et.al., 2012)), and resource efficiency (Horbach, 2008), could be considered the overall objective of eco-innovation or the result of the objectives of the innovation (Horbach, 2008). Furthermore, Horbach et.al. (2012) argue for the environmental benefits of eco-innovation to occur during the production phase, otherwise during the after-sale use, or while being used by the end customer.

Another definition of eco-innovation used by many scholars is Kemp and Pearson's (2007) definition. These Scholars define eco-innovation as the production, assimilation, or exploitation of a product (good or service), including the process of production, service management, or business method that is novel to the organization during the development or adaptation phases which results throughout the life cycle of the product. This definition by Kemp and Pearson (2007) takes into consideration the full life cycle of the product, including the input and output factors.

As described earlier achieving eco-innovation seems rather challenging, given different aspects of eco-innovation that need to be considered during different stages of the product life cycle. As a result, Rennings (2000) argues that reaching sustainable development with the help of eco-innovation requires a change in lifestyles, technologies, and institutions. He further argues for a collaborative approach towards sustainable development.

Additionally, Horbach (2008) confirms this idea of a collaborative approach suggesting stakeholders such as universities, research institutes, and governmental agencies work together to increase the success rate of eco-innovation.

Rennings (2000) presents a framework (Figure 2) of eco-innovation with three different determinants, technological push, market pull, and regulatory push. Each of these determinants includes variables which according to Rennings (2000) are success factors when working with eco-innovation. For this study, the researchers have chosen to use the definition used by Kemp and Person (2007) and the framework presented by Rennings (2000) which in the following section will be explained in depth. Kemp and Person's(2007) definition provides a holistic view of an innovation from the development to the end of the life cycle, which is suitable for this study. Additionally, the framework developed by Rennings (2000) consists of determinants and variables that act as a guideline that sets the scope of the study and enables the researchers to understand in what ways an innovation can be considered eco-innovation.

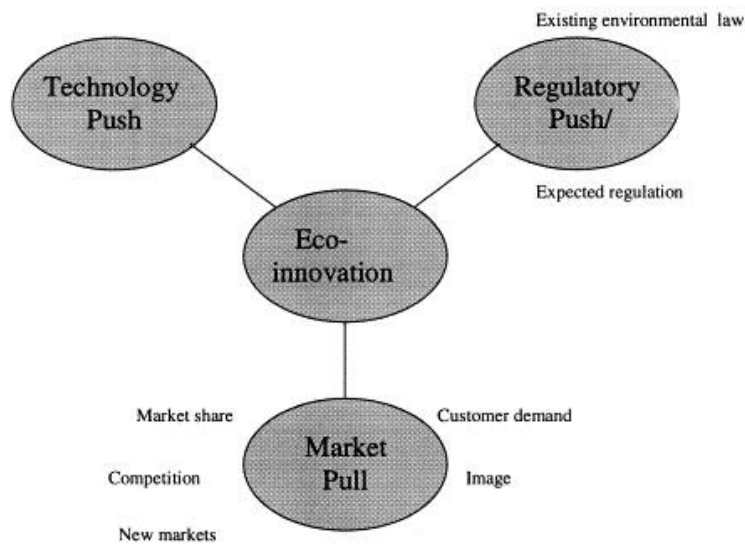


Figure 2- Eco-Innovation, (Rennings, 2000)

3.1.2. Technology Push

The term eco-innovation was initially associated with technological advancement. However, firms' capabilities in innovation are significantly bolstered by the acquisition of new technologies, which manifest in numerous benefits, including an increased patent portfolio. This exemplifies the direct impact of technology push on enhancing a company's intellectual property assets and underscores the importance of technological advancement in driving eco-innovation. Firms' capabilities in innovation are intertwined with the adoption of new technologies, leading to numerous benefits such as an increased number of patents. Moreover, the push from technology facilitates the formation of beneficial alliances with key stakeholders, encompassing knowledge exchange and technology transfer (Hazarika and Zhang, 2019).

The interplay between technology push and market pull strategies is pivotal in influencing and producing eco-innovations (Zubeltzu-Jaka et.al., (2018). Although discussions often weigh each part of the framework according to specific fields of interest or areas, the perspective that technology pushes significantly contributes to eco-innovation is widely acknowledged. Public policy plays a fundamental role in shaping innovation, with significant investments in technology capabilities and research and development is crucial for the dissemination of eco-innovation across all levels (Costantini et.al., 2015).

Policy diversity significantly impacts technological exploration and exploitation, affecting the overall innovation dynamics. Evidence points to the potential pitfalls of unbalanced public support which might restrict the scope for novel innovations. However, the diversity in technological sectors ensures a varied incentive structure, maintaining a continuous demand for innovation and underscoring the dynamic nature of the technological push (Costantini et.al., 2015).

Critiques of the technology push model often center on its perceived neglect of profitability and market dynamics. Nonetheless, the broader significance of the eco-innovation framework transcends these criticisms, focusing instead on the holistic contribution of technology push, especially in the realm of some specific sectors such as energy technologies (Nemet, 2009). However, areas such as air emissions and water

pollution remain underrepresented in eco-innovation discussions, suggesting a need for a broader consideration of eco-innovation areas (Horbach et.al., 2012).

Collaborations between industry and academia, particularly in technology push scenarios, are pivotal for technology transfer, fostering a synergistic ecosystem that underpins the dynamics of eco-innovation. This relationship development within the entire ecosystem is fundamental for the effective dissemination of eco-innovation, as articulated by Boyer and Kokosy (2022). The complex eco-innovation process, characterized by a broad variety of inputs and outputs, necessitates a comprehensive framework to navigate its complexities effectively (Parks et.al., 2017). Technological advancements are crucial for eco-innovation, enhancing firms' capabilities and fostering collaborations.

3.1.3. Regulatory Push

One of the determinants of eco-innovation is the regulatory push which in some studies has been considered as the main factor of eco-innovation (Popp, 2006). In some cases, the impact of regulations on innovation can be direct through national policies (Popp, 2006), or similar to the case of air pollutants in Japan the impact can be a result of policies introduced abroad where the eco-innovative catalytic converter was introduced due to regulation in the US (Jacob et.al., 2006). In the latter case, innovation was driven by policies outside the country, which indicates how powerful policies and legislation can be.

Horbach (2008) discusses different types of regulations included in the regulatory push category, existing regulations, expected future regulations existing subsidies, and fiscal incentives as well as Macro-level economics and innovation policies could be considered the triggering factors of eco-innovation. Horbach et.al. (2012) stress that regulations are significant in trying to push firms to reduce emissions in terms of air pollution, water, and noise while contributing to the avoidance of dangerous materials along with increasing product recyclability.

Arimura et.al. (2007) discuss that there is a clear correlation between environmental policies and eco-innovation. This argument is a confirmation of the idea proposed by Rennings et.al. (2006) where the authors state that the technological push and market pull

alone, are not strong enough because the regulation's support seems to be vital for the achievement of eco-innovation. Jana and Ruzzier (2016) discuss and confirm the importance of regulations while also acknowledging other drivers of eco-innovation such as stakeholders' pressure, (internal and external stakeholders), cost saving, firm size, and R&D.

Additionally, several researchers found that environmental policy triggers eco-innovation in the development/innovation stage, while others found that it exerts an effect in the adoption/diffusion stage (Horbach et.al., 2012). These policies can be industry-specific, as a result, policymakers need to be cautious about the areas where sustainable development is necessary. This awareness, and action taken through new policies and support of eco-innovation could lead to positive outcomes in terms of environmental sustainability. Hence, Triguero et.al. (2013) encourage governments to establish new environmental policies to support the stimulation of innovation across industries.

However, Hojnik and Ruzzier (2015) stress integration of environmental policy and industry policy is a superior approach to traditional environmental policies. This regulatory pressure from current and anticipated regulations plays an important role in motivating voluntary environmental innovation, which will be beneficial for the firm. The Regulatory determinant is fundamental for driving eco-innovation. This study will use the variables of this determinant to measure the regulatory push in the case of Scary Seafood and evaluate its applicability.

3.1.4. Market pull

Another significant determinant of eco-innovation is the market pull. This determinant shed light on the importance of the driver of eco-innovation in the development and diffusion stages of eco-innovation (Rehfeld et.al., 2007). Market pull refers to the demand factors that encourage firms to adopt eco-innovation (Zubeltzu-Jaka et.al., 2018). Furthermore, Zubeltzu-Jaka et.al. (2018) state previous economic performance, future turnover, and customer demand are categorized as market pull determinants.

Kammerer (2009) states customer benefits as one of the drivers of eco-innovation, the driving force is influenced by the added value offered to the customers. This argument is

aligned with the findings of Rehfeld et.al. (2007) in which it was confirmed that customer demand contributes to a firm's decision to manufacture environmentally friendly products. Li (2014) argues the demand could be from customers abroad or in the domestic market. Cainelli et.al. (2012) and Horbach, (2008) argue for the crucial role of suppliers as a driver of eco-innovation.

Additionally, Triguero et.al. (2013) state environmentally friendly products can be more costly than non-environmental, although, firms that can sacrifice the high cost in the short term will be able to reach higher long-term business goals. This argument has been supported by Horbach (2008). The correlation between customer benefits, customer demand, and supply is highly valuable for the success of a product as customers can set the requirement of environmentally friendly approaches on the firms during the development, manufacturing process, and delivering products. By doing so a firm will be able to establish trust while creating value for customers by satisfying these demands.

Furthermore, Rennings (2000) argues that eco-innovation is a contributing factor to the improved competitiveness and new market creation for environmentally friendly products and simultaneously making them more desirable. One may argue that firms' expectations in gaining benefits from adopting eco-innovation might be as important as satisfying customers' demand, which could be valid depending on the market and type of firm.

Nevertheless, Triguero et.al. (2013) and Horbach (2008) suggest increasing the success rate of eco-innovation regardless of the type of innovation is achievable through promoting the collaboration of research institutes, agencies, and universities. This argument elaborates on the importance of networking among a variety of stakeholders to gain a comprehensive understanding of where and how innovation is necessary and beneficial. Market pull is a vital driver of eco-innovation, with consumer preferences and economic incentives shaping the development and adoption of environmentally friendly products, this study takes advantage of the variables of this determinant to measure potential market pull in the case of Scary Seafood.

3.2. Innovation Ecosystem

According to Gomez et.al. (2016), an innovation ecosystem is set for the co-creation or the joint creation of value. It is composed of interconnected and interdependent networked actors, which include the focal firm, customers, suppliers, complementary innovators, and other agents as regulators. According to Teece (2007), innovation ecosystems are dynamic and complex networks that foster the creation and growth of innovations. The concept of an innovation ecosystem extends beyond traditional business systems, including a broader portfolio of processes aiming to create and capture value.

There are different types of ecosystems, including innovation ecosystems, business ecosystems, and knowledge ecosystems. There are common features among these ecosystems, such as a multitude of organizations, interconnectedness, interdependency, and co-evolution. Differentiation seems to be necessary to understand the core foundation of each ecosystem (Jing and Xiong-Jian, 2011). Gomez et.al. (2016) distinguish the innovation ecosystem from the business ecosystem and knowledge ecosystem stating that the business ecosystem is mainly focused on value capture. While the innovation ecosystem is highly correlated with value creation, and knowledge ecosystems' aim is to generate knowledge. Gomez et.al. (2016) further state, that value creation includes the development of new products, services and processes which considered beneficial for customers, businesses, partners, and the ecosystem as a whole (Ritala et.al., 2013).

In a view presented by Moore (1993) and Valkokari (2015), an ecosystem is similar to a living organism where businesses are viewed as part of an interconnected network. The development and co-evolution of the networks rely on the exchange of resources, technologies, skills, and knowledge among network actors. Additionally, according to Iansiti and Levien (2004), the health of this mechanism and the fate of each member of the ecosystem are correlated to the overall performance and health of the ecosystem. Furthermore, the shared dependency of the network lays the foundation for a collaborative and holistic approach toward innovation and continuous development.

Innovation ecosystems can be regional, sectoral, or even national. The primary focus of the Scary Seafood project was the Västtra Götaland region, which is also the origin of the

maritime industry in western Sweden. That makes the regional innovation system the most suitable one for this study. A regional innovation ecosystem is built by the institutional infrastructure that supports innovation within a region's production structure. Asheim and Gertler (2005) emphasized the importance of spatial factors, such as location and proximity, in the processes of R&D, innovation, and diffusion. This emphasis on geographic location acknowledges the unique contributions of regional clusters and networks to the innovation ecosystem.

Furthermore, governance within innovation ecosystems can be complex, especially regarding the roles of complementors. Actors/firm's survival is predicated on the benefits derived from being part of the overall business ecosystem (Li, 2009). In such an ecosystem a dominant firm defines the norms, structure, and coordination of the network with the purpose of developing the architecture of the ecosystem (Nambisan and Sawhney, 2011).

3.3. Collaborative Platform

In business, the concept of a platform is defined as a dynamic configuration of tangible and intangible resources that lay the foundations for a system to create value and enable its co-creation (Parolini, 1999). Furthermore, Perks et.al. (2017) further develop this notion by describing a platform as a base upon which network members engage in specific practices to co-create value.

Aligned with Nambisan (2009) one can argue that the collective approach of the Scary Seafood project could be explained only by considering the project as a platform for collaboration where each stakeholder acts as a piece of a puzzle. Furthermore, Nambisan (2009) describes the collaboration process as the stakeholders' creation of a shared definition of the problem/challenge in the first step leading to collaboration to find a solution. Tiwana (2013) considers a platform as one of the main components of an ecosystem, which acts as an enabler of value creation within the ecosystem (Perks et.al., 2017). According to Perks et.al. (2017), value creation is achieved through a network of activities done in the platform, including joint R&D centers, forums, and competitions (Su et.al., 2017)

Lusch and Nambisan (2015), and Nambisan and Sawhney (2011) argue that platforms extend beyond technical architecture; rather, they are architectures of participation, which are characterized by norms, rules, and activities that facilitate coordination and alignment of actions among network members. These activities are critical as they maintain, transform, and adapt resources, fostering connections between different network actors through intentionally created clusters (Perks et.al., 2017).

Cusumano and Gawer (2002) refer to leading firms in the platform for collaboration as platform leaders that shape their environments and their inter-organizational networks and lead the change in enhancing the platform's value. These leaders define the core of innovation and invite network members to design and develop components that finalize this core innovation. As a result, Perks et.al. (201017) argue that collaborative platforms lead to the generation of novel and unique offerings, innovative product and service combinations, and new processes, greatly contributing to the dissemination of knowledge within the network. Collaborative platforms are crucial to innovation ecosystems, a detailed definition of a platform will contribute to answering the research questions of this study and the comparability of it with the Scary Seafood project.

3.4 Conceptual Framework

In this study, it is argue that the Scary Seafood project was a platform for collaboration. As a platform, the project gathered stakeholders from the private and public sectors aimed at sustainable development of the Västra Götaland region and contributing to the socio-economical state of the region. An organized set of networks brought these stakeholders from the food industry, universities, and research institutions to collaborate and create value by exchanging expertise and knowledge. Furthermore, it is believed that the outcomes of the project can be considered eco-innovation. This is due to the similar characteristics of eco-innovation and outcomes of Scary Seafood as a platform for collaboration. Such similarities become visible by giving consideration to the life cycle, resource utilization, and environmentally friendly dimensions of both. For instance, Scary Seafood emphasizes sustainable utilization of marine resources which is aligned with eco-innovation's objective of reducing environmental impact and enhancing resource efficiency.

Additionally, a decision to set the scope on exploring the regulatory push and market pull dimensions of eco-innovation and purposely excluding the technological aspect of eco-innovation. This is due to the attribute of the project, taking into account that the project did not explore the technological realm of seafood. Therefore, there is no direct correlation to the technological dimension of eco-innovation although this determinants' importance is acknowledged.

Finally, by combining these phenomena the goal is to gain a comprehensive understanding of the potential contributions of the Scary Seafood platform to the innovation ecosystem of Västra Götaland, assuming the outcomes of the Scary Seafood platform are eco-innovation. As is visible in the presented conceptual framework the contributions are unknown which makes Figure 3 incomplete. An adjusted conceptual framework will be presented at the end of this research study.

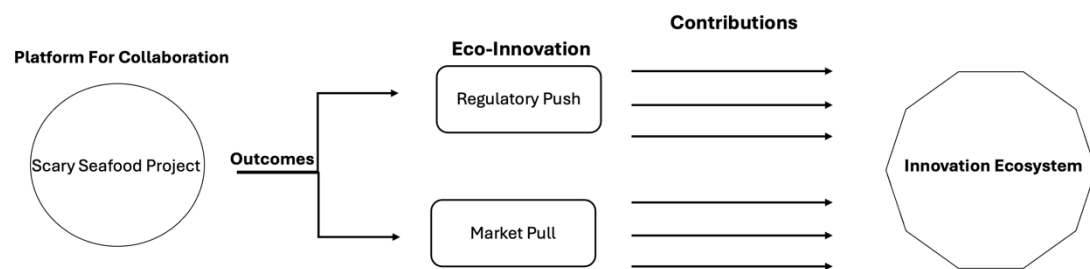


Figure 3 – Thesis conceptual Framework

4. Method

This chapter outlines the methodology used for the Scary Seafood study. Detailing the research strategy, design, and data collection methods. It explains how qualitative and quantitative data were integrated to provide a comprehensive understanding of the Scary Seafood project's impacts.

4.1. Research Strategy

This study employs a mixed-methods approach to explore both research questions and understand how this project can be considered a platform and its contributions to the innovation ecosystem in Västra Götaland. The integration of qualitative and quantitative methodologies is chosen due to its advantages in addressing complex and dynamic phenomena such as those addressed in the study literature review and thesis conceptual framework (Figure 3) (Bryman et.al., 2019).

The qualitative research component was conducted through secondary data and semi-structured interviews with key stakeholders involved directly or indirectly in the Scary Seafood project. The secondary data set the groundwork for the researchers to understand and structure the interview guide for in-depth insights into the participants' subjective experiences, contributions, and perceptions, which was crucial for understanding their overview of the project. These interviews were important to understand the complexities of each stakeholder. On top of that, a careful review and analysis of all the secondary data related to the project was done, helping to compare relevant information over time (Bryman et.al., 2019).

Complementing the qualitative insights, the quantitative component of this research involves a structured questionnaire distributed to the University of Gothenburg e-mail directory. Following the best practices as described by Bryman et.al. (2019) the variables are quantified to evaluate the market pull contribution to the innovation ecosystem.

Further, a mixed-methods framework (Figure 4) is built to bridge the theoretical concepts. The methodological integration aligns with the thesis conceptual framework (Figure 3) as the study aims to discover in what ways this project can be considered a platform and if

there are contributions to the innovation ecosystem in Västra Götaland. The strategic choice to use mixed-methods is rooted in the ontological aspect acknowledging the multiple realities within the platforms for eco-innovation and the innovation ecosystem in Västra Götaland and epistemological by bridging the insights both qualitative and quantitative, from stakeholder engagement and its influences on the project.

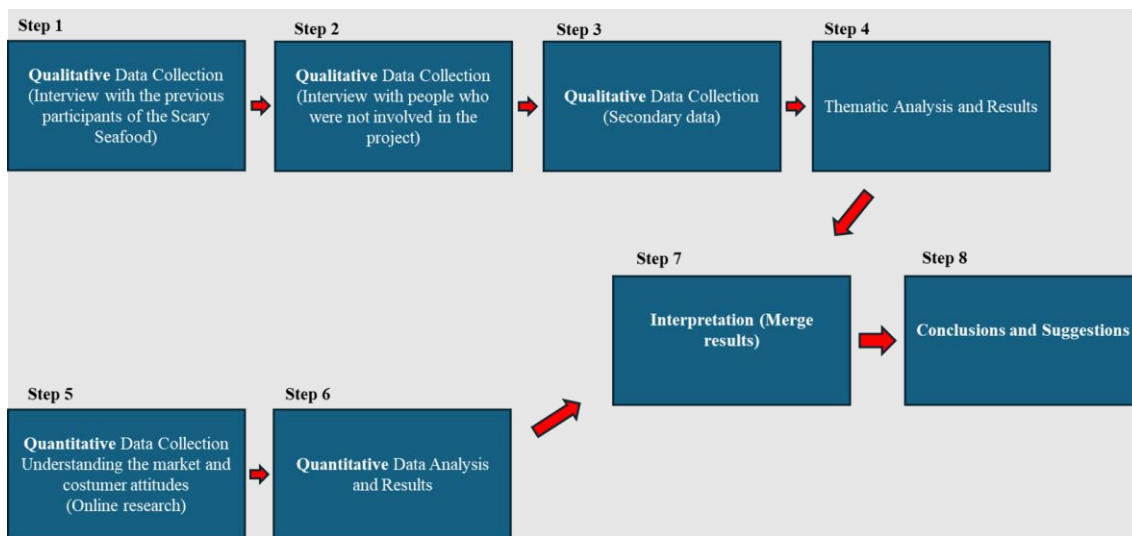
4.2. Research Design

In line with Bryman et.al. (2019), the research design serves as the structured approach that guides the data collection and analysis phases of this study. The Scary Seafood project, identified in the problem formulation as a collaborative platform for eco-innovation, necessitates an embedded mixed-methods framework (Creswell and Clark, 2017). This design approach positions qualitative data as the primary driver for providing in-depth insights into the individual experiences within the Scary Seafood project. To complement these insights, quantitative data is also collected, thereby achieving a holistic view that aligns with the suggested conceptual framework (Figure 3).

The research process, as illustrated in Figure 4, begins with qualitative data collection through interviews with stakeholders, ensuring a comprehensive perspective on eco-innovation within the Västra Götaland innovation ecosystem. This initial stage of data gathering is expanded through secondary data analysis, providing contextual depth to the personal experiences and narratives uncovered during the interviews. Subsequent to data collection, thematic analysis is performed on the qualitative data, according to Bryman et.al. (2019), to identify key patterns and themes.

The rich qualitative insights are further supported by quantitative data gathered from an online survey that captures consumer attitudes and behaviors toward eco-friendly seafood products. The aim of the survey is to recognize the understanding and importance of customer attitudes, contributing to an even more valuable data source to the study focusing on the market pull aspects of the thesis conceptual framework (Figure 3). This multi-layered approach, delineated in the mixed-method framework (Figure 4), allows for a refined understanding of the phenomena. (Bryman et.al., 2019).

These results are then integrated. The mixed-method framework (Figure 4) indicates this convergence in the interpretation phase. The final stage in the research process is the synthesis of all findings into informed conclusions and actionable suggestions. This phase, as represented in the mixed-method framework (Figure 4), is critical in bringing together the insights gained from both strands of the research, enabling a comprehensive interpretation that reflects the embedded mixed-methods design's capacity to provide a holistic understanding of the project. (Creswell and Clark, 2017).



(Figure 4 – mixed-methods framework)

4.3. Selection of Interviewees and Sampling

Bryman et.al. (2019), emphasize the importance of deliberate participant selection in qualitative research, advocating for the choice of individuals who can offer meaningful data towards understanding complex social phenomena. On the other hand, in terms of the quantitative component, the research uses an online survey.

4.3.1. Qualitative sample

The qualitative sample for this study is curated through purposive sampling, a non-probability technique championed by Bryman et.al. (2019), for its utility in qualitative research. This technique is advantageous for the Scary Seafood project as it strategically targets participants and data sources that enrich insights into the eco-innovation processes within the Västra Götaland innovation ecosystem. The selection was intended to capture detailed information about regulatory push and market pull forces related to the Scary Seafood project.

Within the context of Scary Seafood, purposive sampling is designed to encompass stakeholders from the project's initiatives. The participants range from policymakers fostering regulations that promote eco-innovation, to research institutes and industry experts who interpret and act upon different signals such as academic and market trends.

4.3.2. Quantitative sample

According to Wright (2005), online surveys have several benefits such as cost-effectiveness and the ability to reach the target audience efficiently. The quantitative sampling strategy begins with the university email directory. Ideally, this demographic is expected to possess critical insights about topics related to sustainable consumption. Additionally, students represent a broad spectrum of economic backgrounds and consumption habits, making them ideal targets for studying changes in consumption patterns. Moreover, as future decision-makers who can shape the market, these participants are usually the ones who adopt new ideas and technologies. Even though this strategy can lead to some bias, it was deliberated to involve this audience.

4.4. Data Collection

4.4.1. Primary Data Collection

Primary data for this study were collected using a combination of in-depth interviews and an online survey. Altogether, the collection was conducted from March to April 2024. Nine semi-structured interviews, as illustrated in the interview chart, with a maximum

duration of 50 minutes were administered primarily via Zoom, a flexible and inclusive tool that facilitated the interaction for gathering qualitative data (Deakin and Wakefield, 2014). Meanwhile, the 63 survey respondents provided a diverse quantitative perspective via Microsoft Forms, that allowed the researchers to collect valuable data from the targeted sample (**appendix 2**).

Table 1 – Interview Chart

Interviewee	Company	Date	Duration	Place
Participant 1	University	08/03/2024	50 min	Zoom
Participant 2	University	15/03/2024	43 min	Zoom
Participant 3	University	21/03/2024	47 min	Zoom
Participant 4	Research Institute	26/03/2024	30 min	Zoom
Participant 5	University	03/04/2024	45 min	Zoom
Participant 6	Research Institute	05/04/2024	42 min	Teams
Participant 7	Industry	05/04/2024	29 min	Zoom
Participant 8	Industry	09/04/2024	38 min	In Person
Participant 9	Industry	11/04/2024	30 min	Zoom

While both the qualitative and quantitative survey data offer enough foundation for a nuanced analysis, it is important to acknowledge that the inherent limitations of purposive sampling as the selected participant profiles might not capture the full perspectives of the project since the Scary Seafood was first elaborated (Bryman et.al., 2019). Additionally, as pointed out by Deakin and Wakefield (2014) the lack of rapport and other important analysis factors can be overlooked in the online environment. Nevertheless, the careful methods and broad range of views collected show the study's thoroughness.

4.4.1.1. Interviews

Bryman et.al. (2019) recommend semi-structured interviews due to their flexibility and fluid conversations while maintaining the research objectives. The open-ended nature of semi-structured interviews encourage participants to provide well elaborated answers

which corroborate to data quality. On the other hand, semi-structure interviews present challenges such as time-intensive planning, execution and data analysis.

The researchers are expected to keep consistency and reliability across the interviews since any variation can affect the data comparability. What is more, qualitative analysis also carries an inherent subjectivity in interpreting responses, a factor that must be managed to preserve the study's objectivity (Bryman et.al., 2019). The alignment of interview questions with the theoretical framework of the Scary Seafood project ensures that these discussions are rooted in the context of the study.

4.4.1.2. Interview Setting

In keeping with best practices in qualitative research, this study predominantly utilized secure video conferencing platforms for conducting interviews, which has benefits and drawbacks (Deakin and Wakefield, 2014). Moreover, this digital approach not only adhered to the requirements of a post-pandemic research landscape but also ensured the comfort, flexible geographical reach, flexible scheduling and confidentiality of all participants. Limited access to the body language and in-person interaction are some of the drawbacks of such an approach. An exception was one in-person interview with a participant at a restaurant, which afforded a unique opportunity for direct observation and a deeper contextual understanding of the setting. In general, this methodological choice proved to be effective in capturing data.

4.4.1.3. Interview Guide

In line with Bryman et.al. (2019), the interview guide (**appendix 1**), was designed to foster open dialogue, enabling participants to share their experiences, perceptions, and attitudes. The semi-structured provides flexibility to adapt to the conversation flow and allows the researchers and participants to deep dive into any relevant emerging topic. Despite this adaptability, the guide maintained a set of standardized questions to ensure consistency across all interviews.

4.4.2. Survey

The online survey (**appendix 2**) was comprised almost entirely of closed-ended questions. The questionnaire tool used was Microsoft Forms and the structured questioning facilitated statistical analysis, providing solid metrics (numerical and non-numerical) (Wright, 2005). Following Bryman et.al. (2019), the survey design ensured that the sample perceptions were quantifiable to align with the research-suggested theoretical framework. Overall, the survey navigates into the economic and psychological aspects of consumer behavior, exploring factors related to preferences for eco-friendly products, willingness to pay, and influences on purchasing decisions. This aspect of the survey approaches the Scary Seafood project's possible influence on market dynamics and aims to align with the theoretical understanding that consumer behavior is indicative of the success and practicality of eco-innovative measures.

4.4.3. Secondary data collection

Bryman et.al. (2019) explains secondary data as an enriching source for the primary data findings. Besides the review of academic literature, the study digs deep into all open source related to the Scary Seafood Project which supported the identification of research gaps and helped on the triangulation adding a layer of validation to the conclusions. Thus, addressing the research question and demonstrating the project's contributions.

4.4.4. Integrating primary and secondary data

In accordance with Bryman et.al. (2019), after analyzing secondary data, the researchers identified and established the theory and context foundation. This involved examining existing literature related to the scary seafood project and a plethora of related academical papers associated with the theoretical framework. Familiarity with secondary data allowed the study to set stage for the primary data collection.

As illustrated in the previous sections, primary data collection consisted of interviews and surveys with different stakeholders. The questions for interviews and surveys were designed based on secondary data, ensuring that they are both relevant and structured to fill the identified research gaps. Moreover, as per the Mixed-method framework (Figure

4), the integration happened by using triangulation, where findings from both data sets are compared, contrasted, and combined to draw comprehensive conclusions about the contributions of the Scary Seafood project to the innovation ecosystem in Västra Götaland.

4.5. Data Analysis

4.5.1. Thematic Analysis

To avoid and eliminate problems with the interviews and data analysis, all the recordings were transcribed with Microsoft Word and reviewed by the researchers. This strategy allowed familiarizing with the transcriptions for the first thematic labeling, coding and finally creating the themes.

The process of thematic analysis allowed the study to dive into the phenomena of eco-innovation, offering the flexibility and sensitivity necessary to approach the findings. It provided a structured way to address the research objectives by identifying, analyzing, and reporting patterns (themes) within the data. This thematic approach enlightened the understanding of the Scary Seafood project as suggested by Bryman et.al. (2019).

4.5.2. Descriptive Statistics

Descriptive Statistics are important for summarizing large volumes of data into comprehensible metrics, such as frequencies, percentages, means, and standard deviations, which help to draw the general tendencies and patterns within the collected data (Bryman et.al., 2019). In the context of the Scary Seafood project, descriptive statistics help to explain the market pull factors.

4.6. Research Quality

The quality of this research was maintained through established criteria specific to both qualitative and quantitative paradigms, as well as those related to mixed-methods research. Drawing upon Bryman et.al. (2019), this study confirms standards of credibility, transferability, dependability, and confirmability for its qualitative components, and

emphasizes validity and reliability for its quantitative facets, ensuring comprehensive research integrity.

4.6.1 Qualitative Research Quality

4.6.1.1 Credibility

Following Bryman et.al. (2019), credibility refers to the confidence in the truth of the findings. In this study it was achieved through a comprehensive strategy of prolonged engagement and persistent observation over five months within the Scary Seafood project environment. Researchers dedicated significant time to conducting multiple interviews, analyzing project documentation, and tracking continuous online documents. This deep immersion allowed for a bigger understanding of the phenomena and facilitated robust data collection. The method of reviewing data from various sources—interviews, documents, and real-time updates—strengthened the reliability of the findings. Peer debriefing sessions with senior professors and other researchers provided critical feedback and prompted deeper reflection, enhancing the analytic rigor. Throughout the study, special attention was given to detailing each theory, phenomenon, and findings, which ensured a thorough presentation and interpretation of data. Such efforts were made to mitigate researcher biases, enhancing the study's objectivity. The use of direct quotations and access to research materials available for scrutiny allowed for transparency, further validating the credibility of the research outcomes.

Techniques such as member checking were implemented, where participants were invited to review and validate the interpretations and conclusions drawn by the researchers. This iterative process of feedback ensured that the findings were congruent with the participants' experiences (Bryman et.al., 2019).

4.6.1.2 Transferability

Transferability is the degree to which the results of qualitative research can be generalized or transferred to other contexts or settings (Bryman et.al., 2019). To enhance the transferability of the Scary Seafood thesis project findings, detailed documentation of the research context is provided, including comprehensive descriptions of all the documents

used in the project. The sampling selection is detailed and can be accessed as per request. Additionally, rich and thick descriptions are incorporated into the narrative, which is an enabler for other researchers to gauge the extent to which the results might apply to similar contexts.

4.6.1.3 Dependability

Dependability refers to the stability of data over time and under different conditions. In the project, it was achieved by documenting each phase of the research process associated with the Scary Seafood project. The researchers also employed overlapping data collection methods, such as interviews, and analysis of project documents, to ensure consistency and reliability in the data. As the project is properly outlined, future researchers can also replicate the study, thereby reinforcing the dependability of the research findings (Bryman et.al., 2019).

4.6.1.4 Confirmability

Confirmability is the degree to which the results can be confirmed or corroborated by others (Bryman et.al., 2019). Both researchers engaged in reflections, discussions, and acknowledgment of personal biases throughout the study. This is critical to maintain objectivity and mitigate any possible bias influence over the findings. During the triangulation, the reflection among the researchers allowed a cross-view of interpretations. Furthermore, the results were presented to a panel of independent experts and peers for critical review, further ensuring that the conclusions were firmly grounded in the data collected. Lastly, the interview material is attached to the **appendix** and any other material can be accessed upon request.

4.6.2 Quantitative Research Quality

4.6.2.1 Validity

Validity is the extent to which a concept, conclusion or measurement is well-founded and corresponds accurately to really measure the concept. To enhance the content validity of the survey, each question was developed based on the objectives outlined in relation only

to the market pull aspects of the literature review. The research questionnaire was reviewed and discussed within an academic scope. Furthermore, discussions in the preliminary phase led to refinements in layout adjustments and the clarification of ambiguous terms. These modifications ensured that each survey item measured the intended variable and contributed to the overall validity of the findings (Bryman et.al., 2019)

4.6.2.2 Reliability

In line with the established definitions by Bryman et.al. (2019), reliability refers to the consistency of a measure. The survey was online, which allowed uniform questionnaire presentation and eliminated interviewer bias. This method also facilitated the use of established measurement scales. Additionally, the survey included simple to answer questions, and participants could contact the researchers for support if they encountered any issues.

4.6.3 Mixed-Methods Research Quality

Triangulation enhanced the overall validity of the study. The framework based on Creswell and Clark (2017) underscore how data is mixed in order to produce robust and aligned conclusions. This study carefully mixed both qualitative themes and quantitative findings to provide a comprehensive understanding of the phenomena.

4.7. Ethical considerations

Consistent with the ethical principles by Bryman et.al. (2019), which highlights the importance of maintaining high ethical standards in social research. For instance, all the participants were provided with detailed information about the study, their role, and how the data would be used. Additionally, all participants joined the study voluntarily and were anonymized to prevent any possibility of identification as well as, and the research design was curated to minimize risks of participant distress or harm.

All data is safely stored and safe into the University cloud system. Moreover, the research process was documented in detail, ensuring transparency and accountability. This

documentation included the methods of data collection, analysis techniques, and decision-making processes, allowing for external audit and review upon request.

5. Empirical Findings

The empirical findings section analyzes the data collected from the Scary Seafood project, examining its impact through a thematic and descriptive statistics analysis. By dissecting the interviews and survey results, this section offers detailed insights into the effectiveness of the projects and how they have been perceived by various stakeholders.

5.1. Thematic Analysis

The thematic analysis started with familiarization with all the transcripts by reviewing the data and verifying the Microsoft Word transcript results. This process facilitated code generation as a result pattern identification. For instance, codes like economic impact, funding, support, economic viability, and commercial viability led to different categorizations inside theme 1 (Implementation and Scalability). The full table with the themes and categories is provided below with detailed explanations along the analysis. Another comprehensive table regarding the theme creation is available upon request.

Table 2 - Results of the Thematic Analysis

Themes	Categories
1) Implementation and Scalability	(1) Economic Impact and Viability (2) Funding and Financial Strategy (3) Supply Chain and Logistics (4) Project Potential and Strategy
2) Educational and Awareness Efforts	(5) Educational and Engagement Initiatives (6) Consumer Interaction and Awareness

3) Innovation and Product Development	(7) Innovation in Product and Process
4) Market Acceptance and Consumer Behavior	(8) Nutritional and Cultural Influence (9) Market Dynamics and Consumer Insights (10) Local Product Utilization and Tourism (11) Project Outcomes and Long-term Strategy (12) Project Identity and Public Perception
5) Regulatory Challenges and Policy Development	(13) Regulatory Challenges
6) Stakeholder Collaboration and Community Engagement	(14) Collaborative Strategies
7) Sustainability and Environmental Impact	(15) Environmental Impact and Benefits (16) Environmental Strategy and Future Direction

5.1.1. Theme 1. Implementation and Scalability

This theme explores the project's economic impact and viability, funding strategies, supply chain challenges, and overall potential. The results highlight that the Scary Seafood platform has potential economic benefits through commercialization and tourism. However, supply chain issues and logistical challenges hinder scalability.

Category 1. Economic Impact and Viability

The economic impact of the project is challenging to quantify, but interviews suggest that Scary Seafood could have positive economic viability in the Västra Götaland region by commercializing local seafood species. There is also potential for using knowledge, tourism, and culinary adventures to add economic value.

"So any kind of business that sort of includes knowledge and tourism, more adventures and... Cooking those sort of three items together, I think is really... Could be very much more explored, exploited in Västra Götland." - Participant 3

The viability of the project has been confirmed during all interviews. Most of the respondents mentioned spontaneously the positive economic impacts of the project in case of commercialization. Thus, economic impact and viability show that by capitalizing on underutilized species and sustainable practices, the platform can contribute to the region's economic resilience while reducing environmental impacts.

Category 2. Funding and Financial Strategy

The funding structure illustrates a top-down approach by policymakers, allowing the project to access EU funds. This financing enabled different phases, confirming the assumptions of the study.

"... It's EU money locally sort of managed EU money... So we applied and uh, we got fund funding we work together with this." - Participant 3

"We had funding for two different periods from different funds and in the first phase we just identified some species that were interesting and in the other phase, we had these workshops." - Participant 2

The funds covered two phases of the project indicating the strategy to use the funds efficiently, according to the majority of the interviews. Therefore, the funding secured for Scary Seafood the needed support for its potential as an eco-innovation platform, enabling sustainable practices through workshops and research.

Category 3. Supply Chain and Logistics

The supply chain is crucial to delivering raw materials efficiently, but the lack of a structured supply chain challenges access to local markets. The logistics problems also hinder the ability of stakeholders. Overall, the results indicate supply chain and logistic aspects as key to the success.

"For example sea urchins where everyone just wants to order it tomorrow... it's also very difficult to get sea urchins in good quality... So we could see very quickly that the demand, for example, sea urchins is huge and we don't have any local market..." - Participant 8

"Raw materials because sometimes the supply chains are not really in place". - Participant 4

"The main problem is logistics, as the fishermen find it too much work to deliver to the restaurants..." - Participant 9

The majority of the respondents pointed out the logistic aspect of a functioning supply chain while acknowledging the lack of such a chain at the moment. Improving supply chains for locally sourced seafood will enhance Scary Seafood's ability to drive eco-innovation. Developing logistics and supply solutions is vital for scaling sustainable seafood practices.

Category 4. Project Potential and Strategy

Interviews reveal the potential for Scary Seafood to promote seafood tourism, culinary experiences, and aquaculture. COVID-19 impacted the project's full potential by limiting workshop participation. As discussed previously Scary Seafood had a lot of potential in displaying the importance of seafood from different aspects.

"There is a huge potential for tourism innovation like how to use new seafood stuff either by taking tourists out to collect and to cook and like adventures or... small scale harvesting of species that could be used like for in exclusive restaurants..." - Participant 8

"I think the product was really, really good, but it (Scary Seafood Project) was too big for this short time of working." - Participant 1

" We have to use aquaculture. And that is what the researchers say is... The way to go to feed the growing population of the in the world." - Participant 2

The majority of interviews acknowledge the potential and value proposition of Scary Seafood. This also shows seafood will play an important role in the food industry in the future, as well as the potential to add economic value to the Västra Götaland region in case of commercialization.

"It was during the pandemic, so sometimes it was really, really hard and all the parts weren't that much." - Participant 1

Scary Seafood demonstrated potential as an eco-innovation platform by encouraging aquaculture, sustainable fishing, and seafood tourism. Despite the challenges posed by the pandemic, respondents acknowledge the project's role in adding value to the region.

5.1.2. Theme 2. Educational and Awareness Efforts

Focusing on educational initiatives and stakeholder engagement, this theme explores workshops and activities designed to enhance awareness of sustainable seafood practices.

Category 5. Educational and Engagement Initiatives

Workshops involving customers, restaurants, and supply chain stakeholders were key educational initiatives, emphasizing ocean literacy and sustainable consumption trends.

"My task was to arrange different workshops with different stakeholders, so it was like restaurants and there were logistics." - Participant 1

"First of all, ocean literacy I think is really, really important to understand how the ocean works." - Participant 1

Educating the stakeholders during the interaction among stakeholders has taken place. The participants explained these interactions as a way of creating awareness, and the importance of utilization of new sources of nutrition coming from the sea.

Category 6. Consumer Interaction and Awareness

Participants in Scary Seafood's workshops were attentive to seafood consumption habits and environmental impacts. Media involvement also enhanced consumer awareness, though knowledge gaps remain about the environmental benefits of different seafood species.

"And consumers and they said, for instance, that if I go to the to buy fish, then I want to know if it's good for the environment or not and not always is possible to... To know..." - Participant 2

"I think we added because lots of media, I think we got the eyes on us and we they thought it was a really interesting project and they get a little bit more aware of these kinds of questions." - Participant 1

The results also indicate that achieving awareness regarding the environmental impact of the products is not always easy given the lack of knowledge in some areas. However, thanks to the media and their participation, the interviewers believe they managed to spread more awareness concerning the environmental aspect of foods.

5.1.3. Theme 3. Innovation and Product Development

This theme explores the collaboration between stakeholders to create innovative seafood dishes that are sustainable and commercially viable.

Category 7. Innovation in Product and Process

Scary Seafood leveraged innovation to fully utilize species, particularly previously unused or underutilized seafood species, leading to new food or culinary products.

Additionally, the major role of innovation and innovative approaches to develop and utilize the “whole” of species was admitted. An innovative way of developing new food with “new” raw material that has not been used before by the chefs. As well as the need for innovation to exploit the parts of the species which were not served or utilized earlier.

"The thought from my side was to invite very innovative creative chefs from this area. Who I know have a deep knowledge in efficiency..." - Participant 8

"...Today we take care of that to make it much more profitable with the with the part of the fish or the the seafood, or that you you don't use..." - Participant 7

"that requires then innovation, innovation in separation techniques, innovation in nutrient capture and so on." - Participant 5

The waste reduction exemplifies the project’s innovative practices towards eco-innovation, maximizing the value of available seafood biomass, and encouraging new, sustainable product development.

5.1.4. Theme 4. Market Acceptance and Consumer Behavior

This theme addresses how Scary Seafood has influenced market dynamics and consumer preferences within the seafood industry. The insights from this theme are crucial for understanding the barriers and opportunities in changing consumer behavior.

Category 8. Nutritional and Cultural Influence

Interviews reveal that the Swedish seafood culture strongly influences the perception of what constitutes acceptable food. Traditional preferences focus on familiar items like fillets and shrimp, while changing consumer attitudes toward alternative sources remains challenging.

"Food culture is one of our hardest culture that we have. So it's really hard to change the customers attitudes and choice because they are when it comes to food, it's harder to do that when it comes to food than when it comes to fashion or anything else." - Participant 5

"It is tricky to steer the consumer towards healthier and more sustainable products when you have a lot of habits built on already about what you kind of buy in the store and you have a very short amount of time to make people purchase your product." - Participant 6

Cultural barriers can hinder eco-innovation by limiting the adoption of new seafood products. Scary Seafood's educational efforts aim to reshape these attitudes to embrace new and sustainable species.

Category 9. Market Dynamics and Consumer Insights

Effective market strategies are crucial for commercializing new seafood products, the correlation between different parts of a functioning market was discussed during the interviews admitting the importance of customer knowledge and demand while commercializing certain products.

"It is a bit hard to do your homework. Let's say in that sense. So really research the market, research the consumer. It takes time and money, obviously, so it's not always the case that companies do this. And that's quite important because otherwise you're wasting a lot of money." - Participant 6

At the same time, an explorative approach toward reduction of the supply chain was brought up where fish could potentially arrive at subsidiaries faster.

What we wanted was some other way to get the... These species directly to the restaurants from the fishermen without going... Round to the market, to the fish market and then out to the restaurant." - Participant 2

Scary Seafood fostered eco-innovation by exploring new supply chains and leveraging partnerships to develop products that meet market demand.

Category 10. Local Product Utilization and Tourism

Supporting local products and tourism has been emphasized to stimulate economic growth in Västra Götaland. Past efforts have laid the foundation for connecting seafood production to culinary tourism, even though profitability was not guaranteed.

"We work a lot with the seafood experience in Sweden... developing projects for businesses out on the West Coast, how they can use tourism as extra income." - Participant 9

The integration of local seafood with tourism and economic development can demonstrate eco-innovation by tapping into the cultural and environmental uniqueness of the region, creating new opportunities while preserving local ecosystems.

Category 11. Project Outcomes and Long-term Strategy

While the Scary Seafood project's immediate outcomes did not meet expectations, further investment could enhance its long-term potential. Developing partnerships and extending project timelines are critical for achieving its ambitious goals. Moreover, it was also admitted that such a project with such a vision requires further investment to reach its full potential which was described to be out of the scope of Scary Seafood project.

"...But I think this was a little bit too high goals..." - Participant 1

"I think it's really important we need to see other kind of products from the sea and not the only the traditional ones... - Participant 9

The project provided a foundation for long-term eco-innovation by advocating for diverse and sustainable seafood products while involving and emphasizing partners to continuously promote experimentation.

Category 12. Project Identity and Public Perception

The name of the Scary Seafood project was described as controversial by scholars questioning its name although the stimulating economic growth idea of the project was embedded in it since its start.

"There were these scholars who thought that we shouldn't use 'scary' as a name because it was more of the... They wanted to, to people, to eat more sustainable seafood without scaring them away and saying that this food is scary." - Participant 2

Despite arguable challenges around its name, Scary Seafood had positive outcomes regarding the project name. It called for more attention to addressing misconceptions regarding seafood sources.

5.1.5. Theme 5. Regulatory Challenges and Policy Development

Regulatory frameworks play a critical role in the sustainability of seafood practices. This theme analyzes the regulatory challenges faced by the Scary Seafood project and the implications for policy development.

Category 13. Regulatory Challenges

Regulation and laws play a vital role in farming and catching different species according to all interviews. Admitting the strict regulations in this area hinders the utilization of some species.

"If the demand for a new species for example will start to increase, then the project like this have already sort of set presented that if this happens then it needs to be also followed by changes in regulations and monitoring." - Participant 5

The absence of policies in some areas and the need for new regulations are potential areas that point out opportunities and existing challenges, in the regulatory aspect of Scary Seafood.

"I think the push has to come from the businesses side that they want to do some kind of... Development..." - Participant 3

"It's very old. It's not adjusted to these new things, so we have like a very old fishing law that is for oysters, among other things... but you're not allowed to farm oysters, or you're not allowed to pick oysters..." - Participant 8

There is a belief that the businesses in the area should be the ones pushing the old policies toward change. Overcoming these challenges requires policy reform, particularly in adapting old fishing laws to new, sustainable practices.

5.1.6. Theme 6. Stakeholder Collaboration and Community Engagement

This theme explores the dynamics of collaboration among various stakeholders. Highlighting how these interactions contribute to the project's goals. It emphasizes the importance of community engagement in driving the project's innovation and sustainability objectives.

Category 14. Collaborative Strategies

The absence of clear policies and the need for new regulations are cited as obstacles. The fishing industry must advocate for regulatory changes, ensuring new species are adequately monitored and managed while promoting responsible business practices. Collaborating with a variety of stakeholders from different fields has been much appreciated, where the chefs were described as innovators and the dishes were innovations.

"I think it's, it's the key success factor. I mean working together with different stakeholders... That's the whole idea of this project that we should innovate together." - Participant 3

"This interaction between both between the different chefs and with the academia was so good and also they said afterwards that this these chefs that... And they don't come together in the way they did there very often that was not something they do regularly, so it needs to be some kind of project to make this happen." - Participant 2

As a result of the interviews, businesses need to push for policy changes that balance sustainable species management with economic incentives.

5.1.7. Theme 7. Sustainability and Environmental Impact

This theme discusses the environmental strategies and future directions of the project, considering the challenges and successes in achieving its eco-innovation goals.

Category 15. Environmental Impact and Benefits

During the interviews environmental aspects of the project were mentioned, explaining the impact Scary Seafood would have from a holistic point of view. Taking into account the positive role of these species for the sea as well as the nutritional value of each.

"We promote a lot of sustainable blue food from the sea... Products like Seaweed, algae, and sea cucumbers are sustainable. They are really good for the sea like seaweed and mussels filter water and make the water better." - Participant 9

Scary Seafood aligns with eco-innovation by promoting species diversification and utilizing sustainable organisms. This ensures better resource management and maximizes environmental benefits through ecosystem-friendly species.

Category 16. Environmental Strategy and Future Direction

An environmentally friendly approach has been one of the foundations of the project from the beginning, according to the interviews.

"The environmental concerns a lot. Because that was the main point from the start. It's just that we had this name attached to it to make it more interesting... the thing was sustainability from the start." - Participant 2

"It's tricky to steer the consumer towards healthier and more sustainable products when you have a lot of habits built on already about what you kind of buy in the store and you have a very short amount of time to make people purchase your product." - Participant 6

Scary Seafood served as a platform for eco-innovation by emphasizing sustainable practices and strategies. Despite difficulties changing consumer habits, the project remains focused on developing future solutions that align with its environmental goals.

5.2. Descriptive Statistics

This analysis is rooted from an online questionnaire which was designed to evaluate consumer behaviors and attitudes toward eco-friendly seafood products, the questionnaire and all the tables are attached on the **appendix 3**. The results presented below are derived using two distinct analytical approaches suited to the data types collected. For categorical (non-numerical) data, a discussion of the frequency of responses within each category is done. For scaled (numerical) responses, a descriptive statistic is provided, including mean, median, variance, and standard deviation. Each section will have first a table followed by a narrative explaining the empirical findings.

5.2.1 Demographics

The survey was completed by 63 respondents, showing a female predominance with 39 female respondents (62%), followed by 22 males (35%), and a small percentage (3%) who preferred not to disclose their gender. This female-majority response might influence the results towards perceptions typically associated with female consumer behavior.

Responses were predominantly from Gothenburg and other parts of Sweden. However, the questionnaire also captured a varied international perspective with contributions from participants with background in Italy, Poland, France, and Japan.

Most respondents fall into younger age groups, with 35 individuals aged between 25-39 and 24 respondents aged 18-24, collectively accounting for 93% of the total responses. This indicates a significant interest and concern about eco-friendly products among

younger demographics as well as its relation to the University of Gothenburg e-mail directory.

5.2.2 Preferred Information Sources

Table 3 – Preferred Information Sources

Preferred Information Sources	
Source	Number of Responses
In-store Advertising	30
Word of Mouth	15
Social Media	8
Other (specify)	Various

Regarding information sources, consumers have distinct preferences for learning about eco-friendly products. In-store advertising emerges as the most popular method, with 30 respondents favoring this approach. This is followed by word of mouth, cited by 15 respondents, and social media, preferred by 8 individuals. Other less common sources include online advertisements, documentaries, internet searches, and recommendations from third-party organizations.

5.2.3. Attributes Associated with Eco-Friendly Seafood Products

Table 4 – Attributes Associated with Eco-Friendly Seafood Products

Attributes Associated with Eco-Friendly Seafood Products	
Attribute	Number of Mentions
Sustainable Fishing Practices	39
Organic Certification	8
Low Carbon Footprint	6
Other (e.g., non-GMO, vegan)	Various

Consumers associate various attributes with eco-friendly seafood. Most prominently, 39 respondents identify sustainable fishing practices as a key characteristic. Additionally, 8 respondents view organic certification as crucial, and 6 associate eco-friendly seafood

with having a low carbon footprint. Other attributes, such as non-GMO, combination attributes (e.g., organic and low carbon footprint), specific seafood source areas, and even vegan seafood options, are also mentioned, highlighting the multifaceted nature of what consumers consider eco-friendly

5.2.4. Decision Factors for Eco-Friendly Product Purchases

Table 5 – Decision Factors for Eco-Friendly Product Purchases

Decision Factors for Eco-Friendly Product Purchases	
Factor	Number of Mentions
Price	50
Quality	49
Taste	34
Eco-Friendly Certification	31
Recommendations	14
Packaging	9

Finally, the decision to purchase eco-friendly products is influenced by several factors. Price and quality are nearly equally significant, mentioned by 50 and 49 respondents respectively, indicating their paramount importance in consumer decisions. Taste, mentioned by 34 respondents, along with eco-friendly certification (31 mentions), also play critical roles. Recommendations and packaging, though less frequently cited (14 and 9 mentions respectively), still contribute to consumer choices, emphasizing the variety of considerations that influence eco-friendly purchasing behaviors.

5.2.5 Numerical data

Table 6 – Numerical Variables

Category	Mean	Median	Variance	STD
Importance of Environmental Impact in Seafood Purchase	3.79	4.00	0.94	0.97
Likelihood of Purchasing Eco-Friendly Seafood	3.79	4.00	1.04	1.02
Frequency of Purchasing Eco-Friendly Products	2.75	3.00	0.68	0.82
Likelihood of Trying New Sustainable Seafood	2.03	2.00	1.00	1.00
Willingness to Pay Extra for Eco-Friendly Seafood	2.00	2.00	0.77	0.88

The environmental impact of seafood is a key consideration for consumers, as indicated by a mean importance rating of 3.79 on a 1 to 5 scale, where higher values represent greater importance. This average suggests that most consumers view the environmental impact as falling between "Somewhat important" and "Extremely important," with a tendency towards "Somewhat important." The median score of 4.00 reinforces this view, showing that at least half of the respondents rate this factor as at least "Somewhat important." This demonstrates a generally favorable attitude towards environmental sustainability when choosing seafood. However, the variance and standard deviation of 0.94 and 0.97, respectively, reveal some variability in opinions, indicating diverse degrees of influence that environmental considerations have on individual purchasing decisions.

Similarly, the likelihood of purchasing eco-friendly seafood reflects a positive inclination among consumers, evidenced by a mean score of 3.79 and a median of 4.00. suggesting that most are "Somewhat likely" to prefer eco-labeled options. This aligns with increasing consumer responsibility and a global trend towards sustainability. The slightly higher variance and standard deviation of 1.04 and 1.02, respectively, compared to other environmental impact measures, reveal a broader range of opinions and some uncertainty in this area. This suggests a bit more uncertainty or variability in how likely consumers are to make such purchases. Despite the variability, the overall attitude remains positive,

reflecting a promising market shift towards environmental accountability and indicating strong potential for the promotion of eco-friendly seafood products.

The frequency of purchasing eco-friendly products, including seafood, has a mean rating of 2.75, where the scale is inverted with 1 indicating 'Always' and 4 'Never'. The median response of 3.00 suggests that most respondents occasionally to regularly buy eco-friendly products. The relatively low variance of 0.68 and standard deviation of 0.82 indicate that there is less variation in this behavior among respondents. This pattern highlights a consistent but varied commitment to sustainable purchasing habits, suggesting that while regular purchases are common, there is room for increasing the frequency of choosing eco-friendly options among the general populace.

Furthermore, the likelihood of trying new sustainable seafood products presents a mean score of 2.03 on a scale from 1 ('Very likely') to 5 ('Very unlikely'), with a median of 2.00. These results reflect a strong propensity among respondents to experiment with new sustainable seafood options. The variance and standard deviation both close to 1.00 suggest a uniform response distribution, supporting the idea that most consumers are open to and enthusiastic about integrating more sustainable seafood choices into their diets.

To analyze the willingness to pay extra for eco-friendly seafood products, the results were reflected on a scale from 1 (no additional cost) to 4 (more than 20% extra). The data reveals a mean and median value of 2.00, indicating a general consensus among consumers to pay up to 10% more for environmentally responsible seafood options. The standard deviation of 0.88 and a variance of 0.77 show a moderate range of opinions among respondents, underscoring some diversity in how much more individuals are willing to pay.

6. Analysis & Discussion

This section integrates the empirical findings with theoretical insights drawn from the literature review, offering a comprehensive analysis of the Scary Seafood project. It discusses the success of the project in meeting its stated goals and evaluates its role as a driver of eco-innovation in the region. The analysis highlights key successes and challenges, providing a critical examination of the project's impact on the innovation ecosystem, including its ability to foster collaboration among diverse stakeholders and to promote sustainable practices. The discussion also explores the broader implications of the findings for future policymaking and project implementation in the realm of sustainable development and innovation ecosystems.

6.1. Eco-innovation

Kemp and Pearson (2007) take into consideration the full life cycle of a product, describing the production, assimilation, and exploitation of the product or service as environmentally friendly. Furthermore, Horbach et.al. (2012) elaborate on the environmentally friendly aspect of the product or service as the main objective or the result of the objective of one product or service. The findings of this study show that Scary Seafood outcomes could be considered environmentally safe and sustainable during the life cycle for several reasons. Firstly, the core objective of the initiative was to reach environmental and economic sustainability by reducing the pressure on the current sources of nutrition from the sea as well as creating opportunities for new venture creation in the Västra Götaland.

Secondly, the data indicates the approach taken by Scary Seafood evaluated the possibilities for the utilization of the whole species which leads to the reduction of biomass and increased resource efficiency. Additionally, the introduction of the underutilized species as eatable “raw material” is another way of reaching resource efficiency. Although these species usually are not consumed as food, the need for expansion of consumer’s food portfolio seems necessary. Simultaneously, the data points toward the customer’s enthusiasm to try new Seafood which shows the willingness to change of lifestyle as suggested by Rennings (2000).

Thirdly, Horbach (2008) suggests a collaborative approach among research institutions, universities, and governmental agencies to work together to increase the odds of success. The data illustrates that Scary Seafood has taken a similar approach as stakeholders with diverse backgrounds from restaurants, universities, governmental agencies, and the tourism industry come together to collaborate.

6.2. Regulatory Push

In the equilibrium of stakeholders, the government plays a crucial role. As an important shareholder, the government can use the regulations and policies to hinder or facilitate an initiative and its outcomes. Scary Seafood Platform and its outcome, Eco-innovation, follows the same path. Empirical findings of this study point toward the regulatory push as the main determinant of eco-innovation, following Popp's (2006) perspective. Furthermore, the Scary Seafood platform and its focus on the new food from the Sea touches upon the water regulations and the ecosystems within it. Horbach et.al. (2012) argue for the importance of legislation and policies to reduce water and environmental pollution, which is in alignment with the objective of the Scary Seafood Platform. Reduction of water pollution and increased use of sea resources could be two factors in contrast to each other, however, platform stakeholders and decision-makers showed a high degree of awareness of this issue and were trying to achieve both goals simultaneously.

In some cases, the Regulatory push determinant acts as a catalyzer, in other situations it can cause hindrance. Contributions and support of the Policies and official incentives can be tangible and intangible resources. In the case of the Scary Seafood platform, the incentives supported the objectives while regulations hindered fishing, farming, and cultivation of the "raw material". Horbach et.al. (2012) stress the effect of regulatory pressure during the development/innovation stage, which is aligned with the findings of this study. Additionally, the empirical findings illustrate the absence of regulation and policies in some areas. In this absence of regulation, the government should develop new regulations aligned with the sustainability agenda. Since the cultivation and farming of these species are forbidden, the possibility for mass production and further development is reduced significantly. Horbach (2008) identified existing policies and expected future policies as elements of the regulatory push. In this case, existing policies prevent this

niche market of seafood from developing further due to restricted policies for farming of these species. Environmental aspects, including the sensitive ecosystem of these species, are the reason for the restriction. However, Scary Seafood (2019) has already evaluated the potential environmental danger of these species while assessing each species' potential for farming and commercialization. Regardless of which species could be farmed on a larger scale or not, the findings of this study point toward the need for new legislation to increase resource utilization. To not put the ecosystem of these species in danger, new specific regulations could be an alternative to not put any pressure on the less populated species and keep them safe from farming, while other species are utilized to a sustainable degree. Moreover, The data indicates the importance of customer knowledge and demand for sustainable fishing and sea products. The lack of regulations that set the requirement for transparency in the fishing industry is one of the challenges for customers who value sustainable seafood consumption.

Acting upon the legislation is always a crucial aspect and has its benefits, and in this case, allowed the platform to receive support from the policymakers through funds and fiscal incentives. The empirical findings of this study support this argument. For instance, one of the main resources needed to start the platform was the funds, current policy approves initiatives such as Scary Seafood; therefore EU funds were assigned to cover the expenses of the platform. These findings indicate that the government supports this kind of initiative, considering the potential socioeconomic benefits as a reward. Also, contributing to the region's sustainable development while increasing awareness about the environmentally friendly approach in the seafood industry are additional outcomes of the platforms. Future funds and financial support could take a similar approach toward experimentation and technological development in the infrastructure of the maritime industry since the absence of such an infrastructure is one of the factors hindering market growth.

The regulatory push was able to stimulate the platform and its direction not only through policies but also through the lead firm. Cusumano and Gawer (2002) elaborated on the importance of the lead firm for the governance of the platform in shaping the overall network and core value of the platform. The University of Gothenburg acted as the lead firm, setting the scope of the platform and organizing the structure, acting as the governor,

and making the decisions. The majority of the Scary Seafood platform's stakeholders come from a faculty belonging to Gothenburg University. This University, as a public one, follows the policies of the government, indicating another dimension of the crucial role of policies in the development of eco-innovation. In addition, this dominance from the University and a high degree of correlation to the government as well as the objectives of the platform allowed Scary Seafood to be launched and receive encouragement.

Moreover, Horbach et.al. (2012) identify regulation as an important factor in pushing companies toward sustainable practices, waste reduction, and transparent operation. Jana and Ruzzier (2016) acknowledge the importance of the regulations while admitting other factors could also be crucial. Rennings et.al. (2006) argue that market pull, and technology push alone cannot achieve a transition toward sustainable practices, which is confirmed by the empirical findings. The findings of this study also reveal the absence of policies to push resource efficiency in the Seafood Industry, where the potential to increase resource efficiency is high only by separating the waste. Although the empirical data put the responsibility on businesses to push for new regulations, the authors of this study believe that any key stakeholder in the power of making changes can be held responsible, including customers.

6.3. Market Pull

The market pull determinant includes a variety of components including customer benefits (Kammerer, 2009), customer demand (Zubeltzu-Jaka et.al., 2018), new market creation (Rennings, 1999), and supplier pressure (Cainelli et.al. 2019, Harbach, 2008). These variables are of high value when measuring this determinant and should certainly be a big part of the measurement of market pull. Scary Seafood platform did not aim to create a new market, since the seafood food market in Sweden is already a well-established and mature one. However, it created awareness regarding the potential niches in the seafood market that could be further explored and exploited. The empirical findings of the survey questionnaire and the interviews have revealed the potential opportunities and possible future customers of these market niches.

For instance, the interviews revealed that restaurants and chefs showed high interest in sea urchins in case of availability during the year. As one critical stakeholder who introduces the final product to the end customers, the restaurants require an efficient and functioning supply chain that can ensure such a possibility exists before introducing something new. Besides the regulatory challenges discussed previously, the lack of suppliers and a reliable supply chain hinders the commercialization of the “raw material” and market growth. As Cainelli et.al. (2012) state, the critical role of the suppliers in stimulating the market is visible in the case of the Scary Seafood Platform. Empirical findings from the interviews indicate customers who attended the workshops of the Scary Seafood platform showed interest in the consumption of dishes and species offered during the events. Similarly, findings of the study illustrate customers are willing to try new sustainable food from the sea even though there is a low frequency of purchase of such products. Considering these findings, in addition to the previous challenges there is a need for the stakeholders of the seafood market to focus on increasing seafood consumption, meaning not only what to consume rather, how often to consume and what to consume. Moreover, this segment of customers is willing to try new sustainable food from the sea, illustrating the customer acceptance factor in the market, which is crucial for the success of a product.

The aquaculture industry in the Västra Götaland requires further investment to develop further, especially fish farms with a high level of expertise in the field of species in the portfolio of the Platform. The lack of a functioning supply chain is highly correlated to a lack of supply, or in the case of these species farming, cultivation, and mass production. Although the findings of this study illustrate the existing opportunities in this field, further research into whether these opportunities have been exploited or not is needed. Nevertheless, the termination of the maritime cluster in West Sweden has opened space for new investments, such as Viable Seas (VGR, 2024). New investments in the fields of farming and cultivation will certainly increase the supply factor in the market which might bring new stakeholders who can fill the gaps in the supply chain and satisfy the demand. Additionally, one of the objectives of the platform has been to attract tourism to the Västra Götaland. Increased farming and cultivation can lead to achieving this goal, and the creation of new businesses in this field while contributing to the market and socioeconomic state of the region.

However, the supply chain aspect of the market pull is not the only one needed for a successful commercialization of eco-innovation. Arguably, the most important one is customer demand (Zubeltzu-Jaka et.al., 2018) and the case of the Scary Seafood platform is not an exception. Yet, the empirical findings indicate the existence of such a demand in this scenario. Furthermore, the data shows the willingness of customers to pay a higher price for environmentally friendly products. Considering the majority of respondents are students, willingness to pay a higher price is a positive sign, because of two reasons. First, although the respondent showed a high degree of sensibility for the price factor during the purchase, admitting if the sustainable fishing, quality, and taste factors match one's expectations/desires paying a higher price is not a problem. Second, given the fact that 97% of the respondents are aged between 18 and 39 years old, existing demand from this generation displays possible future growth of the demand and market because these students are distanced to earn higher salaries and reach increased purchasing power after graduation. Furthermore, ongoing pressure on the current seafood (salmon, cod, and shrimp) challenges the ecosystem and environment in a broader picture. As discussed earlier, new sustainable food from the sea will play a crucial for the future. In addition, the existing customer segment with current and future needs illustrates a possible development of the seafood market in the future.

6.3. Platform of Eco-innovation

Scary Seafood's objectives clearly illustrate one of the core values of its stakeholders, which is to create value for the region. Collaboration toward laying the foundation for sustainable socioeconomic growth, addressing new sources of nutrition from the sea, and admitting the need for further development of the maritime industry in the Västra Götaland are several empirical findings of this study. Aligned with Su et.al. (2017) joint R&D, workshops, and education aimed at the creation of unique offerings as a product has been described as one of the activities in the network of Scary Seafood. Perks et.al. (2017) argue for the intentionally created network of stakeholders where maintaining, fostering, and adopting resources are the subject of the activities in the network. In the same way, findings describe the collaboration among researchers and chefs in restaurants as a purposive collaboration where intangible and tangible resources are transformed into the final product. The exchange of expertise, knowledge, and experiences of these

stakeholders in the workshops and other meetings leads to achieving intangible and tangible results.

Nambisan (2009) argues that the stakeholders will in the first step gather to create a shared definition of the problem/challenges and then work together toward finding a solution or a way to face the challenges. According to the findings of this study, such a process has been part of Scary Seafood where the goal was to create shared objectives and definitions. Such clarification seems to be necessary, because of the diverse background of these stakeholders. The background of the stakeholders plays a vital in the way each party interprets the objectives of Scary Seafood. Which can impact the practices and collaboration of these parties leading to confusion, conflict, or even termination of such a network.

Nevertheless, the shared definition is not the only factor critical to success in the long term. For instance, the importance of the norms, rules, and activities to facilitate and coordinate the actions of the network members has been discussed (Lusch and Nambisan, 2015; Nambisan and Sawhney, 2011). The key role of the lead firm is to align the definitions and efforts of these members to create an environment per the values and objectives of the network (Cusumano and Gawer, 2002). Empirical data confirm the essential role of the lead firm, which in the case of Scary Seafood is the University of Gothenburg. The dominance of the stakeholders with a direct relation to this University, and the ownership of Scary Seafood intuitively make this public University the lead firm and decision maker. This is also visible when analyzing the role of each stakeholder, where the project managers were employees at the University.

7. Conclusion

This section summarizes the project's achievements and limitations, reflecting on the strategic insights that can guide future initiatives and recommendations. Furthermore, this section highlights topics for research and policy. Emphasizing the critical need for continued investment in sustainability-driven innovation to address global environmental challenge.

7.1. Research Conclusions

RQ 1: In what ways can the Scary Seafood project be considered a platform for eco-innovation?

The explorative approach of this study has examined Scary Seafood to answer the question of whether Scary Seafood should be considered a platform for eco-innovation and to what extent. The structure of Scary Seafood describes collaboration among stakeholders with diverse backgrounds from universities, research Institutions, restaurants, and industry. The stakeholders shared the same objectives to explore the possibility of creating value in this region by exploiting underutilized species as new food. Moreover, the Scary Seafood platform aimed to lay the foundation for entrepreneurship in this field and contribute to new venture creation. This organized network followed the leadership of the University of Gothenburg for sustainable development and improving the socioeconomic state of Västra Götaland, putting Scary Seafood in the categories of platforms. It's unclear whether the eco-innovation outcome of the platform was intentional. However, the researchers believe this was not the case for two reasons. First, the platform did not intend to create a new novel product for commercialization purposes, even though it unintentionally evaluated the market acceptance of such a product among potential customers. Secondly, environmentally friendly aspects of the "raw materials" were embedded in the Scary Seafood platform, however, this aspect in itself does not necessarily lead to the creation of a unique product, even though the restaurants managed to achieve this novelty and uniqueness despite the lack of commercialization.

RQ 2: What are the contributions of the Scary Seafood platform of eco-innovation to the innovation ecosystem in Västra Götaland

To answer the second research question of this study, a holistic approach to the Scary Seafood platform revealed the contributions to the innovation ecosystem of Västra Götaland. Although these contributions are mainly intangible in terms of knowledge, it does not reduce the value of the contributions. The platform illustrates the gap in the supply chain, the need for new investment in the maritime industry, the existence of a niche market for the platform's products, and the verified efficiency of the collaborative approach toward innovation in this industry are examples of these contributions. The supply chain gaps indicate the potential of the absence of infrastructure, new venture creation, and entrepreneurship in the seafood field in Västra Götaland is one strategy to overcome these challenges and fill the gaps. Additionally, Scary Seafood demonstrates the necessity for new regulations in the water and sea field manifesting the crucial role of the policymakers and policies in the sustainable development of the Innovation ecosystem in West Sweden. Making the government obligated to explore the feasibility of further financial investment allocated to develop and adapt new policies in the Västra Götaland region, including fiscal incentives. The role of financial support and fiscal incentives should not be underestimated, since it laid the foundation for the Scary Seafood platform. Future incentives can explore the R&D and technological infrastructure necessary for market growth, as revealed by the Scary Seafood platform. Customer education's role is crucial, customer segments with a willingness to try new seafood should be informed. The media is one of the keyways to reach these customers and enlighten them about the possibility of consuming sustainable seafood.

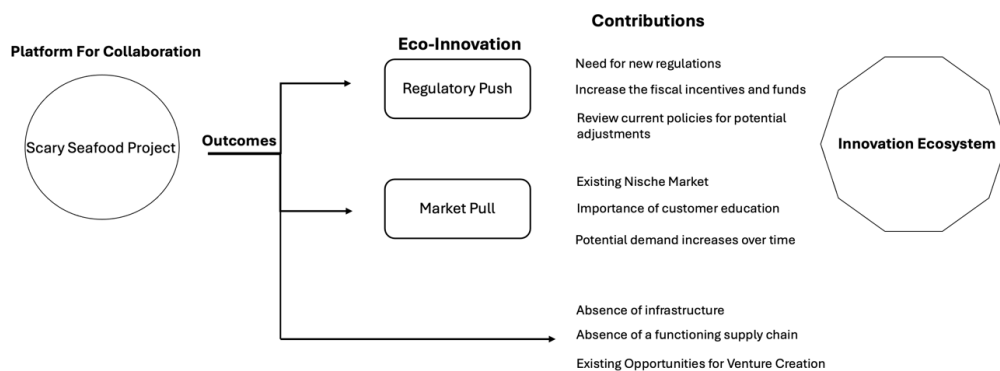


Figure 5 - Adjusted Theoretical Framework

7.2. Practical Implications

The practical aspect of this study suggests policymakers review policies in the sea and water fields. By doing so, the need for new policies and regulations might appear, as suggested in this study. New policies or adjustments in the current policies in these fields might create opportunities for practitioners to exploit these circumstances to create new businesses and contribute to the socioeconomic state of the region and new market creation. Furthermore, entrepreneurs with a passion for the sea and seafood should certainly investigate this industry, to fill the gaps in the supply chain as there is potential for future financial outcomes.

Additionally, the findings of this study point toward the importance of research in the seafood market, suggesting increased fiscal incentives to finance similar projects. Taking into consideration the need for new nutritious resources considered eatable, further exploration of the sea to find similar consumable species is necessary. Established businesses in the seafood market, that have the resources to explore this niche market can take advantage of this opportunity to expand their product portfolio and contribute to the exploration of new sustainable food and sustainable development.

7.3. Theoretical Contribution and Future Research

The theoretical contribution of this study is the evaluation of the theory of collaborative platforms in practice. By considering a project with the dynamic and characteristics of a platform this study lays the foundations for future studies to explore this approach in other industries and circumstances. The findings of this study suggest this theory has the potential to be used in the social and business fields. Although Nambisan (2009) stresses the focus of a collaborative platform is to solve a challenge or problem with a social objective, it is acknowledged that a collaborative platform is also an efficient method to innovate, develop, and improve products in a commercial environment.

Future research should take into consideration this study and explore the seafood market in Sweden to understand its competitiveness and market acceptance for this kind of seafood on the national scale. The crucial role of media should also be studied to identify key indicators impacting market and customer acceptance, education and potential

customer segments. Additionally, it is suggested that future researchers explore the technological realm of the seafood industry to evaluate innovation efficiency and necessary structural development. An overview of the developed technologies in combination with the need for new technologies might contribute to stimulating the development of this industry, increase the supply, stimulate the supply chain, and lead to the growth of the market.

Furthermore, another suggestion to scholars is to more specifically evaluate the policies in the sea and water fields. Policymakers require a great foundation to evaluate possible adjustments in regulations. The evaluation of these policies will present an overview of the potential possibilities that might facilitate cultivation, farming, and mass production of certain species that previously have been forbidden.

7.4. Limitations

Several factors limited this study. For instance, the time constraint of this study is one of the vital factors. Limited time impacted the data collection methods, qualitative and quantitative, more specifically the sample size. The qualitative sample of this study did not include interviewing policymakers with a direct focus on sea and water policies. These interviews would have led to an overview of the specific regulations covering the species in the portfolio of the Scary Seafood Platform.

Additionally, the time constraint impacted the depth of analysis and the level of data familiarity. As a result, this study set the scope based on the time at hand and adjusted it according to the deadlines. Moreover, the resource constraint had a significant impact, the researchers were limited in terms of finances and other resources needed to explore additional data collection channels to study the market pull determinants. Consequently, this study was limited in terms of a sample of the quantitative method as well as measured variables of Market pull determinant.

Moreover, as acknowledged, the technological determinant of Eco-innovation was excluded from the scope of the study. The lack of technological infrastructure limited the possibility of measuring this determinant. Although a detailed map of the technological infrastructure seems necessary, the researchers have not been able to dig deep into this

area. Therefore, all three, technological push, regulatory push, and market pull determinants have not been studied.

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Appendix 1 – Interview Guide

1. Can you describe the Scary Food project's approach to innovation?

2. What role do environmental concerns play in the project?

Regulatory Influence:

3. How do current environmental regulations affect the project's strategy?

4. Can you give examples of how anticipated regulations have influenced your decision-making on innovation?

Types of Regulations and Policy Impact:

5. What types of regulations (existing, expected, subsidies, fiscal incentives, Do not mention but if needed) significantly impact eco-innovation in similar projects?

6. In your experience, do regulations affect the development stage of innovation differently from the adoption or diffusion stages?

Industry-Specific Policies:

7. How do industry-specific policies influence eco-innovation in this sector?

8. What new policies would you like to see implemented that you believe could support sustainable innovation?

Firm's Reaction to Regulatory Push:

9. Has there been a time when the project SS altered its innovation trajectory due to regulatory pressure?

10. Can you discuss any challenges or advantages the project has experienced as a result of eco-innovative initiatives?

Final Thoughts:

11. In your view, what is the optimal balance between environmental policy and industry policy for promoting eco-innovation in terms of dishes or food?

12. What future directions do you see for environmental regulations affecting this industry?

Innovation Ecosystem Context:

15. How do these collaborations contribute to the ability of the project to innovate sustainably?

Ecosystem Support and Barriers:

16. What support did this project receive from the innovation ecosystem and where do you see gaps?

17. Are there aspects of the innovation ecosystem that you feel hinder eco-innovation, and if so, how?

Ecosystem Evolution:

18. How have you seen the innovation ecosystem in this sector evolve in recent years concerning sustainability and eco-innovation?

19. What changes would you like to see in the innovation ecosystem to support eco-innovation such as this better?

Appendix 2 – Online Questionnaire

Scary Seafood

Welcome to the "Scary Seafood" survey! This survey is conducted as part of a thesis project aimed at gathering data on consumer preferences for eco-friendly seafood products. Your participation will contribute valuable insights into how eco-conscious choices influence seafood consumption. By sharing your preferences and opinions, you are helping us to identify trends and factors that drive the demand for sustainable seafood. Your feedback is crucial in enabling us to recommend strategies for promoting environmentally responsible seafood consumption. Thank you for your time and valuable input.

Obligatoriskt

1. Gender

Woman

Man

Prefer not to say

2. Age

18-24 (1)

25 - 39 (2)

40 -60 (3)

60 + (4)

3. Geografic Location

4.How important is to you, the environmental impact of the seafood products you purchase?

Extremely important (5)

Somewhat important (4)

Neutral (3)

Somewhat not important (2)

Extremely not important (1)

5.How likely are you to purchase seafood products labeled as 'eco-friendly'?

Very likely (5)

Somewhat likely (4)

Neither likely nor unlikely (3)

Somewhat unlikely (2)

Very unlikely (1)

6.What attributes do you associate with eco-friendly seafood products?

Sustainable fishing

Organic

Non-GMO

Low carbon footprint

7.How much more are you willing to pay for seafood products that are certified as eco-friendly?

No additional cost

Up to 10% more

11-20% more

More than 20%

8.How often do you purchase eco-friendly products, including seafood?

Never (4)

Occasionally (3)

Regularly (2)

Always (1)

9.What factors would most influence your decision to buy eco-friendly products?

Välj 3 alternativ.

Price

Quality

Taste

Eco-friendly certification

Recommendations

Packaging

10.Where do you prefer to learn about new eco-friendly products?

Social media

In-store advertising

Word of mouth

Online ads

11.How likely are you to try new sustainable seafood?

Very likely (1)

Somewhat likely (2)

Neither likely nor unlikely (3)

Somewhat unlikely (4)

Very unlikely (5)

Skicka

*also available at: <https://forms.office.com/Pages/DesignPageV2.aspx?lang=sv-SE&subpage=design&token=635fe0dba8944b87b06158f17bfd690e&id=Me2YB7D1NUmGHPuJQWAbgZvOk9UrRFPpSKrFVppMQlUMUg3STISMU44WkFXRIA1UzE5TUdYS0E3NS4u&analysis=false&topview=Preview>

Appendix 3 – Online Questionnaire Tables

Gender Distribution		
Gender	Number of Respondents	Percentage
Female	39	62%
Male	22	35%
Prefer not to say	2	3%

Age Distribution		
Age Group	Number of Respondents	Percentage
18-24	24	38%
25-39	35	55%
40-60	4	7%

Geographic Distribution	
Location	Description
Gothenburg	Majority of responses
Other parts of Sweden	Significant number
International	Italy, Poland, France, Japan

Importance of Environmental Impact in Seafood Purchase	
Measure	Value
Mean	3.79
Median	4.00
Variance	0.94
Standard Deviation	0.97

Likelihood of Purchasing Eco-Friendly Seafood	
Measure	Value

Mean	3.79
Median	4.00
Variance	1.04
Standard Deviation	1.02

Frequency of Purchasing Eco-Friendly Products	
Measure	Value
Mean	2.75
Median	3.00
Variance	0.68
Standard Deviation	0.82

Likelihood of Trying New Sustainable Seafood	
Measure	Value
Mean	2.03
Median	2.00
Variance	1.00
Standard Deviation	1.00

Willingness to Pay Extra for Eco-Friendly Seafood	
Measure	Value
Mean	2.00
Median	2.00
Variance	0.77
Standard Deviation	0.88

Preferred Information Sources

Source	Number of Responses
In-store Advertising	30
Word of Mouth	15
Social Media	8
Other (specify)	Various

Attributes Associated with Eco-Friendly Seafood Products	
Attribute	Number of Mentions
Sustainable Fishing Practices	39
Organic Certification	8
Low Carbon Footprint	6
Other (e.g., non-GMO, vegan)	Various

Decision Factors for Eco-Friendly Product Purchases	
Factor	Number of Mentions
Price	50
Quality	49
Taste	34
Eco-Friendly Certification	31
Recommendations	14
Packaging	9