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# Consumer Involvement for Responsible Production & Consumption: A Study on Mowi ASA

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**Title:** *“Consumer Involvement for Responsible Production & Consumption: A Study on Mowi ASA”*



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## *Abstract*

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The “*United Nations Sustainable Development Goals*” – popularly referred to as SDGs, collectively are a set of well-defined, clearly communicable and broadly acknowledged collection of 17 global goals designed to be the guiding benchmark to achieve a better and more sustainable future. Among the 17 goals, SDG 12 stands for “*Responsible Consumption & Production*” – where the key targets are set to implement sustainable practices throughout the value chain and production cycle of consumable commodities. A later aspect of SDG 12 involves responsible consumption patterns and behaviors adapted by the end consumers; which is a comparatively broader and intensely diversified area of interest. Carefully tailored, creative and insightful approaches are essential for incorporating greater sustainability concerning better involving consumers for responsible consumption. In this context, this Master’s thesis includes a case study of *Mowi ASA* – a leading producer of farmed Atlantic salmon based in Norway, combined with a series of detailed interview sessions conducted among a number of carefully chosen end consumers. Four specific *Research Questions* were formulated, addressing issues such as end consumer purchase decision criteria, consumer incentives for responsible consumption, company incentives for responsible production, and assessment for SDG 12 implementation. While seeking insights for end consumers’ purchase decision criteria, the study revealed that retail purchases of farmed seafood are often influenced by conditions of product attributes such as freshness, quality and origin – while price, availability, and presence of promotional offering with the desired product play a significant role. End consumers look for suitability with their relative lifestyles, tastes and preferences for purchasing farmed salmon products – often leading to development of loyalty. The study also revealed strong evidences that the end consumers require motivations and incentives for securing responsible consumption practices with farmed seafood. Major incentives include organic farming practices, provisions for percentage donations, and online engagements for community formation. Active measures are often undertaken by commercial firms to better incorporate end consumer feedback into strategic management processes for a greater display of transparency and accountability – where recent advancements with information and communication technologies can play a significant role. Among other motivations, commercial firms require cost-effective technology innovation, social recognition, government policy and infrastructure support, stakeholder connectivity and effective communication as major incentives for incorporating responsible production practices. Successful implementation of SDG 12 within a company’s existing business model is strongly influenced by factors such as active cooperation among international authorities and investments in joint research and development efforts. As for the consumers, academic research for sustainability in education – along with community awareness and activism are essential for securing responsible consumption.

## *Preface*

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In line with the agenda for sustainable development and the adoption of the *UN Sustainable Development Goals*, companies have a responsibility to facilitate gradual transitions to their businesses to become a key societal and environmental player. The concept of *Sustainable Business Models (SBMs)* considers, among other principles, circular and closed-loop solutions. In this particular context, SDG 12 entitled “*Responsible Consumption & Production*” – is central.

However, individual businesses cannot close the loop entirely on their own. Consumers must be brought along on this journey and are needed to be equipped and incentivized to consume responsibly. Further, the producer of the product and/or services has to consider the impact of their offerings upon consumers from a life cycle perspective.

Referring to these issues at stake, this paper includes a case study of a Norwegian company producing consumer goods, which includes the following key objectives:

- Description & analysis of the value chain including the offered product ranges.
- Identification of the end consumers and their assumed expectations.
- Analysis of SDG 12 (and other SDGs of relevance) to assess how the SDGs can be implemented.
- Investigation of key performance indicators that can be used for communicating performance in relation to the targets set out in SDG 12 (or others selected).

This Master’s thesis was conducted at the *Norwegian University of Science and Technology (NTNU)* during the spring semester of 2020. The study belongs to an ongoing initiative under “*Business Hub for Sustainability*” and the “*NTNU Sustainability Program: Business Transition to Sustainability*”.

The research is performed as a part of *NTNU Sustainability* – one of the four key strategic research areas within the timeframe starting from 2014 to 2023.

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June 08, 2020

## *Acknowledgements*

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My two-year long study at NTNU Ålesund comes to an end with completion of this Master's thesis. When I started my journey two years ago I never stayed away from my home country for more than six months, and used to get homesick every now and then. After all the memorable events and experiences I went through and all the wonderful people I met and became friends with while being here in Norway, to my surprise, thinking of heading back to my home country is now making me sick.

Although I was familiar with preparing assignments and term papers for my courses before I started writing for this thesis, initially I was overwhelmed by the magnitude and intensity of the workload. I would like to thank Professor Erik Nesset, for giving me confidence and support while I was making my choices for Master's thesis topic during autumn 2019. Shortly before the semester ended, I met Vice-Rector and Professor Annik Magerholm Fet with enquiries for my Master's thesis supervision – with her valued guidance I managed to come up with a research proposal to commence my study.

All my preparation and planning came to a halt with spread of the COVID-19 outbreak during later weeks of February this year. A series of uncertainties and confusions clouded my study and social life, as hope started to fade for completing my dissertation within schedule. I would like to thank Ms. Haley Knudson, to help me find my focus and determination back and to give me motivation throughout these difficult times. Without her supports and directions performing this study wasn't possible.

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*“The full costs of consumption beyond market prices are hard to determine and hard to see, and they are typically underestimated. The benefits of consumption, by contrast, are immediate and tangible, and they are typically overestimated, thanks in part to an enormous and enormously sophisticated marketing apparatus. This asymmetry contributes to our overconsumption.”*

*— James Gustave Speth; The Bridge at the Edge of the World: Capitalism, the Environment, and Crossing from Crisis to Sustainability.*

## CHAPTER ONE: INTRODUCTION & BACKGROUND

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### Overview

The first chapter presents a brief description of the contemporary issues at stake concerning the scope and context of this paper. Major sections therefore include company and industry overview, sustainable development goals, research problem, research questions and thesis structure. Initially, the introductory outlines are followed by defining the *Research Objectives* of this study. Then a brief history of the case company along with defining features of its relevant industry is stated. An analysis of the *Sustainable Development Goals* in general is followed, including reflections on conditions of the current SDG implementation initiatives undertaken by the case company. Then the *Research Problem* of this study is identified and the *Research Questions* are formulated. Finally, the chapter ends with descriptions of the structural organization of this paper.

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### 1.1 Introduction

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In today's ever changing world of business and commerce, it has become a challenging task for every commercial business firm to achieve higher profits than the competitors in the industry in order to survive. Theoretically, such value creating efforts are supposed to be based on fair, transparent and environmentally responsible approaches – whereas in practice it is often common among business firms to get overwhelmed by the intensity of competition, and to find the optimum level of balance in between profitability and sustainability has become one of the decisive factors for achieving success (Carbaugh, 2006). The success and long term survival in this contemporary business environment depend on well-defined vision and objectives that reflect the roadmap of any business firm. The efficient alignment of available resources and their relevance to the strategic frame of reference collectively create an opportunity for a business firm to stand out in a crowded marketplace (Ghemawat, 2002). None can deny the significance of planning and identifying the organizational strengths and weaknesses while analyzing the environmental threats and opportunities; and most importantly, creating skills and knowledge to efficiently deploy the firm's resources in order to create the economic value in a sustainable manner (Rennie, 2008).

The term sustainability broadly infers an organization's capabilities to withstand and endure various environmental, strategic and operational changes over a long period of time, while securing a better and prosperous future for the upcoming generations by maintaining a steady stream of growth and profitability (Hansen & Schaltegger, 2014). As the concepts of capitalism almost always demand robust private entrepreneurial and managerial skills from contemporary business leaders, the issue at stake here is the commitment toward a greener and responsible approach when it comes to successful development of business affairs. The "*United Nations Sustainable Development Goals*" – popularly referred to as SDGs, collectively are a set of well-defined, clearly communicable and broadly acknowledged collection of 17 global goals designed to be the guiding benchmark to achieve a better and more sustainable future. The core intention of the SDGs is to bring the collective efforts of different social institutions under a commonly achievable framework. The goals were set in 2015 by the United Nations General Assembly and are part of UN Resolution 70/1, which are intended to be achieved by the year 2030 (UN General Assembly, 2015). Among the 17 goals, SDG 12 stands for "*Responsible Consumption & Production*" – where the key targets are set to implement sustainable practices throughout the value chain and production cycle of consumable commodities. Emphasis is given on adapting to eco-friendly and efficient production method – by reducing waste generation, intensifying recycling efforts, and maximizing usage of renewable resources.

The production processes and the value chains adapted by various legitimate business firms are usually implemented under strict compliance with adequate monitoring, and follow imposed policies and guidelines set by the respective government authorities (Slomanson, 2011). Therefore, with the right set of political agendas, nations can effectively attempt to contribute to the global pursuit toward sustainability. However, a later aspect of SDG 12 involves responsible consumption patterns and behaviors adapted by the end consumers; which is a comparatively broader and intensely diversified area of interest. Due to the presence of several ethical and confidentiality issues, it is often hard to directly monitor or implement any particular policy to influence or motivate end consumers' purchase and consumption trends in a particular way, even if good intentions are involved. In extreme cases, such attempts are in fact violations of certain consumer rights and privacy policies in several countries.

Therefore, carefully tailored, creative and insightful approaches are essential for incorporating greater sustainability concerning responsible consumption. In this context, this Master's thesis includes a case study of *Mowi ASA* – a leading producer of farmed Atlantic salmon based in Norway, combined with series of detailed interview sessions conducted among a number of carefully chosen end consumers. The objective is to gain an in-depth understanding of the various expectations, tastes and preferences surrounding the consumption of various farmed Atlantic salmon products among end consumers. Altogether, this study aims to find key solutions to better involve the end consumers in order to secure sustainable and responsible consumption.

## *1.2 Scope & Background*

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In line with the agenda for sustainable development and the adoption of the *UN Sustainable Development Goals*, companies have a responsibility to facilitate gradual transitions to their businesses to become a key societal and environmental player. The concept of *Sustainable Business Models (SBMs)* considers, among other principles, circular and closed-loop solutions. In this particular context, SDG 12 entitled “*Responsible Consumption & Production*” – is central. However, concerning SDG 12, individual businesses cannot close the loop entirely on their own. Consumers must be brought along on this journey and are needed to be equipped and incentivized to consume responsibly. Further, the producers of the products and/or services have to consider the impacts from a life cycle perspective, which infers taking a responsibility throughout the entire value chain of their commodities, both upstream and downstream. Referring to these issues at stake, this Master's thesis includes an exploratory case study of a Norwegian company producing consumer goods, which includes the following key objectives:

1. Description & Analysis of The Value Chain: In order to gain a comprehensive overview of a commercial business firm's value creating procedures, understanding of its existing business model is essential. The value chain of a commercial business firm broadly is the set of strategic and tactical value creating activities in practice which can be portrayed by analyzing the firm's adapted business model.

The business model can be presented and analyzed in various ways, however, as for this paper; the approach prescribed by Richardson (2008) and Bocken, et al. (2014) is followed, which categorizes the concept into three defining processes: “*Value Proposition*”, “*Value Creation & Delivery*”, and “*Value Capture*”.

2. Identification of The End Consumers & Their Assumed Expectations: End consumers are the individuals who purchase products and services for personal use and are not involved in further commercial distribution of the commodity typical of a wholesaler or retailer.

In this sense, they may not always be directly included to a manufacturer’s or service provider’s value creation and delivery processes. Greater efforts are required to properly identify them for a particular commodity – in order to gain crucial insights into their expectations, tastes and preferences.

3. Analysis of SDG 12 & Other SDGs of Relevance: This objective focuses on the assessments of how SDGs can be better implemented. Although the description and explanation of the SDGs are commonly referred to all parties involved, the implementation requires organization-specific efforts to find relevance and applicability.

Therefore, it is a valid objective to attempt and figure out the essential factors in concern; in order to reach valid conclusions.

4. Investigation of KPIs for Communication: As a due procedure, the outcomes of the third objective need to be reinforced with additional identification and analysis of the “*Key Performance Indicators (KPIs)*” for further discussion and consolidation of the issues at stake concerning implementation of SDG 12 targets, along with other SDGs of relevance.

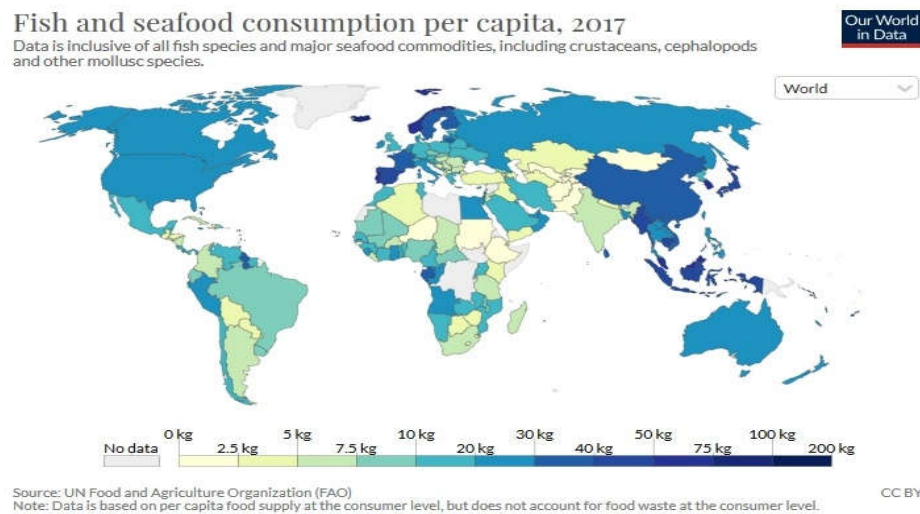
This Master’s thesis was conducted at the *Norwegian University of Science and Technology (NTNU)* during the spring semester of 2020. The study belongs to an ongoing initiative under “*Business Hub for Sustainability*” and the “*NTNU Sustainability Program: Business Transition to Sustainability*”. The research is performed as a part of *NTNU Sustainability* – one of the four key strategic research areas within the timeframe starting from 2014 to 2023.

### 1.3 Company & Industry Overview

The aquaculture industry is a crucial source of healthy food for the global population and has become a significant contributor to the livelihood of people all over the world. According to the reports of high-level experts involved with various research institutions, there are a number of opportunities which can be exploited in the future to meet the increasing global demand for seafood. Aquaculture is a growing industry with 5.8% annual growth rate collectively achieved during the last decade, which is significantly higher than other popular food production industries (FAO, 2013).

#### 1.3.1 The Norwegian Seafood Industry

As figure 1.1 suggests, Norway is among the nations with highest per capita consumption of seafood, which clearly justifies the reasons behind Norwegian seafood industry being a prominent part of the increasingly competitive global seafood market. Norway has exported 2.6 million tons of seafood with a net monetary worth of EUR 9.5 billion in the year 2017. This is 3% higher in term of money, and 7% larger in term of volume compared to the records of the previous year (2016).



**Figure 1.1: 2017 Global Per Capita Fish & Seafood Consumption (FAO)**

The most prominent species of marine resources being exported from Norway in the year 2017 include salmon, cod and mackerel. Salmon played a vital role with over 68% of total export value and 38% of the volume. Norway has exported 1.6 million tons of seafood to Europe with a net worth of EUR 6.1 billion, and 539,000 tons of

seafood worth EUR 1.9 billion to Asia (Norwegian Seafood Council, 2017). Among the key contributors to the industry, *Mowi ASA* is a renowned Norwegian seafood company operating in several countries around the world including Norway, Scotland, Canada, the Faroe Islands, Ireland and Chile – as highlighted in figure 1.2:



Figure 1.2: Global Breeding Network of Mowi ASA (Mowi, 2018)

### 1.3.2 Company Overview

*Mowi ASA* was formerly known as *Marine Harvest ASA* until January 1, 2019, and prior to that, as *Pan Fish ASA* until February 6, 2007. The history of its formulation can be traced back to 1965, when *Unilever*, committed to developing fish farming methods at a research facility in Lochailort, Scotland, founded a company named *Marine Harvest* there. After passing through the initial startup phases, the company began its operations in Chile in 1975. In 1992, *Unilever* sold the business to an American company named *Marifarms*. Two years later, the ownership of the company passed to *Booker PLC*. Then in 1999, *Booker PLC* sold it again to the Dutch-based nutrition firm *Nutreco*. By 1997 the company had made numerous acquisitions and eventually got listed on the Oslo Stock Exchange as *Pan Fish ASA*.

The company experienced occasional financial and administrative difficulties, but it endured the hard times and gradually recovered. It returned to profitability in 2005, and went through yet another episode of mergers and acquisitions, along with changes in ownership structure. Despite the drawbacks, the company managed to maintain a slow but steady growth mostly by acquiring smaller fish firms. As the formulation of a much larger scope of business was secured, the management decided to change its identity as *Marine Harvest ASA* in 2006, after administering an effective three-way

merger with *Fjord Seafood* and *Marine Harvest NV*. Since then, the group has maintained a steady growth in profitability until recent years, and become the world's largest company of farmed Atlantic salmon, with an impressive share of up to 30% of the global salmon and trout market. Currently, it has 13,233 employees and is represented in 25 countries. According to its integrated annual report, the company had a turnover of EUR 4.1 billion in the year 2019.

### 1.3.3 Retail Brands of *Mowi ASA*

The company offers numerous retail brands featuring farmed seafood. Popular among them are *Mowi Salmon*, *Rebel Fish*, *Olav's* and *Supreme Salmon*. Figure 1.3 shows the 14 retail brand logos featured in the company's official website:



Figure 1.3: Retail Brands of *Mowi ASA* (mowi.com)

*Mowi ASA* is organized into three major business areas including feed production, farming operations, sales and marketing. It has an integrated system for operating the entire value chain from feed to fillets of fish on shelves in retail stores, which gives the company a unique competitive edge compared to the other competitors in the market. The integrated design is crucial to the company's profitability, as it helps stabilize costs, control the quality of products and improve efficiency. Another source of differentiation for *Mowi ASA* is its emphasis on *Research & Development* as an integral part across its entire value chain. It has research facilities in various countries including Chile, USA, Poland, Belgium, Taiwan and Norway.

## 1.4 Sustainable Development Goals

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The sustainable development goals (SDGs) are 17 specific goals set by the *United Nations General Assembly*, which are applicable at a global scale and are valid for almost all kinds of legalized value creating organizations – where the business firms



are no exceptions. These 17 goals collectively summarize the challenges at stake when it comes to achieving sustainability, and are considered to be of great importance concerning issues such as global warming, climate change, food Security, gender equality, education, health, innovation and environmental safety. For any kind of strategic management process followed within an organization, these goals belong to the *External Forces* that affect or influence value creating activities – and therefore are of great significance in order to successfully implement innovative solutions while following a pro-active and comprehensive strategic fit. As for *Mowi ASA*, which largely belongs to the seafood industry, addressing these goals in a proactive manner is considered a necessity – as the company is keen to strictly follow the rules and regulations set by the government of Norway. The company has taken these goals very seriously and it reflects upon the contents of its integrated annual report, where detailed topics can be found relating to the company’s reaction to the *United Nation’s* initiatives.

### 1.4.1 Compliance for SDGs by Mowi ASA

As figure 1.4 suggests, the company has coined 10 specific goals among the available 17, which shows the commitment of the company to integrate some of the SDGs within its strategic management process and business model.



Figure 1.4: The Contribution of Mowi ASA to UN's SDGs (Mowi, 2019)

The goals that the company claims it is currently addressing referring to its integrated annual report of 2019 are chosen as the initial benchmark to further investigate on possibilities and opportunities to broadly define scope of this study. For instance, its special approach to produce and provide the fish feed contributes to production of

farmed salmon with significantly high contents of omega-3 fatty acids. With a couple of additional measures being taken, such as certifications for food safety and quality, it is evident that the company is contributing toward “Good Health & Well-being” (SDG 3).

The company has a significant amount of its yearly budget being allocated to research and development efforts. Recently it has successfully validated the use of DNA “Metabarcoding” as a tool to assess impacts of farming activities around the seabed areas in Norway, which is a major achievement. Such activities can be labeled under “Industry Innovation & Infrastructure” (SDG 9).

Salmon farming is an innovative and efficient way of using natural resources to produce healthy food source for protein. The procedure has a low *Carbon Footprint*, high energy and protein retention efficiency and low *Water Footprint*. Therefore, the company is actively considering “Responsible Consumption & Production” (SDG 12) and “Climate Action” (SDG 13) into its integrated value chain – although the degree and magnitude of impacts and influences are subjects to further discussion – since SDG 12 is the focal point of the scope of this study.

The company thrives to minimize its environmental impact by following the strictest environmental standards available for aquaculture. It follows established rules and compliances with sustainable feed policy and antibiotic usage, which is a meaningful contribution toward “Life Below Water” (SDG 14). However, in this regard, seemingly the company is taking reactive measures to avoid banning and monetary penalties from monitoring authorities – and its internal research efforts are designed to react once a policy is approved, with no real strategic planning to think ahead and take initiatives based on gained experiences on this regard being visible.

The company believes in the roll of forming *Strategic Partnerships* in order to secure a sustainable future for the industry. Such initiatives are actively considered as one of the defining features of the transitions of a commercial company toward becoming socially accountable and environmentally responsible value creating entity. *Mowi ASA* has achieved significant success in recent years forming and maintaining such partnerships, mostly with *Global Salmon Initiative*, *Keystone Dialogues*, *SeaBOS Initiative*, *Global Sustainable Seafood Initiative* and *WWF Norway*. The company is also committed to support the “UN Global Compact Principles” – which collectively

serve as a contribution toward *“Partnerships for The Goals” (SDG 17)*. However, such alliances are often perceived in common for facilitating mostly commercial and political purposes; as the strong dialogues and meeting sessions are often criticized for not coming up with noticeable or measurable practical, positive impacts concerning environmental safety and sustainability (Seele, et al., 2015).

### ***1.5 Research Problem & Research Questions***

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As summarized by Liu, et al. (2010), the salmon industry in Norway includes three sectors, namely sea and river fishing for wild salmon, and salmon farming, or aquaculture. These three sectors have different interests, practices, traditions and audiences, and are also administered by different authorities and regulated under varying management regimes and legislations. The industry, despite securing decent growth over the recent years, is threatened by alarming issues involving mostly fish escapes and sea lice. The farming practices largely in use are under heavy criticisms from environmental activists due to their negative impacts on marine ecosystems and biodiversity. Inorganic chemicals and pesticides used are gradually mixing up with the open sea, and are causing heavy damages to the surrounding marine lives (Forseth, et al., 2017). Such issues are often reflected upon the consumption and purchase decisions of the end consumers, and as for SDG 12, major players within the farmed seafood industry are mostly active in form of arranging and participating in seminars, summits, conferences and meetings – with occasional awareness campaigns focusing mostly on the web-based platforms such as social media (Chan, et al., 2018). Contemporary articles are often highlighting several technical issues and possibilities concerning environmentally responsible industry practices, however, the implementation of the proposed ideas are often overshadowed by immensely expensive procedures with little or no references for a permissible financial return (Chen, et al., 2018). However, understanding first-hand what the end consumers are expecting from the industry players is paramount in order to properly align SDG 12 with the overall value-creating efforts of the companies, where the available secondary resources are seemingly giving an impression of focusing only on the industry experts, scholars and veterans of the industry. Due to the detailed and complex nature of the research topic, it is hard to standardize the data collection

efforts through structured survey questionnaire, and therefore hardly any published resources are found which address relevant issues with such quantitative and statistical approaches. Keeping the discussions so far into consideration, the purpose of this performed study is underlined as assessing the role of consumer involvement for responsible production and consumption, which is further reinforced with an exploratory case study on *Mowi ASA*. As the description suggests, the core aspects of this proposed research is highlighted as follows:

- Research Problem: Assessing role of consumer involvement for responsible production and consumption: A case study on a company producing consumer goods.
- Research Object: Consumer involvement.
- Research Subject: Responsible production & consumption (SDG 12 & others found relevant).
- Research Context: End consumers of *Mowi ASA* (The Norwegian aquaculture industry).

### 1.5.1 Research Questions

Based on a keen review of the previously described contents, four specific research questions are hereby being formulated. Throughout various stages of the study, these four research questions serve as the point of reference while collecting and analyzing the acquired data. The questions are as follows:

- RQ1: What do consumers look for when making purchasing decisions?
- RQ2: Do consumers need incentives to consume responsibly? What are these incentives?
- RQ3: What incentives or motivation does a company need to consider implementing closed loop solutions in their value chain?
- RQ4: How can the SDGs be implemented in a company's business model leading to more responsible production and consumption?

The first two questions are related to the search for figuring out the key decision making criteria for the end consumers of farmed Atlantic salmon – the base product of *Mowi ASA*. The remaining two questions are related to the company, where the intention will be to seek out the properties of its existing value chain and pinpoint the

possibilities for implementing relevant SDGs. In order to find answers to RQ1 and RQ2, a semi-structured interview approach is used to gain primary data on the end consumers of *Mowi ASA*. Emphasis is given to sort out the general preferences and priorities concerning the retail purchases. The intention was to seek out for insights regarding expected and available incentives for securing responsible consumption of farmed Atlantic salmon among the end consumers. Then, an exploratory case study approach was utilized to find answers to RQ3 and RQ4; concerning actual practices of *Mowi ASA*. The study therefore includes only qualitative research methods. Finally, suggestions and recommendations are made based on both secondary and primary data resources to align the issues appropriately with SDG 12. In addition, possibility of including other relevant SDGs is considered based on the analysis of the collected data, and recommendations are made accordingly.

Attempting to answer these particular research questions will contribute to the further development of the contemporary theories on better implementation of SDG 12. The study reflects on the actual progresses and practices adapted by the company concerning SDGs, whereas the outcomes further reinforce the overall understanding with newly updated findings.

### 1.6 Thesis Structure

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As highlighted in figure 1.5, this study is broadly divided into six major chapters – in compliance with the suggested framework for organizing a Master’s thesis paper set by *NTNU*.

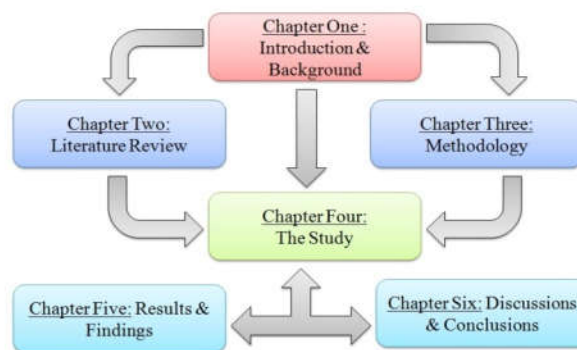


Figure 1.5: Thesis Structure

The first chapter focuses on providing the initial overview of the topic in general. It started with a brief description of the contemporary issues at stake; followed by short overviews of the company being studied here along with its relevant industry. Then the discussions of the SDGs being incorporated by the company presently are portrayed, to better visualize the scope and significance of this particular study. Based on a transitory literature review, the research problem is then pinpointed and the research questions are formulated. In the second chapter, extensive discussions attempted to provide the theoretical foundation of this study. Emphasis was given to better relate available secondary resources with purposes of this particular study. Through additional analysis, possible presence of research gaps is assessed – which served as the point of reference for designing the research methodology. Then, in chapter three, a detailed description of the chosen approaches to collect primary data is presented, along with details of the various qualitative research tools being utilized. A thorough justification and relevance of the choices in relation to the purpose and scope of this study is demonstrated, followed by specific limitations that affected collection and analysis of the primary data. A separate fourth chapter entitled as “*The Study*” is reserved for assessments and analyses concerning the 4 previously stated *Research Objectives*; where the step-by-step formation of the performed *Exploratory Case Study* is highlighted. Chapter five is reserved for results and findings, where outcomes of both the exploratory case study and semi-structured interview sessions is consolidated and presented in context of the 4 initially set *Research Questions*. Separate subsections are reserved for additional analyses of the outcomes; to formulate the argumentative foundations aligning the initially identified *Research Problem* with actual findings. Finally, in the sixth chapter, the newly discovered insights are further analyzed to find if the outcomes can be generalized into applicable implications for the organization being studied. Recommendations are made accordingly, and the study is ended with some concluding remarks.

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*End of Chapter One*

## CHAPTER TWO: LITERATURE REVIEW

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### Overview

In order to properly align the key theoretical concepts related to this particular paper, chapter two entitled *Literature Review* is organized with discussions of value chain and sustainable business model, seafood production, salmon farming, and an analysis of targets set under SDG 12. Thorough understandings of these topics under the literature review section greatly reinforced the significance and relevance of the adapted methodology, its formulation and eventually the process and outcomes of the performed study.

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### 2.1 Value Chain & Sustainable Business Model

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As explained by Porter (1985), a *Value Chain* is the set of interrelated and interconnected activities that a commercial business firm operating within a specific industry adapts to and performs in order to create and deliver its added values in form of a commodity to the market with greater effectiveness and efficiency compared to its business rivals – which ultimately leads to its competitive advantage.

#### 2.1.1 Porter's Value Chain Model

In his 1985 classic “*Competitive Advantage: Creating and Sustaining Superior Performance*” – Michael Porter founded the benchmark for contemporary discussions on the strategic aspects of a firm's value creating operations; as shown in figure 2.1:

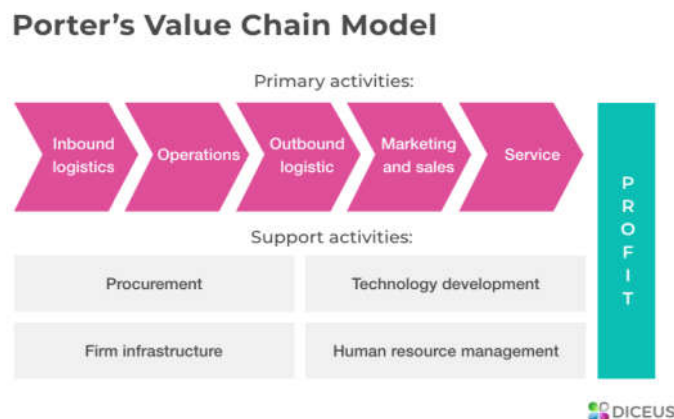


Figure 2.1: Value Chain by Porter, Michael E. (diceus.com)

Porter (1985) prescribed that the value chain of a business firm can be broadly categorized into two major flows: primary activities, and support activities, where the motivation for achieving profitability serves as the connecting link. Primary activities include inbound logistics, operations, outbound logistics, marketing, sales and services. Support activities feature procurement, technology development, firm infrastructure, and human resource management. Greater attention was required to integrate the principles of sustainability initiatives within existing value chain of a commercial entity.

### **2.1.2 Sustainable Business Models**

According to Edgeman (2013), *Sustainable Business Models (SBMs)* are designed to better reflect a business firm's value creation efforts with concerns for social and environmental impacts by adapting to circular and closed-loop solutions. Allwood (2014) and Murray, et al. (2015) further reinforced concepts of *Closed-loop Value Chain* and *Circular Business Model* – often considered as an upgrade to the initial contributions of Michael Porter; where the argument for developing better communication schemes among various stakeholders in order to achieve lasting benefits for future generations is often highlighted. With recent breakthroughs in information and communication technologies, seemingly endless possibilities for staying connected to different segments of a society have emerged – yet the applicable reaches of such facilities are often overshadowed by the lack of willingness of business firms to better integrate perspectives of all the stakeholders to their decision making processes (Korhonen, et al., 2018). As assessed by Geissdoerfer, et al. (2018), circular business models are often praised for their potential applicability for closing, narrowing, slowing, intensifying, and dematerializing existing loops in a firm's value chain – through initiatives such as recycling measures, efficiency improvements, phase extensions, and the substitution of product utility by service and software solutions. Actively incorporating role of the end consumers to better close such loops appears to be a seemingly unexplored territory (Hollebeek, 2011). Since accurately depicting the existing value chain of *Mowi ASA* is an essential task for this study, the popular model prescribed by Richardson (2008) and Bocken, et al. (2014) is followed – which categorizes the concept into three defining processes that are summarized in figure 2.2. The process starts with *Value Proposition*, where the business firm clearly defines and communicates essential technical and philosophical



features of its offered value while targeting specific customer segments to develop and maintain stakeholder relationships. The second phase entitled *Value Creation and Delivery* starts when the firm designs its resource allocation framework and implements its value creation schemes while forming commercial relationships with various supply and distribution channels for value delivery. The chain ends with *Value Capture* – when the firm secures profitability with revenue streams and justifies its relevant cost structure; while taking measures for future growth. Relying upon this framework for depicting value chain adopted by *Mowi ASA* opened up possibilities to maintain continuity with discussions for *Sustainable Business Models (SBMs)*; while reaching newly found conclusions with this particular study.

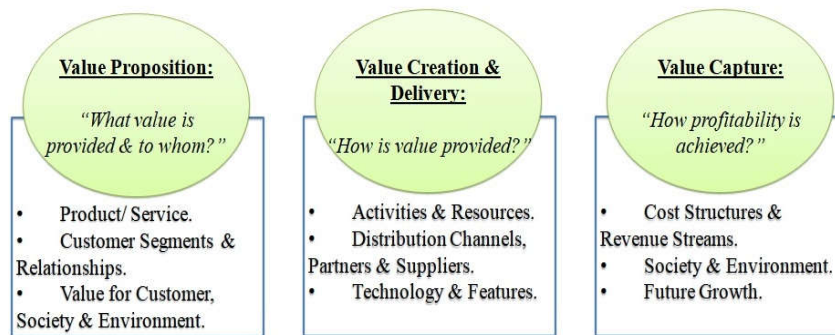


Figure 2.2: Elements of A Business Firm's Value Chain (Bocken, et al. 2014)

## 2.2 Seafood Production & Salmon Farming

The United Nations Food and Agriculture Organization (FAO) estimated in a 2018 report that 33.1% of world fish stocks are subject to overfishing. The fraction of fish stocks that are within biologically sustainable levels has exhibited a decreasing trend, from 90% in 1974 to 66.9% in 2015. In contrast, the percentage of stocks fished at biologically unsustainable levels increased from 10% in 1974 to 33.1% in 2015, with the largest increases in the late-1970s and 1980s (FAO, 2018). This phenomenon has increased pressure on fish stocks across the world. Globally, the share of fish stocks are essentially overexploited – which clearly infers the current levels of wild fish catch are unsustainable (Floyd, 2007).

The outcomes of seeking remedies to this scenario have resulted in increased efforts to aquaculture practices, which involve cultivating freshwater and saltwater fish populations under controlled conditions, and have contributed greatly to reduce harvesting of wild fish commercially around the globe. With carefully tailored intervention processes to enhance productivity through activities such as regular stocking, feeding, and protection from predators, aquaculture has proven its grounds to meet the increasing trends in seafood consumption worldwide (Smith, 2019).

### 2.2.1 Aquaculture Production

Aquaculture as an industry was relatively niche in the 1960s, with an output of a few million tons per year. Particularly since the late 1980s, annual production has increased, and the worldwide aquaculture production has reached dramatically from 17 million tons per year in the 1990s to over 100 million tons recently. Furthermore, the global wild fish catch has not increased since the early 1990s and remained relatively constant at around 90 to 95 million tons per year (FAO, 2018). Figure 2.3 shows evidence that as an eventual outcome of these two scenarios combined, aquaculture production has surpassed wild catch globally. The aquaculture industry has secured its major role for meeting global demand for seafood in recent decades and continues to play a critical role in protecting wild fish populations as demand for seafood continues to rise (Neori, et al., 2004).

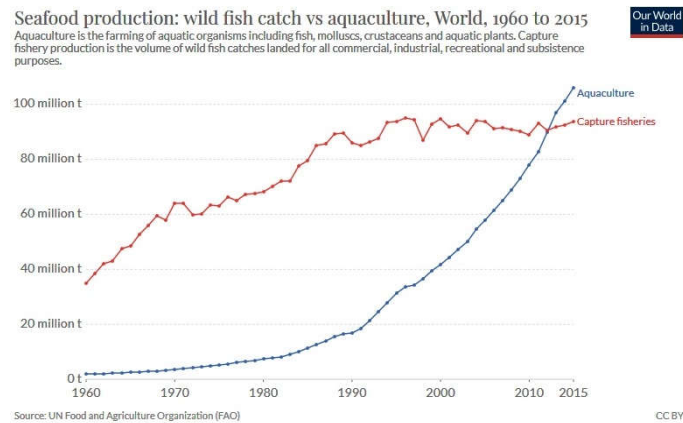


Figure 2.3: Seafood Production: Wild Fish Catch & Aquaculture (FAO)

### 2.2.2 Salmon Farming

*Salmon Farming*, one of the dominant forms of aquaculture, was started as an experiment in the 1960s. Many breakthroughs with respect to biological and

technological challenges such as development of dry feed fundamentally advanced salmon aquaculture in the 1970s. Inspired by the initial success, it became an industry in Norway in the 1980s, followed by Chile in the 1990s. The farmed salmon industry has grown substantially in the past 40 years and today approximately 60% of the world's salmon production is farmed. In 2007, the aquaculture of salmons was worth US\$10.7 billion globally. Salmon aquaculture production grew over ten-fold during the 25 years from 1982 to 2007 (Knapp, et al., 2007). In 2015 more than 2,200,000 tons of farmed salmon were produced commercially, while around 880,000 tons of wild salmon were caught during the same year (Guilford, 2017). Figure 2.4 gives an overview of commercial seafood firms located around coastal areas:



**Figure 2.4: Commercial Salmon Farms** ([thefishsite.com](http://thefishsite.com))

Atlantic salmon farming has traditionally been dominated by a small number of farming regions – Chile, Norway, Canada, and Scotland – as several specific natural condition criteria are to be met to ensure optimal salmon farming production. Such conditions include cold water temperatures between 8°C and 14°C (46°F – 57°F), supportive weather & climate conditions, a sheltered coastline, and optimal biological conditions. Today, salmon farming is also taking place in Australia, Faroe Islands, Iceland, Ireland, and New Zealand; with varied intensities (Castle, 2017). Despite commercial success, controversy has been the defining feature of salmon aquaculture industry over the past two decades (Liu, et al., 2010). The negative impacts on marine ecosystems, usage of chemical pesticides, fish escapes, destruction of open ocean biodiversity and questionable practices with fish feed have received major criticisms in recent times - as companies are facing increased competition for gaining market share worldwide (Forseth, et al., 2017).

## 2.3 Responsible Production & Consumption (SDG 12)

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This paper broadly covers possibilities of adding any of the 17 sustainable development goals set by the United Nations if found relevant, however, a detailed discussion of the scope of all the 17 goals hereby seems unreasonable. Still, since SDG 12, which stands for responsible production and consumption – remains the focal point of this study, additional clarifications of the related terms are essential to gain a deeper level of understanding.

As explained by Frank-Martin & Peattie (2009), the concept of *Responsible Production* concerning SDG 12 broadly involves commercial value creation in a sustainable, ethical and environmentally responsible way, while minimizing pollution by adapting to robust waste management and recycling schemes. The other aspect of SDG 12, the *Responsible Consumption* practices, starts from the concept of sustainability with *Consumerism*. The conception of this topic as a valid argument for addressing globally significant and challenging issues can be traced back to the 90s, especially with the definition proposed during the Oslo Symposium (1994) – which is as quoted:

*"The use of services and related products which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generations."*

*(Norwegian Ministry of The Environment; Oslo Roundtable on Sustainable Production and Consumption, 1994)*

### 2.3.1 Targets Set Under SDG 12

Among the 17 SDGs set by *United Nations General Assembly* in the year 2015, SDG 12 stands for "*Responsible Consumption & Production*" – where the key targets are set to implement sustainable practices throughout the value chain and production cycle of consumable commodities that are produced commercially. Table 2.1 highlights the key targets to be achieved under SDG 12; as prescribed by the *United Nations General Assembly* (Resolution 70/1, The 2030 Agenda). Emphasis is given on adapting to eco-friendly and efficient production methods – by reducing waste generation, intensifying recycling efforts, and maximizing usage of renewable resources.

#	Details
12a	<i>Support developing countries to strengthen their scientific and technological capacities to move toward more sustainable patterns of consumption and production.</i>
12b	<i>Develop and implement tools to monitor sustainable development impacts for sustainable tourism which creates jobs, promotes local culture and products.</i>
12c	<i>Rationalize inefficient fossil fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities.</i>
12.1	<i>Implement the 10-Year Framework of Programs on sustainable consumption and production (10YFP), all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries.</i>
12.2	<i>By 2030, achieve sustainable management and efficient use of natural resources.</i>
12.3	<i>By 2030, halve per capita global food waste at the retail and consumer level, and reduce food losses along production and supply chains including post-harvest losses.</i>
12.4	<i>By 2020, achieve environmentally sound management of chemicals and all wastes throughout their life cycle in accordance with agreed international frameworks and significantly reduce their release to air, water and soil to minimize their adverse impacts on human health and the environment.</i>
12.5	<i>By 2030, substantially reduce waste generation through prevention, reduction, recycling, and reuse.</i>
12.6	<i>Encourage companies, especially large and trans-national companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle.</i>
12.7	<i>Promote public procurement practices that are sustainable in accordance with national policies and priorities.</i>
12.8	<i>By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.</i>

**Table 2.1: Targets Set Under SDG 12 (UN General Assembly, 2015)**

Major challenges involve providing technical supports to developing economies for incorporating sustainable production and consumption, facilitate job creations and production procedures featuring sustainable practices, synthesizing public procurement practices with nationally set sustainable policies and priorities, reduce carbon emissions and inefficient usage of fossil fuel without affecting growth of emerging economies, and implementing international frameworks for waste management schemes ensuring better health and environment.

### **2.3.2 Responsible Production**

Traditionally, business firms were perceived as competitive profit maximizing entities with resources available; with little or no concerns on long term impacts of the activities concerning the external operational environments and society (Coase, 1937). Upon discovery of the greenhouse effects and later global warming and climate change due to human interventions, contemporary philosophies have evolved to turn

commercial organizations into socially accountable and environmentally responsible enterprises (Donnelly, et al., 2004). Responsible production therefore includes taking a range of issues on board into active consideration regardless of the nature and type of value creation activities, such as minimizing carbon footprints at all stages of the production processes – by making environmental health and safety measures paramount. Major challenges also involve cutting down on or seeking to eliminate waste generation, monitoring and minimizing negative impacts and harmful emissions of production processes on natural environments, ecosystems and biodiversity, and securing supplies from sustainable sources.

### 2.3.3 Certifications & Eco-labels

Table 2.2 presents some popular examples of such authorities, which feature organization-specific standard accreditation schemes while focusing on industry-related sustainability issues:

#	Title	Description
1	Nordic-Swan Ecolabel	<i>Distributed in Norway, Sweden, Denmark, Finland &amp; Iceland; it refers to distinguished products that carry attributes of positive effects on the environment.</i>
2	Global Reporting Initiative (GRI)	<i>GRI frames out and disseminates global sustainability reporting guidelines for voluntary use by organizations reporting on the economic, environmental, and social dimensions of their activities.</i>
3	Organic Food Labeling	<i>Responsible for the legal definition of organic food in the United States and issue organic certification.</i>
4	MSC Labeling	<i>Is an independent non-profit organization that rewards sustainable fishing practices in order to cope with problems involving overfishing.</i>
5	FLO Certification	<i>Seeks greater equity in international trade by offering better trading conditions to marginalized products, and securing the rights of workers.</i>
6	EKOenergy Label	<i>Originated in Finland, it evaluates sustainability of electricity products on open energy markets.</i>

**Table 2.2: Examples of Accreditation & Certificates Issued for Sustainable Production**

Today, it is a common practice to develop value chains for sustainable production by earning certifications and standardizations from internationally acclaimed authorities (Frank-Martin & Peattie, 2009). By setting up value creation systems to comply with these standards, organizations are gaining large scale acknowledgements as responsible and sustainable commercial entities among stakeholders including suppliers and consumers – giving them incentives to establish stable business relationships with loyalty (Allen & Albala, 2007). Meeting requirements to add these accreditations on commodity packages provide extra values to different stakeholders;

by communicating strong messages that incorporate responsible production practices that are officially recognized. Although applications of these accreditations have been the subject of strong debates with issues such as unethical financial agreements, conspiracy, undisclosed settlements and questionable evaluation criteria assessments (Lavallee & Plouffe, 2004) – they serve as the initial benchmarks to be achieved for sustainable production practices; and currently there are no other approved alternatives available for commercial firms to earn such recognitions from a neutral, internationally acceptable and bias-free perspective. Figure 2.5 shows some popular examples of such eco-labels:



Figure 2.5: Examples of Accreditation for Sustainable Production (keranews.org)

### 2.3.4 Responsible Consumption

Theoretically, *Responsible Consumption* is the outcome of both individual and collective decision makings for satisfying needs while adapting to sustainable consumer behaviors. The core arguments involved with this topic are highlighted in table 2.3 (Fuchs & Lorek, 2005):

#	Title	Description
1	Effective Use of Resources	<i>Enforcing responsible purchase &amp; consumption patterns with basic utilities such as water &amp; energy.</i>
2	Minimization of Waste & Pollution	<i>Reducing waste generation &amp; pollution due to consumption practices such as household waste.</i>
3	Use of Renewable Resources	<i>Encompassing greater concerns for natural resources that require time to replenish such as timber, livestock, staple crops and fishery.</i>
4	Fuller Product Life Cycles	<i>Making the most out of available economic values of a commodity with creative reuse (Upcycling) &amp; cradle-to-cradle designs.</i>
5	Intergenerational & Intra-generational Equity	<i>Consumption practices that secure fairness, availability &amp; justice between generations.</i>

Table 2.3: Core Arguments with Responsible Consumption (Fuchs & Lorek, 2005)

Guiding principles advocating the concept also include effective use of resources, better management of waste, minimization of pollution due to consumption practices, and utilization of fuller life cycles for consumable commodities – as consumption practices are often conditioned, facilitated, and constrained by contemporary societal norms, practices of political institutions, adaptations of public policies, infrastructure supports, market trends, and popular culture (Fuchs & Lorek, 2005). As summarized in table 2.4, in order to properly validate the initial discussions covering RQ1 and RQ2 of this study which focus on finding motives and incentives for end users leading to purchase and consumption, a closer look at the several steps involved in consumers’ decision making processes prescribed by Dewey (2007) seems essential:

#	Title	Description
1	Problem Recognition	<i>Occurs when consumers sense a difference between what they perceive to be the ideal versus the actual state of affairs.</i>
2	Information Search	<i>Consumers become more aware of their initial perceptions through personal, community, commercial and public information sources.</i>
3	Evaluation of Alternatives	<i>Consumers consider the total costs to be incurred with different choices involving commodity acquisition, use &amp; post-use phases. <a href="#"><u>(Sustainability issues such as environmental concerns expressed as environmental costs, risks and benefits come to play here).</u></a></i>
4	Purchase Decision	<i>Consumers have to consider trading off the environmental benefits against other attributes such as higher price, better performance or better design.</i>
5	Post-purchase Behavior	<i>Availability &amp; quality of after-sales services, considerations for consumption frequency and additional types of usage leading to consumer loyalty are of key interests at this stage.</i>

**Table 2.4: Sequential Steps Involving Consumers' Decision Making Process (Dewey, 2007)**

Responsible consumption therefore refers not only to individuals and households, but also to governments, commercial organizations, and various other social institutions. From this viewpoint the concept is largely related to discussions concerning sustainable production and sustainable lifestyles (Vergragt, et al., 2016). Incorporating closed-loop solutions to the value chain therefore involves active engagements of commercial firms with each of these five steps through *Strategic Marketing* and *Customer Relationship Management (CRM)* schemes.

### **2.3.5 Impacts of Responsible Consumption**

Consumption and purchase decisions are often considered only as an economic phenomenon that addresses individual drives and motivations – however, the relevant



activities and their consequences can have far higher and lasting impacts on society, culture, environment and climate. Sustainable consumption therefore is often considered as a complex and evolving subject; where opportunities available for different social institutions to improvise and being creative are virtually limitless – as consumption needs to be understood more holistically as a process which is strongly influenced by the social context in which it takes place. Progresses also depend greatly upon supporting activities that aim for long term positive changes gradually occurring within consumer lifestyle and throughout society (Jackson, 2005); as Frank-Martin & Peattie (2009) expressed vividly in these notable remarks:

*“Buying and consuming an individual product, like a cup of coffee on the way to work or class, might seem such a trivial action that, although it refreshes us, it leaves no lasting impression or memory. However, that action will combine with those of other consumers to contribute to the economic success of the coffee retailer, the overall growth in the economy and the volume of waste with which local government must deal. It will influence the demand for, and the price of, coffee beans and milk, and in doing so will influence the lives and prosperity of thousands of farmers throughout the world, and shape their investment and planting decisions for next year. It will have knock-on impacts in terms of the demand for pesticides, fertilizer, packaging materials and energy. The economic impact of that coffee will contribute to the future share price of the retailers and the levels of income and investment they will enjoy. At a national level, it will contribute to national prosperity and in doing so will influence the future policies on taxation and interest rates.”*

(Frank-Martin & Peattie, 2009)

## 2.4 Conclusions

To summarize and conclude the literature review section of this paper, the idea illustrated by *WWF (World Wide Fund for Nature)* can be taken into account, as presented in figure 2.6:



Figure 2.6: SDG 12 Balancing Eight Additional & Related SDGs (WWF)

SDG 12 is prescribed here as the balancing goal which, if implemented properly, will greatly facilitate realization of several other closely related sustainable development goals leading to a far greater promise of comprehensive sustainability practices prevailing within society. The figure precisely demonstrates the interconnectedness and interrelatedness of the activities involved, where SDG 12 has the appeal and drive to serve as the central inspiration for both sustainable value creation and responsible consumption. However, it also depicts an eventual necessity to assess means of actively involving consumers throughout the various processes. Since this paper includes an exploratory case study of *Mowi ASA* – a leading producer of basic consumer goods such as farmed seafood, the purpose can't be fully rationalized without looking intensely into what contemporary trends, thoughts, traits and perceptions among the end users of this commodity actually reflect; to take into account the full scale and scope of the closely related activities required for developing, maintaining and further reinforcing sustainable business models better incorporating circular and close-loop solutions for value chains.

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*End of Chapter Two*

## CHAPTER THREE: METHODOLOGY

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### Overview

Since identification of the research problem and formulation of the research questions of this study are covered under chapter one and two of this paper –a thorough review of the chosen research design approaches and their relative rationales for addressing the research problem appropriately; along with details of data collection procedures and justifications are outlined and discussed hereby. The contents of this particular chapter therefore are organized with discussions on qualitative research methods, case study, interviews, research design and rationale, interview design, participant selection, research validity, reliability and confirmability. Securing detailed explanations of these outlined issues in context of this study provides the logical framework for primary data acquisition and analysis.

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### *3.1 Qualitative Research Methods, Case Study & Interviews*

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According to Berg & Lune (2012), qualitative research is a scientific method of observation to gather non-numerical data. This type of research refers to the meanings, concepts, definitions, characteristics, metaphors, symbols, and descriptions of the research context instead of their numerical measures. Qualitative research approaches are employed across various academic disciplines, focusing particularly on the human elements of the social and natural sciences – where quantifiable attributes are particularly challenging to incorporate due to applicability and complexity (Given, 2008).

#### **3.1.1 Choice of Case Study**

As described by Mills et al. (2010), a case study is a research method involving an up-close, in-depth, and detailed examination of a subject of study (The case), as well as its related contextual conditions. The method has earned a prominent place in various disciplines and professions, ranging from psychology, anthropology, sociology, and political science to education, clinical science, social work, and administrative science. Case studies can be related to both qualitative and quantitative research methods. Popular classifications of case study approaches include *Illustrative Case Studies*, which are primarily descriptive studies which utilize one or two instances of an event to show the existing situation. Another classification is entitled as

*Exploratory Case Studies* – condensed case studies performed before implementing a large scale investigation. Other examples include Cumulative Case Studies that serve to aggregate information from several sites collected at different times, and *Critical Instance Case Studies* – examining one or more sites either for the purpose of examining a situation of unique interest with little to no interest in generalization. In case of this particular study, the exploratory case study approach appears to be of greater relevance to address the research problems in an appropriate way. The role of consumer involvement for responsible production and consumption is a relatively unexplored area and studying only one business organization operating within the aquaculture industry will cover only a part of its overall scope. However, outcomes of this study would hopefully open new opportunities to pinpoint key issues that can be further explored with more narrowed down and specific research questions.

### **3.1.2 Choice of Interviewing Method**

As explained by Kvale & Brinkman (2008), an interview is a form of planned conversation where one participant asks questions (Interviewer), and the other provides answers (Interviewee). Information is offered by the interviewee to interviewer - which may then be used or provided to other audiences in form of description or analysis, whether in real time or later. Interviews have a wide variety of uses in fields such as employment assessment, media publications and broadcasts, psychological treatments and counseling, and numerous administrative affairs. For academic research, however, interviews are essential tools for gaining primary data exclusively for qualitative approaches – where traditional survey methods have little or no use due to the context and purpose of the study. Based on the technology used, interviews can have many classifications – such as telephone interview, online interview, and computer-assisted interview. However, for academic purposes, interviews can be of four major types (Seidman, 1998): *Informal, Conversational Interview*, where no predetermined questions are asked, in order to remain as open and adaptable as possible to the interviewee's nature and priorities. This approach is the typical example of unstructured interview. Another type is known as *General Interview Guide Approach* – intended to ensure that the same general areas of information are collected from each interviewee – allowing a degree of freedom and adaptability while getting the required information. *Standardized, Open-ended Interview* features the same open-ended questions being asked to all interviewees –

facilitating faster interviews that can be more easily analyzed and compared. This type is also known as semi-structured interview. *Closed, Fixed-response Interview* is used when all interviewees are approached with the same questions and are asked to choose answers from among the same set of alternatives. This type is also referred to as structured interview. Keeping purpose of this particular study in concern, apparently the semi-structured (*Standardized, Open-ended*) approach seems to be of greater relevance compared to the other available options. Adapting to this method would give greater flexibility to the participants to express their opinions freely, while a fixed set of questions will provide the required continuity and help prevent possibilities of not deviating from the core objectives of the research.

### ***3.2 Research Design & Rationale***

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Weiss (1994) suggested that when considering what type of qualitative research methods are to be used, the greatest advantage of going for interviewing is the depth of details gained from the interviewee. While the verbal aspect of the interview sessions remain central, various social cues – such as voice, intonation, gestures, body language etc. of the interviewee can give the interviewer a great deal of additional supplementary insights that can later be summarized to reveal valuable recommendations.

#### **3.2.1 Primary & Secondary Data Sources**

Since this particular study requires an exploratory case study combined with semi-structured interviews, three major ways of collecting the required data were considered as relevant:

1. Study of Documentation: In order to collect adequate secondary data for building the theoretical framework and to gain a keen understanding of the research problem, detailed study of documentation involving research papers, articles and journals that are related to the research topic was performed.

To properly analyze the research problem, aid from text books and resources that are available on the internet were required in addition. NTNU library resources and affiliates maintain a significant number of exclusive subscriptions with various online

journal publication platforms covering a vast area of studies and interests. According to the suggestions of the Master's thesis supervisors, emphasis was given to further explore recent studies being published among such places.

2. Observation of Video Documentary: Observing day-to-day activities of complex and lengthy aquaculture farming practices require extensive field visits and prolonged stays around remote places. Due to budget limitations and absence of financial allocations, attempting such activities for up-close and first-hand observation of the actual day-to-day affairs of the company being studied weren't considered as feasible.

Moreover, *Mowi ASA* essentially is a global entity within the aquaculture industry with activities spread across 25 different countries – which is way beyond the scope and capacity of this study to properly cover with such observation approaches. However, on popular mainstream online video-sharing platforms, a collection of insightful, detailed and informative video documentaries from acknowledged media sources are available. Notable contributors include *National Geographic*, *Frontline PBS*, *Planet Doc*, *DW Documentary*, *Patagonia*, and *Nat Geo Wild*. In order to maintain credibility for academic research, contents made available only by verified publishers were considered. A detailed list of accessed video documentaries is provided under the *Appendix* section of this paper. Observing these resources from an analytical point of view greatly aided the secondary data collection of this study.

3. Semi-structured Interview: Upon a thorough review of the acquired secondary data, an hour-long interview session was designed with a clearly defined set of questions. The approach was formal and identical for each participant. A greater level of freedom and flexibility were made available for securing natural flow of conversation.

A total of 30 carefully selected participants were considered. As purchase decisions for consumer goods such as farmed Atlantic salmon products are frequently made by individuals, going for one interviewee at a time was considered to be of greater significance for revealing the appropriate details compared to the applications of a focus group. Emphasis was given to plan and design a healthy and open environment for discussing matters that can't be adequately assessed or presented in form of surveys or written questionnaires.

### 3.2.2 Timetable

The initial designing challenges with this study also involved planning and organizing the immense workload in a systematic manner. In order to maintain the schedule and to complete the study in time, a timetable was formed – as shown in figure 3.1:

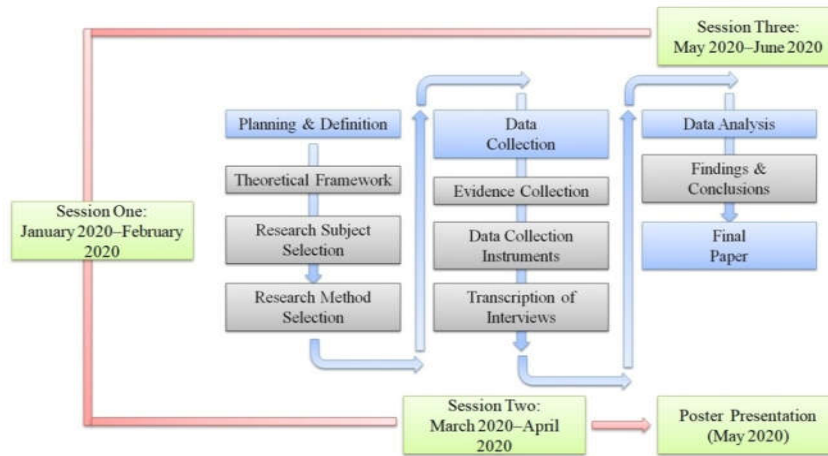


Figure 3.1: Research Timetable

The related activities were divided into three major sessions. During the first session from January to February 2020, a brief plan based on the assigned Master’s thesis topic was made – followed by development of a framework, leading to the research subject and method selection. Then, the second session started from March 2020, where the data collection began. During May 2020, a poster presentation was due, where progresses were discussed with supervisors and faculty members. Finally, within June 2020 the paper was finalized for submission.

### 3.3 Interview Design & Participant Selection

Concerning the scope and nature of the enquiries, the interview session demanded that the participants must be provided with a high degree of freedom and flexibility for expressing their opinions. Therefore, no specific set of questions were made with a fixed set of available options to choose from. In order to ensure all the participants meet the same array of enquiries – a sequence of conversational structure was formed, which is summarized in table 3.1 as follows:

#	Topic	Duration	Details
1	Brief Overview	05 Minutes	<ul style="list-style-type: none"> <li>- Initial greetings &amp; introduction.</li> <li>- Brief description of the purpose of interview &amp; explanation of the requirements for this study.</li> </ul>
2	Sustainability & SDG 12	05 Minutes	<ul style="list-style-type: none"> <li>- Opinions on meaning &amp; application of the concept of sustainability in general.</li> <li>- Explanations of SDG 12 &amp; its specific agenda.</li> </ul>
3	Responsible Consumption	05 Minutes	<ul style="list-style-type: none"> <li>- Theoretical overview of responsible consumption practices &amp; their relevance for sustainability.</li> <li>- Explanations for personal day-to-day responsible consumption initiatives undertaken.</li> </ul>
4	Farmed Seafood	05 Minutes	<ul style="list-style-type: none"> <li>- Assessment of the role of farmed seafood as a consumer product &amp; its relative importance to the participant.</li> </ul>
5	Company Perception	05 Minutes	<ul style="list-style-type: none"> <li>- Individual perceptions on Mowi ASA as a producer of farmed seafood.</li> <li>- Explanations on the activities of the company &amp; its relevance to this study.</li> </ul>
6	Purchase Decision	15 Minutes	<ul style="list-style-type: none"> <li>- General assessment on purchase patterns &amp; priorities for consumer products.</li> <li>- Specific personal cues, motivations &amp; criteria for making purchase decisions with farmed seafood.</li> </ul>
7	Consumer Incentives	15 Minutes	<ul style="list-style-type: none"> <li>- Opinions on responsible consumption incentives.</li> <li>- Identification of key terms expressed as consumer incentives by the participant &amp; explanations of their relative significance.</li> </ul>
8	Conclusion	05 Minutes	<ul style="list-style-type: none"> <li>- Concluding remarks.</li> <li>- Farewell &amp; extension of gratitude.</li> </ul>
<b>Total Duration:</b>		60 Minutes	

Table 3.1: Interview Design

A preliminary assessment that was performed while developing the research proposal for this study revealed the fact that *Mowi ASA*, as a commercial organization, doesn't sell its end products directly to the end consumers. The value chain of the company ends when numerous wholesalers, retailers, grocery stores and supermarkets all around the globe make large scale purchases of its offered consumer products. However, as individuals ultimately make retail purchases of these products for end consumption, the company presented an excellent prospect for a case study where SDG 12 is the central concern. Since the study required assessments of the end consumers (*Individuals*) of the company – and not necessarily its end customers (*Wholesalers, Retailers, etc.*); decisions were made to meet the individual consumers for the interview. The previously approved research proposal for this study, along with the interview outlines and Master's thesis briefings were shared with the participants digitally prior to the interview sessions – as convenient reading materials for gaining initial perceptions. At first, participants were asked to explain reasons



behind their purchase decision choices with consumer products in general. Then attentions were gradually shifted toward farmed seafood – base product offering of *Mowi ASA*. The discussions followed a casual and open-ended conversation pattern. Manual, hand-written notes were taken during sessions, and the key terms expressed were cross-validated with secondary data resources using *Triangulation Technique*. Since RQ2 specifically asks for motivations and incentives that the consumers think they need for incorporating responsible consumption practices with their retail purchase decisions for consumer goods, an exclusive 15 minutes session was reserved for each interview covering this query. Emphasis was given to find out factors that are not currently present within production practices of *Mowi ASA*, yet the participants expressed their concerns with.

### **3.3.1 Participant Selection Process**

A popular consumer product such as farmed seafood is widely used among various segments of the community, however, since expressive and analytical communication skills were essential for primary data collection and analysis – the selection process was influenced by social connections around adjacent neighborhoods of the researcher. Participants were selected on a random basis with specific emphasis on willingness to engage in detailed and critical conversations, where certain constraints were faced while considering individuals with no previous acquaintances. A brief overview of the collective demographics of the interviewees is provided as an attachment (Attachment II) under the *Appendix* section of this paper. In order to incorporate *GDPR Compliance* for ethical considerations, uniquely identifiable details weren't collected.

### **3.3.2 Situation Assessment for COVID-19 Outbreak**

Due to the situation evolved concerning the COVID-19 outbreak, possibilities for arranging face-to-face, in-person meetings for the semi-structured interview sessions weren't considered as reasonable. Instead, several online communication application platforms with live audio-visual interactive capabilities were utilized. The potential participants were first approached via email and telephone upon availability to reach the initial consent – then the interview sessions were scheduled and arranged upon mutual agreements. As for the case study on *Mowi ASA*, which was required to find explanations to RQ3 and RQ4; going for in-person meetings with company personnel

were not considered as viable – as the company provides adequate amount of publications and official documentations via its official website. To gain any kind of information that are not publicly available from company officials, a higher level of authorization and clearance is required from government agencies – which is a complex bureaucratic process for a foreign national to deal with. Moreover, while seeking out for satisfactory insights and resources to meet requirements for answering RQ3 and RQ4 focusing on company incentives for responsible production and implementation potentials for SDG 12 within its existing value chains – the needs and urges for acquiring such authorizations were never felt. The overall situation was complicated further due to the COVID-19 outbreak, which made commutation around physical premises a virtually impossible challenge to be met, and eventually limited the scope of the exploratory case study of *Mowi ASA* more within theoretical levels by adapting to alternative secondary means such as observation of video documentaries and study of documentations officially published by the company.

### ***3.4 Research Validity, Reliability & Confirmability***

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The core objective for designing a semi-structured interview for this study was to find answers to RQ1 and RQ2. Outlining key components of the interview session therefore required identification of the end consumers of farmed seafood (Base product of *Mowi ASA*) and their assumed expectations for making retail purchase decisions; while determining various motivations and incentives they consider as essential for better incorporating sustainability with responsible consumption.

#### **3.4.1 Research Validity & Reliability**

Loseke & Cahil (2007) stressed on the fact that outcomes of qualitative studies in particular are challenging to verify using numerical analysis typical of statistical approaches – where applications of terms such as *Validity* and *Reliability* are better understood otherwise as *Credibility* and *Trustworthiness*. These highly subjective terms are often hard to relate while addressing analyses being performed, especially with case study techniques due to presence of several overlapping and equivocal traits. As the discussions infer, application of the *Triangulation Technique* for combining acquired primary data with background analysis for securing research

validity was only applicable for the interview sessions. The reliability of the adopted methodology for repetition with similar studies is also questionable, as the primary data collection efforts were severely handicapped due to the COVID-19 outbreak – which leads to the fact that even though the basic requirements for fulfilling this study were marginally met, the adapted alternative secondary data collection procedures such as observation of video documentaries may not be considered broadly as reliable.

### **3.4.2 Research Confirmability**

Cronbach, et al. (1963) clearly consolidated the fact that each researcher brings a new and unique perspective to a qualitative study, where *Confirmability* refers to the ability to accurately reflect upon participant opinions without personal biases. Despite sincere measures were undertaken to maintain *Objectivity* of this study as bias-free and confirmable, it is impractical to claim such an attribute with this paper from a critical standpoint – as outcomes of both the interview sessions and secondary source observations were decoded and further explored based on perspectives and understandings of the researcher; where due limitations followed while drawing conclusions. Moreover, scholars often highlight the issue that whether outcomes of qualitative studies should be considered as generalizable after all (Shavelson & Webb, 1991) – since such studies often cover contemporary views, shifting perceptions, and social phenomena that are gradually evolving. Popular measures undertaken for interpreting and analyzing similar studies – such as subjective discretions, therefore are duly applicable to the outcomes of this research.

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*End of Chapter Three*

## CHAPTER FOUR: THE STUDY

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### Overview

This fourth chapter includes assessments and discoveries concerning the previously stated *Research Objectives* available under the scope and background section of chapter one, and represents the required *Exploratory Case Study* on *Mowi ASA* – featuring description and analysis of the value chain, end consumers and their assumed expectations, analysis of SDGs and implementation, key performance indicators and communication. Initially, the existing value chain of *Mowi ASA* is assessed and depicted. Framework prescribed by Richardson (2008) and Bocken, et al., (2014) is followed to organize the discussions. Then, the end consumer population is identified and their assumed expectations are highlighted. As the third objective requires an exploratory analysis of SDGs of relevance for organization-specific implementation, insights achieved while accomplishing the previous two research objectives were considered. Finally, the key performance indicators in relation to the targets set under relevant SDGs to communicate performance are identified.

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### *4.1 Description & Analysis of The Value Chain*

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The vision of *Mowi ASA* is “*Leading the Blue Revolution*”. The concept of blue revolution evolved as a response to criticisms on conventional methods of fish farming and their impacts on the environment. The fish waste and uneaten fish food accumulating on the sea surface is gradually becoming a source of toxic materials – threatening other marine lives and organisms by upsetting the ecosystems, while deteriorating the quality of fresh water (Hites et al., 2004). The consequences of attempting to resolve these issues eventually led to the concept of *Blue Revolution* – which emphasizes sustainable fish farming without deteriorating the natural environment. *Mowi ASA* is committed to accept the challenges of recent times, and is focusing on innovation and research to continue leading with plans and activities revolving around this concept. Reflections on these plans and activities are essential for understanding contemporary consumer expectations and needs for farmed seafood.

#### **4.1.1 The Business Model**

According to (David & McLoughlin, 2010), the business model should reinforce the firm’s overall strategic choices – both planning and implementation, in a way that promises sustainability over time, and can be clearly referred to as one of the key

factors that differentiates its identity from competitors. As for *Mowi ASA*, an integrated system of production from fish feed to fillet indicates that the corporate level strategy being adapted by the company is a typical example of the *Vertical Integration* approach. It focuses primarily on producing farmed *Atlantic Salmon*, and it offers a variety of products at around competitive price ranges with features such as fresh or frozen – with additional options such as either primary or secondary-processed. Its full-fledged, integrated value chain enables the company to efficiently maintain a high level of internal control for monitoring quality of its products throughout – a unique feature compared to the other firms operating within the same industry; leading to the conclusion that the business level strategy adapted by *Mowi ASA* is inspired by principles of the *Product Differentiation* approach. Figure 4.1 demonstrates the core features of the adapted business model of *Mowi ASA* in form of an integrated value chain:



Figure 4.1: Integrated Value Chain of *Mowi ASA* (Mowi, 2019)

As the figure suggests, the process starts from fish feed productions, followed by the land-based brood-stock facility for managing hatching activities. Freshwater developments of juveniles follow, as seawater on-growing of salmonids demand specific biological conditions that can't be properly controlled or monitored around open-ocean. Finally, the production phase ends with primary and secondary processing of packaged salmon products. Although these core steps are relatively simple and straight-forward to apprehend, the volume of activities is huge – which requires sophisticated, time critical and highly automated management involving application of cutting-edge technologies.

The company maintains accreditation from various certification agencies such as *Good Agricultural Practices (Global GAP)*, *Best Aquaculture Practices (BAP)*, *Aquaculture Stewardship Council (ASC)* and *Global Food Safety Initiative (GFSI)* – for ensuring food safety, environmental standards and social responsibilities throughout various stages of its value chain.

While the features of land-based brood-stock activities, freshwater development of juveniles and fish processing facilities are praised by various industry and environmental experts (Knapp et al., 2007), the fish feed production and seawater on-growing of salmonids have been heavily criticized with critical environmental and sustainability issues (Knapton, 2017); which include impacts on wild salmonids, threats to marine life ecosystems and biodiversity, contamination and pollution of open ocean water, and conflicts around shared coastal areas. The various biochemical effects of the used fish feed on harvested salmon fillets and their relative impacts on human health are currently under investigation (Vidal, 2017), and questionable chemical usage of inorganic pesticides have raised significant concerns among environmental activists (Marty, et al., 2010).

#### 4.1.2 Value Proposition

As summarized in table 4.1, the generic product ranges offered by *Mowi ASA* include whole gutted fish, label rouge salmon from Norway, organic salmon from Ireland, steaks, cutlets, portions, loins, kebabs, white fish and so on.

Material Value Drivers	Ambitions
Branding & Product Innovation	Value-added Sales Growth
Ensure Food Safety & Quality	No recalls related to food safety. Superior Quality > 92%.
Product Certification & Verification	All farms Global G.A.P. certified or equal, and processing plants recognized by Global Food Safety Initiative (GFSI).
Healthy Seafood	Omega-3 content > 1g per 100g product.
Markets	Generic Product Ranges
Belgium, Canada, Chile, France, Ireland, The Netherlands, Norway Poland, Scotland, US, Turkey.	Whole gutted fish (head on & head off), label rouge salmon from Norway, organic salmon from Ireland, steaks, cutlets, portions, loins, kebabs, white fish & other seafood.

Table 4.1: Value Proposition Features of *Mowi ASA* (Mowi, 2018)

The process of *Value Proposition* requires the business firm clearly defining and communicating essential technical and philosophical features of its offered values while targeting specific customer segments to develop and maintain stakeholder

relationships. The customer *Value Proposition* belongs to the business level strategy of *Product Differentiation*, where *Mowi ASA* offers a wide selection of farmed seafood. The company considers branding, product certification and validation, food quality and safety, and product innovation as its core *Value Drivers*. Its product development teams are responsible for understanding and catering the diversified needs of customers worldwide (Mowi, 2018). It has earned a widespread reputation and recognition primarily by focusing on innovative research and sustainable development with farmed seafood around its integrated research facilities and company premises; as part of the initiatives undertaken to communicate its core value propositions among various stakeholders including end consumers. However – the actual practices of adopted farming processes around remote coastal areas are often overlooked.

#### 4.1.3 Value Creation & Delivery

As figure 4.2 suggests, the value creation and delivery process implemented by *Mowi ASA* is divided into three major sets of activities:

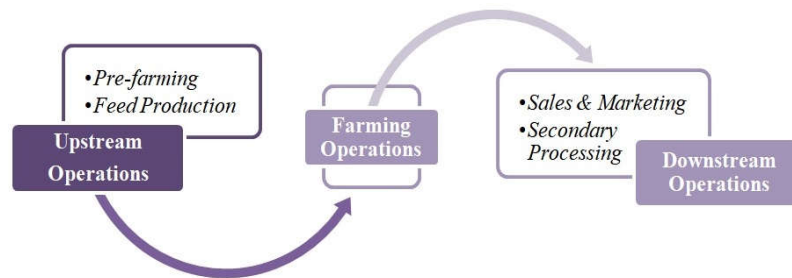


Figure 4.2: Value Creation & Delivery Process of Mowi ASA

The *Upstream Operations* start with pre-farming engagements and feed production. Then the main value creation process starts with farming operations – where juvenile salmonids are transferred from land-based facilities to open seawater for maturity. The process ends with *Downstream Operations*, which include secondary processing for consumption, along with various wholesale and retail marketing activities. *Mowi ASA* promises to offer a wide selection of trusted, sustainable, natural, nutritious and delicious seafood to its customers around the globe with unparalleled value and utmost trust, by following this vertically integrated, full-fledged value creation and delivery process – which is designed to ensure strict quality control based on category-leading

guidelines administered throughout different stages of feed production, farming and distribution activities.

#### 4.1.4 Value Capture

As figure 4.3 suggests, in terms of profitability, 2019 was not the best of years for *Mowi ASA*. In addition, the net cash flow per share almost dropped by half compared to conditions even three years ago. Still, due to its massive scale of operations, the company didn't have to face much difficulty for securing its financial resilience.



Figure 4.3: Cost Structure, Revenue & Profitability of *Mowi ASA* (Mowi, 2019)

Since aspects of value capture essentially include assessments of key financial performances for a commercial business firm, a brief overview of its publicly disclosed statements is hereby shown. According to its integrated *Annual Report* (Mowi, 2019), the company has secured gross revenue of EUR 4.1 billion last year, with the volume maintaining a steady stream of growth compared to the performances of previous years, despite the fact that the market price for salmon has experienced a steady decline when adjusted for inflation (Castle, 2017). Although the company is seemingly doing decent in terms of securing large volume of monetary inflows, the rate of growth has steadied up a bit over the years, indicating the business reaching and passing through the maturity phase of its life cycle.

*Mowi ASA* predominantly is a business-to-business commercial entity, with various other enterprises such as supermarkets, retailers, restaurants and shopping malls representing as its key revenue sources. Individual end consumers are therefore not



directly included into its value capture processes, as they experience the end products of the company through third party retail transactions. The company often addresses this fact with terms such as “*Customers and Consumers*” in its publicly available documents and reports, and it lacks precise strategic planning for developing and maintaining active engagements and relationships with the actual end consumers of its products. Since this study focuses on consumer involvement for SDG 12 implementation, analysis of the existing value chain of *Mowi ASA* revealed the fact that the company is not adapting to value creating approaches that are significantly flawed from theoretical perspectives, and would require major changes. However, there are opportunities present to improve the framework for sustainability, and detailed suggestions are made under chapter five of this paper.

#### 4.2 End Consumers & Their Assumed Expectations

As a leading producer of farmed seafood, *Mowi ASA* has a vast, diversified and global end consumer base spread across several continents. Salmon products are staple choices – meeting needs for everyday protein with millions of families around the world. The defining demographics of this large consumer base has numerous overlapping features – since kids, teenagers, adults and aging segments alike are loyally dependant to salmon products in general, if not to retail brands of *Mowi ASA* in particular. As summarized in figure 4.4, fish consumption per capita has maintained a steady growth over the past two decades, where farmed salmon products has significant prospect for future growth.

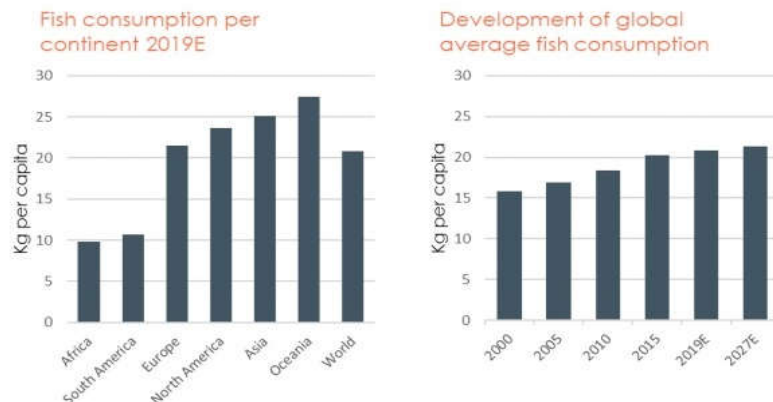


Figure 4.4: Fish Consumption Per Continent & Global Average (Mowi, 2019)

Despite possessing similar nutritional values, wild salmon is frequently positioned for its rich and distinctive features as a high-end consumer product – with certain variants of value-added secondary-processed offerings such as smoked salmon are considered as delicacy (Kinetz, 2002).

The retail price ranges are well within affordable ranges of most economic classes, however, when compared to other popular sources of protein such as vegetables, farmed salmon ranks considerably higher as a commodity. The trait is reflected on conditions of global protein consumption, as figure 4.5 shows relative position of Atlantic salmon compared to other popular animal protein sources.

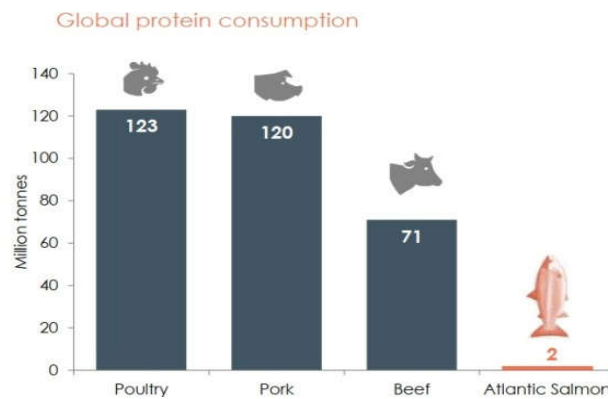


Figure 4.5: Global Protein Consumption (Mowi, 2019)

Part of the primary data collection in form of semi-structured interviews for this study included a dedicated five minutes session for identifying assumed expectations of end consumers concerning farmed seafood, which revealed some generally applicable insights; such as favoring wild salmon products compared to farmed salmon, preferring conventional fish markets instead of supermarkets, taking salmon products less frequently as part of regular diet plans, and showing presence of negative perceptions for salmon farming practices. Detailed descriptions of the acquired insights follow:

#### 4.2.1 Wild vs. Farmed Salmon

A common preference for wild salmon compared to farmed salmon has been noticed. Participants shared reasons behind this preference as better taste and distinctive color, while eight interviewees associated pleasant memories with social celebrations and associated several traditional wild salmon recipes with the occasions.

#### **4.2.2 Choice of Shopping Place**

12 interviewees revealed a general tendency to shop for salmon around conventional fish markets instead of supermarkets or grocery stores. To reinforce their choices they highlighted facts such as availability for freshly catch salmon with competitive price.

#### **4.2.3 Staple vs. Occasional Meal**

On this issue the participants shared mixed remarks. For 19 interviewees, salmon products are positioned as a special occasion choice – with intakes taking place once or twice a month. For 11 others, salmon is part of weekly diet plans.

#### **4.2.4 Perceptions on Farmed Salmon**

Seven of the participants shared negative views on farmed salmon and associated issues such as *Environmental Pollution* and *Genetic Modification* of species. When asked for possible sources of such insights, they mentioned conventional *Media Coverage*. As a supplement to this query, the researcher questioned if they investigated the actual scenarios present around farming sites, and the answer was no. The conversation clearly revealed existence of a general lack of communication with possible spread of misperception.

#### **4.2.5 Remarks on *Mowi ASA***

As the concluding query of this particular session of the interview, the interviewees were requested to share some thoughts on the case company, *Mowi ASA*. To the researcher's surprise five of them expressed their unfamiliarity with the company name. After some hints were provided, they associated the company identity with *Marine Harvest*, which was used by *Mowi ASA* during a period lasting from 2007 to 2019. This phenomenon reflected the fact that major change with *Brand Identity* is a complex undertaking to be considered – and adaptation to a new brand name doesn't always infer popularity.

Identification and analysis of the assumed expectations of the end consumers of farmed salmon products can be better performed with a well-defined questionnaire and larger sample size. As partial fulfillment of the requirements of this study the acquired insights reveal some tentative overview, and the need for additional, more confined research attention is often noticed.

### ***4.3 Analysis of SDGs & Implementation***

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The core requirement of this segment is to propose steps and initiatives *Mowi ASA* can take to further incorporate SDGs within its effective business model. Since the entire fifth chapter of this paper is dedicated to the analysis for implementation of SDG 12 while addressing RQ1, RQ2, RQ3 and RQ4 – possibilities of incorporating some additional SDGs not currently covered by the company are being highlighted hereby.

#### **4.3.1. Expanding Business Operations**

Being a global leader in farmed seafood industry, *Mowi ASA* can't ignore the growing pressure of the increasing demands in food supply for meeting basic needs around less developed places such as Southeast Asia and Africa. The company can contribute to *Poverty Alleviation* by contributing to help local population meet economic development challenges that characterize these less developed regions, by further expanding its business operations around such areas. As target 1.A under SDG 1 (UN, 2015) specifically requires ensuring significant mobilization of resources through enhanced development cooperation, in order to provide adequate and predictable means for least developed countries in particular, the company can work closely with the local governments to develop the required skills and expertise among regional labor forces, to meet its operational requirements – contributing toward poverty alleviation by creating education and employment opportunities (*SDG 1; No Poverty*).

#### **4.3.2 Product Range Innovations**

It is quite disappointing to notice that being a global leader in farmed seafood industry with adequate resources; the company is not actively considering investing into alternative *Freshwater Aquaculture* and *Land-Based* productions consist of several additional environment-friendly and commercially feasible species with proven aquaculture promises. Since 1960s the company has been strictly producing mostly salmon and rainbow trout – ignoring enormous potentials for becoming major contributor toward meeting global exponential increases in demand for aquaculture products; and thus missing opportunities to contribute toward sustainable food security for a greater share of population. As target 2.A under SDG 2 (UN, 2015) demands an increase in investments for research and extension services to enhance

agricultural productive capacity, the company can actively contribute with product range innovation for enhanced food security (*SDG 2; Zero Hunger*).

### **4.3.3 Incorporating Integrated CSR**

Although *Mowi ASA* is practicing some CSR activities mostly concerning employee benefits and healthcare, the practices are not integrated within the long term strategic management planning of the company (Mowi, 2019). An integrated set of CSR activities that are proactive, thoroughly planned and is a match with the long term goals and visions of a company's strategic management process is a decisive trait of an organization thriving for sustainability (Galbreath, 2010). However, attempts to do so require strict and strong ethical support from all the stakeholders of a business firm, and it is not always possible to get the benefits out of such initiatives within a short period of time. In addition, instead of concentrating only on the welfare and benefits within the organization, *Mowi ASA* can consider applying some modern and highly interactive CSR concepts involving usage of available online platforms mostly to raise awareness on responsible production and consumption of farmed seafood. Target 4.7 under SDG 4 (UN, 2015) addresses importance of ensuring that learners acquire the knowledge and skills needed to promote sustainable development capacity. A well-planned campaign addressing contemporary issues and challenges of producing seafood sustainably among the mass can also serve as a source of education for younger generations, which in the long term can bring positive outcomes to the community (*SDG 4; Quality Education*).

### **4.3.4 Featuring Circular Economy**

Implementing concepts of a circular economy – where disposable waste materials and outputs of one set of activities are utilized in full as inputs of another value creating effort, is often a challenging task to accomplish within value chain of one business firm due to efficiency and profitability issues (Korhonen, et al., 2018). However, at macro levels, economies practice such concepts across industries; where waste output of one industry is a viable raw material input for another. The highest level of prosperity is achieved through formation of interrelated and interconnected industry clusters consisting of numerous business firms operating independently and collectively contributing toward sustainability as a nation or community. Although the concept of circular economy is particularly effective for recyclable manufacturing

industries, conventional production practices with farmed seafood come with far less appeal for profitable implementation of such closed loop solutions, even for companies with large and integrated value chains such as *Mowi ASA*. Since production procedures for base consumer goods in general are fairly linear and straight-forward, opportunities to improvise with value creation is relatively narrow. For instance, a manufacturer of furniture can easily innovate with its product design and implement any major technological breakthrough without facing significant safety and security issues, whereas a producer of farmed seafood has to pass through several legislative hurdles concerning food and health standards to implement the simplest of changes to its core value adding efforts; since the threshold of risk tolerance with mass produced staple farmed products is low among communities. Still, that doesn't necessarily eliminate opportunities to invest for small and medium scale upgrades – and to *Mowi ASA*, which is under scrutiny for polluting open ocean water with waste materials generated by its farming practices, opportunities are there to modify its land-based upstream operations with robust recycling schemes for seafood processing; ensuring safer working conditions and better sanitations for workers dealing with chemically hazardous production process compounds. As target 6.3 under SDG 6 (UN, 2015) requires improving water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, the company can take initiatives to contribute toward sustainability by implementing better water treatment solutions (*SDG 6; Clean Water & Sanitation*).

#### **4.3.5 Initiatives on Climate Change**

Successful implication of climate change initiatives demand contributions from all sectors of a functioning economy over a well-planned frame of time. As a global leader in seafood industry, *Mowi ASA* can take the leadership role when it comes to sharing expertise and experiences regarding issues that require immediate attentions of the governing authorities. Concerning short term implications, however, the company can apply some technological solutions that are already available to positively address climate change, such as reviewing existing logistic facilities while ensuring better management through active consideration of available resources with renewable alternatives, and seizing the usage of questionable chemicals for treating fish diseases and find more environmentally friendly and organic solutions. Designing and planning possible ways of incorporating such initiatives into the company's

existing business model will require further extensive research, discussions and debates, which may serve as the starting point toward bringing positive changes within the company's current value creation and delivery processes that are more connected to onshore facilities. Since target 15.1 under SDG 15 (UN, 2015) demands the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems, *Mowi ASA* can extend its compliance toward sustainable land-based resource management (*SDG 15; Life on Land*).

Referring to figure 1.4 under chapter one of this paper – *Mowi ASA* currently claims its active compliances with 10 out of 17 SDGs. The company can increase its contributions toward sustainability with the remaining 7 SDGs by considering initiatives undertaken for expanding business operations with product range innovations, while incorporating concepts of circular economy and integrated CSR. As for climate change – even the smallest of fluctuations can adversely impact the company's value chain; as growing salmon in ocean space require delicate balances of temperature, water and weather conditions. The company requires greater collaborative alliances and broader discussions to meet the relevant challenges.

#### 4.4 Key Performance Indicators & Communication

Moullin (2007) demonstrated that *Key Performance Indicators*; or KPIs are essentially activity-based, specific performance measurement criteria that are hard to generalize for all functional divisions of a business firm. In search for assessing KPIs concerning SDG implementation for *Mowi ASA*, the discussion therefore starts with the core values, as figure 4.6 conveys:



Figure 4.6: Core Values of *Mowi ASA* (Mowi, 2019)

According to its integrated *Annual Report* (Mowi, 2019), the core values mentioned in the company profile are “*Passion, Change, Trust and Share*”. These core values motivate and inspire existing employees to work on achieving goals and objectives collectively that are set by the company management. They also carry messages to the stakeholders and help communicate company identity among various social institutions while providing ethical basis for performance appraisals. As extracted from its *Sustainability Strategy Report* (Mowi, 2020), the company has developed two distinctive themes for communicating its KPIs among major stakeholders for sustainability: *People* and *Planet*. Table 4.2 shows an overview:

Theme	Issues	KPIs
People	Ethical Business Conduct, Diversity & Equity, Workplace Safety, Community Engagement.	<ul style="list-style-type: none"> <li>•Employee training &amp; assessment for compliance with company code of conducts.</li> <li>•Inclusion of women leadership and improvement of gender ratio in workforce.</li> <li>•Compulsory safety training for employees.</li> <li>•Increased scope for community interaction.</li> </ul>
Planet	Climate Change, Plastic Pollution, Sustainable Feed, Fish Health & Welfare, Sea Lice, Waste Management.	<ul style="list-style-type: none"> <li>•Reduction of GHG (Greenhouse Gas) emission and fossil fuel use.</li> <li>•Use of recycled plastic for packaging.</li> <li>•Reduction of fish mortality and antibiotic use.</li> <li>•Integrated pest management initiatives for sea lice.</li> <li>•Strategic targets for zero waste sent to landfill.</li> </ul>

Table 4.2: Key Performance Indicators Set by Mowi ASA (Mowi, 2020)

The company manages to maintain better connections among its various functional divisions concerning KPIs with its vision for “*Leading The Blue Revoution*” – while its compliance with relevant SDGs are better reflected in figure 4.7:

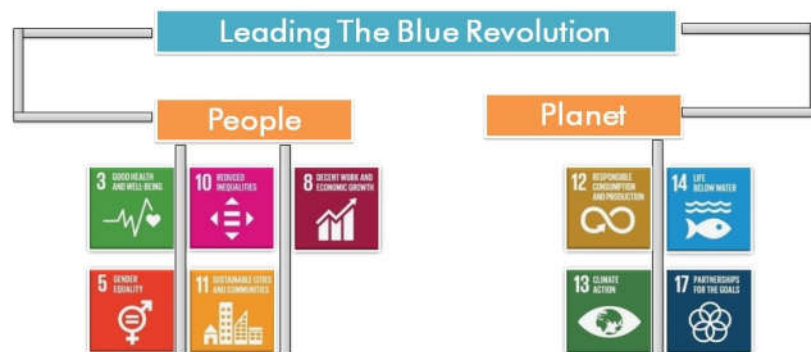


Figure 4.7: SDG Compliance for KPIs (Mowi, 2020)

Only *Industry Innovation and Infrastructure (SDG 9)* is not included here with the company’s current associations regarding communicating its KPIs with major stakeholders.



Although the themes and hints being presented here are extracted from various officially published documents by *Mowi ASA*, the authenticity and implication of the issues at stake would certainly require significant additional research attention and investigation for verification. However, the company has made significant contributions especially with sustainability reporting in recent years, and it considers the relevant activities as part of its efforts to maintain transparency (Mowi, 2019).

#### *4.5 Conclusions*

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*Mowi ASA* has been exposed to criticisms and regulatory actions arising from disputed farming practices according to certain foreign authorities (Barrionuevo, 2008). As an assessment of the counter measures being undertaken, some highlighted internal strategic choices being made by the company management in order to mitigate the associated uncertainties are extracted from its integrated *Annual Report* (Mowi, 2019) hereby, as follows:

- *Mowi ASA* is considering a *Downstream Integration* to reduce dependency on spot whole-fish prices, with focus on better operational practices to reduce costs; which is further reinforced by efforts to find affordable raw materials for sustainable feed production (*SDG 12; Responsible Consumption & Production*).
- The company is intensifying its efforts for *Product Innovation*, to ensure a steady growth of overall salmon sales that would continue to strengthen its global footprint for farming and processing; by enabling *Cross-Production* (*SDG 9; Industry, Innovation and Infrastructure*).
- *Disease Registration* to monitor undesired development of infections is also a priority – which guide efforts within areas such as disease management and control, vaccine testing and use, and implementation of the breeding programs that would ensure the selection of best genetics related to fish robustness and the resistance to certain diseases (*SDG 14; Life Below Water*).
- The company is also emphasizing on arranging continuous dialogs with the local and international authorities to document that biodiversity and natural ecosystems are not adversely affected by its farming operations. It has recently

signed a cooperation agreement with *WWF, Norway* for mutual exchange of ideas and information on such issues that would allow exchanges of environmental testing results and sharing of documentations to ensure that the company's operations do not leave any lasting adverse effects (*SDG 17: Partnerships for The Goals*).

*Mowi ASA* carries a distinctive competitive edge over its competitors in terms of integrated operations at a global scale with significant financial resources. The company has the ability and willingness to invest further to explore emerging markets by expanding its integrated value chain sustainably, to lead responsible production initiatives and to meet globally increasing demands for farmed seafood in the future.

Detailed analyses and discussions of the four specific *Research Questions* (RQ1, RQ2, RQ3, and RQ4) are exclusively dedicated to SDG 12, and covered under chapter five (*Results and Findings*) of this paper.

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*End of Chapter Four*

## CHAPTER FIVE: RESULTS & FINDINGS

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### Overview

This fifth chapter covers detailed outcomes of both the exploratory case study and semi-structured interview sessions. Discussions are consolidated and presented in context of RQ1, RQ2, RQ3 and RQ4. Major topics include end consumer purchase decision criteria, consumer incentives for responsible consumption, company incentives for responsible production, and assessments for SDG 12 Implementation. As RQ1 specifically asks for explanations concerning end consumer decision making criteria, outcomes of the dedicated 15 minutes session of the semi-structured interviews addressing this particular query are summarized under the first segment of this chapter. Then the motivations and incentives that the participants consider to be of significance concerning responsible consumption of farmed seafood are identified and discussed – followed by a detailed third segment which incorporates outcomes of the exploratory case study in context of company incentives for responsible production. Finally, the chapter is concluded with a thorough assessment of SDG 12 implementation within the existing business model of *Mowi ASA*.

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### 5.1 End Consumer Purchase Decision Criteria

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This first section of the fifth chapter covers major findings concerning RQ1, which is:

- *What do consumers look for when making purchasing decisions?*

A detailed chart covering the coding process for RQ1 is available under attachment III of chapter 7 (*Appendix*). The outcomes of the conducted semi-structured interview sessions can be presented as follows:

#### 5.1.1 Price & Availability

All 30 respondents mentioned these two criteria at least for once during interview sessions. Salmon products are generally perceived as a healthy source of animal protein, and purchase patterns depend heavily upon retail prices and availability around marketplaces. Secondary data sources also support validity of these two criteria, as figure 5.1 shows relative price development of protein products – where index prices were rebased to provide a clear contrast. Evidences found during interview sessions also revealed that as fluctuations in retail prices get narrower, consumers prefer salmon over other animal protein products. Even among other

available fish products, salmon ranks high as the desired choice – when combined, these insights show decent prospects for growth.

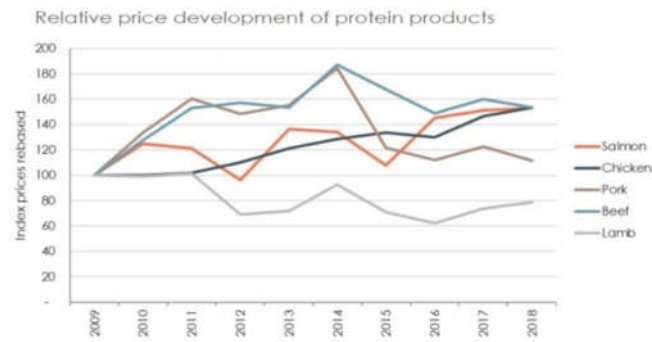


Figure 5.1: Relative Price Development 2009-2018 (Mowi, 2019)

### 5.1.2 Freshness, Quality & Origin

The second most prominent aspect of purchase decision criteria involves product attributes such as freshness, quality and origin. The mention of *Norwegian Atlantic Salmon* on retail packages is highly desired among participants, while 6 of them explained their distinctive product quality assessment approaches such as smell and fillet texture for freshness and quality.

### 5.1.3 Suitability with Personal Taste, Preference & Lifestyle

18 of the participants associated purchase patterns for consumer goods in general with their relative taste, preference and lifestyle; which reveal the dominance of personal factors behind retail purchases of food. As for salmon products, certain social aspects such as family preferences and celebration occasions were also mentioned.

### 5.1.4 Promotions & Campaigns

Salmon products represent seasonal peaks with harvests, and when combined with promotional offerings and cash or volume discounts – consumers take that opportunity to make their retail purchases more frequent.

### 5.1.5 Brand Reputation & Loyalty

Many retail salmon products are branded, including offerings of *Mowi ASA*, which maintains at least fourteen specific retail brands of farmed seafood products according to its official website. When it comes to making retail purchases, participants

mentioned the significance of brand reputation with their loyalty developed over time. Some have special preferences for particular brands that feature eco-labels with international accreditations on retail packages.

Retail purchases of farmed seafood are often influenced by conditions of product attributes such as freshness, quality and origin – while price, availability, and presence of promotional offering with the desired product play a significant role. End consumers look for suitability with their relative lifestyles, tastes and preferences for purchasing farmed salmon products – often leading to development of loyalty.

## ***5.2 Consumer Incentives for Responsible Consumption***

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This second section of the fifth chapter covers major findings concerning RQ2, which is:

- *Do consumers need incentives to consume responsibly? What are these incentives?*

A detailed chart covering the coding process for RQ2 is available under attachment IV of chapter 7 (*Appendix*). The outcomes of the conducted semi-structured interview sessions can be presented as follows:

### **5.2.1 Organic Farming Practices**

Initiatives undertaken to raise general awareness for climate change and sustainability by various international, private and government organizations are well reflected upon discussions concerning consumer incentives – as participants expressed their support for organic farming practices that are environmentally responsible. Although *Mowi ASA* has adapted to partial organic farming practices mostly with fish feed production (Mowi, 2019), its farming operations are repeatedly criticized for usage of chemical pesticides.

The company claims its research and development efforts involving the vision of *Blue Revolution* include initiatives for incorporating organic solutions throughout its value chain, although several breakthroughs are reported to be discarded due to cost effectiveness issues. Researches also show that organic food production is widely

applied within agricultural industries, whereas *Aquaculture* practices haven't received much attention in recent times (Blair, 2012). However, evidences collected during the interview sessions strongly suggest a greater acceptance for organic seafood production being vividly present among end consumers, which signifies its validity as a major consumer incentive.

### **5.2.2 Online Engagements & Community Formation**

Although *Mowi ASA* maintains its official presence around social media platforms such as *LinkedIn*, *Instagram*, *Facebook* and *Vimeo*, contents available there are mostly promotional with conventional advertising approach. No real campaign initiatives for engaging end consumers in interactive discussions are noticed. Since retail brands of *Mowi ASA* reach end consumers through intermediary entities such as supermarkets and restaurants, the responsibility for community formation broadly relies upon the company. Maintaining exclusive company-managed online community platforms embedded within official websites are gaining rapid popularity, as many third party social media service providers are receiving strong criticisms for violating fundamental privacy issues (Madden et al., 2013). Such initiatives provide a greater sense of belongingness and empowerment among end consumers, and discussions concerning this idea took lively heights during the conducted interview sessions.

### **5.2.3 End Consumer Feedback & Strategic Management**

Peripheral service innovation with recent information technology breakthrough has opened up new possibilities for actively incorporating end consumer feedback into strategic management processes of a company (Stermann, 2000). *Mowi ASA* has predominantly positioned itself as a B2B company with several other retail brands worldwide being maintained by separate commercial entities featuring base seafood products provided in bulk quantities by the company. Yet it maintains its own retail brands, and has made significant advancements with volumes and reaches for individual consumers in recent times. Such diversified offering spectrums require keen marketing management schemes. Although the company's strategic management maintains frequent and active communications with its business level customers, initiatives to better incorporate individual customers feedback is currently lacking,

whereas the conducted interview sessions revealed incentives among end consumers being present for such concerns.

#### **5.2.4 Transparency & Accountability**

11 of the participants mentioned the absence of a greater level of transparency and accountability with farming and production processes of consumer goods in general. The only visible initiative undertaken by *Mowi ASA* so far is the inclusion of *Quick Response (QR) Codes* accompanied by a *Smartphone Application* which allow consumers to trace origins of their purchased seafood products. Additional contents are available in official documentations published by the company, where individual consumers can search for information with personal efforts. However, during interviews, the respondents provided cues that indicate a more direct and readily accessible source of information is often preferred. Conventionally, such preferences are covered by business firms in form of attached brochures that include scientific facts and figures about offered commodities. New opportunities are emerging to innovate with applications of contemporary information technology tools – to make the efforts more personalized with real time updates. As educational levels among younger segments of end consumers are growing, globally operating large companies such as *Mowi ASA* can take the leading role toward providing greater levels of accountability and transparency concerning both ethical and technical aspects of their value chain components.

#### **5.2.5 Donations for Environment Protection Initiatives**

Environmental management for dealing with waste generation is a costly process, and many interviewees expressed their enthusiasm to actively take part with financial support. For retail brands that are characterized with frequent but low monetary amount purchases, a *Percentage Donation* scheme can be considered as an attractive incentive for better involving end consumers toward responsible consumption – where a small amount included with the retail prices is exclusively reserved for covering ongoing costs related to environmental protections and sustainability initiatives.

The conducted semi-structured interview sessions revealed strong evidences that the end consumers require motivations and incentives for securing responsible consumption practices with farmed seafood. Major incentives include organic farming

practices, provisions for percentage donations, and online engagements for community formation. Participants seek active measures being undertaken by commercial firms to better incorporate end consumer feedback into strategic management processes for a greater display of transparency and accountability – where recent advancements with information and communication technologies can play a significant role.

### ***5.3 Company Incentives for Responsible Production***

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This third section of the fifth chapter covers major findings concerning RQ3, which is:

- *What incentives or motivation does a company need to consider implementing closed loop solutions in their value chain?*

A detailed chart covering the coding process for RQ3 is available under attachment V of chapter 7 (*Appendix*). As mentioned in chapter three (*Methodology*) of this paper, due to complexities evolved during the COVID-19 outbreak, possibilities of acquiring direct insights through interpersonal communications with company officials were discarded. Concerning responsible production incentives, however, analysis of company publications and observation of video documentaries featuring *Mowi ASA* revealed applicable details at a theoretical level – where evidences are provided to further validate the discussions with supporting information:

#### **5.3.1 Cost-effective Technology Innovation**

According to its *Sustainability Strategy Report* (Mowi, 2020) entitled “*Leading The Blue Revolution Plan*”, *Mowi ASA* demonstrates sincere willingness backed by company ethics and philosophy to actively engage in responsible production of farmed seafood.

Table 5.1 shows some of the medium to long term strategic targets mentioned by the company in this report. The successful implementation of most of these targets concerning climate change and sustainable production, however, is subject to cost-effective technology innovation – and therefore can be considered as a significant



incentive for *Mowi ASA* for its gradual shift from linear to closed-loop value chain solutions.

#	Issues	Targets
1	Climate Change	- Reduce Scope 1, 2 and 3 GHG emissions by 35% until 2030 and 72% until 2050.
2	Plastics	- By 2025, 100% of plastic packaging will be reusable, recyclable or compostable. - By 2025 at least 25% of plastic packaging will come from recycled plastic content.
3	Fish Health & Welfare	- By 2022, 99.5% survival rate will be achieved with seawater farming. - By 2023, minimum 50% of fish stock will be covered under real time welfare monitoring.
4	Waste & Circular Economy	- By 2025, zero waste to landfill at processing plants.
5	ASC certification	- Towards 100% ASC certification by 2025.
6	Safe & Meaningful Work	- 30% female in leadership roles by 2025. - 50/50 employee gender ratio by 2025.

Table 5.1: *Mowi ASA* Strategic Targets for Sustainability (Mowi, 2020)

### 5.3.2 Social Recognition for Sustainability

In addition to accreditation certificates and eco-labels, companies in general require broader acknowledgments from various communities for social recognition with their sustainability initiatives (Blewitt, 2008). Such recognitions can come in form of active involvements with environmental activists’ forums, community education, mainstream media coverage, seminars and conferences.

Common misunderstandings that surround sustainability issues can’t be properly resolved without active participations of all major communities involved. A positive attitude toward meaningful debates and dialogues is therefore essential form both the company and social institutions.

### 5.3.3 Stakeholder Connectivity

As a global seafood company, *Mowi ASA* maintains active influences among a diverse group of stakeholders. The company considers stakeholder viewpoints as a major driving factor for its corporate level strategy formation and decision making processes (Mowi, 2020).

A summary of the adapted connectivity approaches of *Mowi ASA* is presented in table 5.2. As the outlines suggest, meetings and dialogues cover most of the stakeholder

connectivity affairs of the company. *Mowi ASA* believes such interactions help build trust, which is part of its core values.

#	Stakeholders	Activities
1	Consumers & Customers	- <i>Customer and consumer surveys.</i> - <i>Trade fairs, face-to-face meetings/dialogue responding to enquiries.</i>
2	Suppliers	- <i>Regular face-to-face meetings to learn about new developments and accelerate sustainable solutions.</i> - <i>Dialogues in the context of industry initiatives.</i>
3	Employees	- <i>Employee survey through intranet media.</i> - <i>Dialogue with employees and managers.</i>
4	Media	- <i>Dialogues in context of press trips and press releases.</i> - <i>Trade fairs, international events and media monitoring.</i>
5	Local Communities	- <i>Visit to farming sites, career days.</i> - <i>Beach clean-up days.</i>
6	NGOs	- <i>Dialogues in context of partnerships.</i> - <i>Face-to-face meetings for industry initiatives.</i>
7	Authorities	- <i>Sea site visits and participation in policy discussions.</i> - <i>Feedback to open hearings for changes in legislation.</i>
8	Investors & Creditors	- <i>Dialogues during capital market days, road-shows.</i> - <i>Quarterly results presentations and face-to-face meetings.</i>

**Table 5.2: *Mowi ASA* Stakeholder Interaction Outlines (Mowi, 2020)**

### **5.3.4 Government Policy & Infrastructure Support**

Being a global company with presence around 25 different countries makes *Mowi ASA* particularly exposed to risks involving government regulations. Continuous dialogues, appointments and meetings with government officials across continents for settling complex establishment and production management issues are parts of everyday challenges faced by the company. All kinds of positive supports that it can avail on this regard therefore serve as a strong incentive for maintaining and expanding its production operations.

### **5.3.5 Effective Communication for Management**

From everyday farming operations to attaining international conferences – communication has always been a major strategic challenge for *Mowi ASA*. The company meets this challenge with a clearly defined code of conduct, yet new problems arise that require superior management skills. Information and communication technology plays its role, yet the incentive that the company actually considers is qualifications and experiences of its employees (Mowi, 2019). In order to face the unique administrative and technical challenges emerging for better

incorporating closed-loop solutions, a whole new level of skill development and communication management scheme is a necessity.

Commercial business firms require cost-effective technology innovation, social recognition, government policy and infrastructure support, stakeholder connectivity and effective communication as major incentives for incorporating responsible production practices.

#### ***5.4 SDG 12 Implementation Assessments***

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RQ4 of this study specifically asks for implementation of SDG 12 within the existing business models of commercial organizations – which is:

- *How can the SDGs be implemented in a company's business model leading to more responsible production and consumption?*

A detailed chart covering the coding process for RQ4 is available under attachment VI of chapter 7 (*Appendix*). Keeping continuity with the discussions so far, under this section some generalized insights are analyzed where several external factors of a business firm's operating environment are considered. Clues were extracted from the semi-structured interview sessions, observation of video documentaries, and study of documentations using *Selective Coding*. Major findings are presented hereby:

##### **5.4.1 National Policy Review for Sustainable Production**

The conventional meanings and definitions concerning sustainability have evolved significantly over the years, yet the inferred scope of application has never been the same for developed and developing economies alike. Since conception of the SDGs in 2015, many developed countries have come a long way with proven and measurable contributions to the relevant implementations, with plenty yet to be achieved and adequate resources in hands. However, countries with developing and emerging economies are still struggling to meet some fundamental requirements with sustainability (Sachs, et al., 2019). A basic shortage of necessary skills with lack of contents covering sustainability in higher education curriculum is often noticed. Globally operating commercial business firms that have already secured SDG compliance can't assume obligations for incorporating responsible production

initiatives while considering foreign expansions without necessary regional government supports reinforced with reviewed policies for sustainability.

#### 5.4.2 Active Cooperation with International Authorities

Although consumer involvement for better implementation of SDG 12 is paramount, when it comes to giving ordinary people voices that actually count, the role of several independent international institutions is essential. As figure 5.2 suggests, the case company, *Mowi ASA* has formed key strategic partnerships with several such authorities including *Aquaculture Stewardship Council (ASC)*, *Global Salmon Initiative (GSI)*, *Seafood Business for Ocean Stewardship (SeaBOS)*, and *Global Sustainable Seafood Initiative (GSSI)*, among others.



Figure 5.2: *Mowi ASA* Strategic Partnerships (Mowi, 2020)

Individual consumers' personal experiences with a product, along with relative viewpoints and concerns often carry meaningful insights, but without professional analytical skills, such insights can't be properly filtered and presented in forms of applicable propositions for large commercial organizations to actively consider. In this context SDG 12 and 17 are closely interrelated.

#### 5.4.3 Investments in Joint R&D

*Mowi ASA* heavily emphasizes role of research and development with its company vision entitled "*Leading The Blue Revolution*". For a commercial organization, keeping major breakthroughs with its exclusive value creation features concise within internal measures is crucial for securing core competence. However, there are heights and magnitudes of confidentiality to consider – where implementation challenges of

SDGs have opened up unique opportunities for competing business entities to pull their collective research and development initiatives together; in order to secure a sustainable future for all. Willingness to get engaged into such joint commercial research and development efforts is a major transitional step for business firms to become socially accountable & environmentally responsible value creating entities; with tremendous prospects for *Risk Minimization* at industry levels – where *Mowi ASA* can take the leading role.

#### **5.4.4 Academic Research for Sustainability in Education**

The core intention behind formulation of SDGs is consideration for the future generations. Addressing problems with issues such as food security, environmental safety and social equality require certain levels of ardent professionalism that is hard to maintain for even the brightest of scholars when employed under any other organization apart from academic institutions. Moreover – the scale, complexity and intensity of the associated challenges that the younger generations are to face especially with climate change issues will be unprecedented. Without academic affiliations the odds for required skill development among youth are minimal.

Despite significant efforts being invested for higher academic researches with environmental management and technology innovation, an absence of adequate study and reading materials for secondary and undergraduate level curriculums covering sustainability concepts is often noticed (Marope, et al., 2015). Greater educational research efforts are required to better incorporate understandable and engaging contents covering applications of sustainability principles for younger minds to get acquainted with, regardless of chosen field of specializations or area of interests.

#### **5.4.5 Community Awareness & Activism**

Role of community awareness and activism has historic significance with formation of philosophies behind several sustainability principles (Martinez-Alier, et al., 2014). Even individual consumers with little or no active social connections and influences can make valuable contributions with aid of the internet to reinforce community-raised campaigns addressing sustainability issues.

Aggressive community activism approaches that are well received among progressive cultures are often considered as unacceptable social behaviors by conservative,

authoritarian institutions – yet such desperations are often expressed after administrative failures surround sentiments that can't be settled in a brighter manner.

Discussions revolving around consumer involvement for better implementation of SDG 12 therefore can't be concluded without addressing the urges for a greater level of acceptance and tolerance for offensive, yet creative and meaningful activism improvisation approaches – especially among certain jurisdictions. Successful implementation of SDG 12 within a company's existing business model is strongly influenced by factors such as active cooperation among international authorities and investments in joint research and development efforts. As for the consumers, academic research for sustainability in education – along with community awareness and activism are essential for securing responsible consumption.

## *5.5 Conclusions*

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The financial performance of *Mowi ASA* depends substantially on salmon prices, and salmon prices are subject to both short and long-term fluctuations due to variations in supply and demand caused by external strategic issues such as biological challenges with fish farming and dynamic shifts in consumption patterns. The company is committed to meet the challenges of climate change, and to tackle the future consequences it relies upon innovation and sustainable development. As for the present – passion and eagerness to continue contributing toward the society by providing healthy seafood is crucial for the business, which is the reason why the element of trust is incorporated within its core values.

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*End of Chapter Five*

## CHAPTER SIX: DISCUSSIONS & CONCLUSIONS

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### Overview

This sixth and final chapter of the study starts with mentions of major limitations faced by the researcher during various stages of data collection and analysis attempts. Then the second section provides remarks concerning *GDPR Compliance* for ethical considerations with adapted data collection priorities and presentation techniques securing participant confidentiality. The recommendations being made hereby involve issues found while screening contents for chapter four (*The Study*) and five (*Results & Findings*) that don't properly fit within scope of the 4 *Research Objectives*. Yet the issues are of significance concerning better involving consumers within a business firm's existing value chain for SDG 12 implementation – only require further research attentions that seemed overwhelming for one dissertation attempt to deal with.

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### 6.1 Limitations

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Miles, et al. (1994) highlighted that many researchers view analysis of qualitative data to be the most difficult aspect of conducting case studies. Typical concerns include intensity of the data collection processes and the volume of obtained information.

#### 6.1.1 Inappropriateness of Statistical Inquiry

In analysis of case studies, usually more variables than actual data points are of particular concern, which is why traditional statistical principles for interpreting categorical data may not be applied – as such efforts often result in lack of organized and systematic reviews required for negotiating with large amount of information.

#### 6.1.2 Use of Selective Coding

In order to overcome such limitations, a popular and traditional method known as “*Selective Coding*” was considered. It provided with excellent insights during final stages of data analysis; when emergence of the core concepts is revealed through open or axial coding of coded data categories and subcategories. With the aid of the relevant principles, it was possible to define and develop the previously identified discrete concepts, which were then further reinforced and abstracted – to acquire the new and relevant findings. In this way, irrelevant and inappropriate parts of the

collected data were subsequently screened out, without compromising the core essence of the *Research Questions* and their relevant issues at stake.

### **6.1.3 Problems with Data Overload**

A relatively common problem faced with case study analysis, data overload occurred as interviews and observations resulted in an excessive amount of information to sort through for analysis. Yin (2013) challenged the assumption that individual interviews should be written up, at all – as the seemingly more relevant task would be to demonstrate converging evidences from various sources; and document accordingly.

## ***6.2 Ethical Considerations***

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Although for certain studies acquiring sensitive, personal and uniquely identifiable data in electronic or manual means are essential; it is clearly irrelevant to attempt so concerning the scope, nature and objective of this particular study. Sincere efforts were made to meet obligations with established ethical norms and practices within the research community. The interviews weren't streamed, video or voice recorded, or preserved in any other ways except through manual, hand-written notes taken during sessions. Detailed transcriptions were made manually soon after each interview session ended – where no uniquely identifiable traces of the participants were kept. Upon consolidation of the results and findings, all the initial notes and transcriptions were obliterated. According to the GDPR guidelines set by *the Norwegian Centre for Research Data (NSD)*, no potential conflicts regarding the adopted methodology therefore were found which would require prior application for approval.

## ***6.3 Recommendations***

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Since increased competition, consolidation and saturated supply may lead to reductions in price for mutually competing products while curtailing demands, financial success relies heavily upon the company's ability to anticipate, identify and quickly respond to changing end consumer preferences for fish products; secondary-processed seafood in particular. In this context, some additional recommendations are made hereby:



### **6.3.1 Impacts of External Factors**

As most of the offered products are perishable and can be stored only for a limited period of time, disruptions to the supply chain due to external factors such as adverse weather, earthquake, natural disaster, terrorism, pandemics, strikes, government actions, and environmental incidents that are beyond the company's control can jeopardize its ability to bring products to the market well within time in pristine conditions. With the commitment to maintain its integrated value chain, the company needs to minimize exposure to such risks of negative impacts with proactive innovation and improvisation.

### **6.3.2 Effects of Antitrust Regulation**

*Mowi ASA* is facing increased pressures from various government organizations to restrict its operational sites that are located close to protected or highly sensitive coastal and offshore areas (Mowi, 2017). One of its growth strategies around foreign territories traditionally has been acquisitions of local fish farms, and *Antitrust Regulation* enquiries may restrict its future growth in such manners around particular regional jurisdictions.

### **6.3.3 Lack of Dedicated Real-time Communication Strategy**

Being predominantly a B2B company, *Mowi ASA* strategically is not dedicated to assess consumer trends real-time with exclusive expertise – and often rely upon external market analysts to acquire periodic insights (Mowi, 2018). In this age of interactive and real-time communications, such negligence can result in unanticipated loss of market share. For example, a better-equipped third party analyst can identify perceived flaws in offered product ranges of *Mowi ASA* among a particular segment interacting online with life-standard perspectives, and quickly come up with strongly personalized viral online marketing campaigns for rival business firms eager to manipulate existing consumption patterns. Research shows evidence that although unethical; these aggressive counter strategies currently face no legislative constraints around certain territories – and are widely practiced (Nelson, 2013). Analysis of publicly disclosed secondary data resources of *Mowi ASA* reveals that the company doesn't assume such direct and interactive communication activities with individual end consumers as part of its downstream operations involving sales and marketing

(Mowi, 2019); and currently isn't equipped with any functional divisions to counter such end-to-end campaign initiatives with internal measures; despite offering secondary-processed retail brands – which for a globally operating entity is a surprising fact to discover.

## **6.4 Conclusions**

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Salmon products rank high among participants as a reliable source of animal protein. Retail purchase decisions are influenced by unique individual considerations, where opportunities for generalizing the involved criteria are subjects to gradual changes. Although few of the participants showed negative views on farmed salmon products in general on grounds such as environmental pollution and breeding techniques, evidences suggest consumers favor branded salmon products that feature responsible and eco-friendly production processes. Some supplementary remarks follow to conclude the study:

### **6.4.1 Sustainability for Profitable Business**

From perspective of a commercial company, an incentive for responsible production can only be considered viable when combined with profitability measures – either through *Revenue Generation* or *Cost Reduction*. Even with adaptation to noble operational philosophy and presentation of ethically brighter goals – at its very core a commercial business firm can't exist without considering its functional cash inflows and outflows as paramount. There are several non-profit and charitable organizations – even some government and international institutions that can aim for non-monetary incentives for sustainability with higher senses of purpose. One common misperception exists among activists that often associate capitalized business organizations with similar causes, and scrutinize with negative views (Magdoff, Foster, 2011). Securing the ideal balance in between profitability and sustainability therefore has already emerged as the prominent 21<sup>st</sup> century challenge for commercial organizations to meet; where cost association for strategic frame of reference adjustments, and risk management for positive return on investments that are incentivized with sustainability initiatives are better justified when assessed from a long term, life-cycle perspective.

### 6.4.2 Continuation of Further Study

Insights acquired from participants demonstrated the fact that consumers require incentives for responsible consumption practices, and associated concerns are clearly identifiable. However, in order to achieve a more precise and industry-specific overview, certain quantitative research approaches with larger sample sizes can be designed to reflect upon these insights with measurable weights and priorities.

### 6.4.3 Synthesis for Sustainability

Education, awareness, social connectivity, activism and access to information collectively create the platform to motivate end consumers for incorporating sustainable practices into their consumption & purchase decisions. As for the companies – communication, innovation, operational transparency, cooperation and social engagements are essential to secure better cohesion with this platform to actively involve end consumers into their closed loop & circular business models; eventually leading towards sustainability. Figure 6.1 summarizes the discussion as follows:

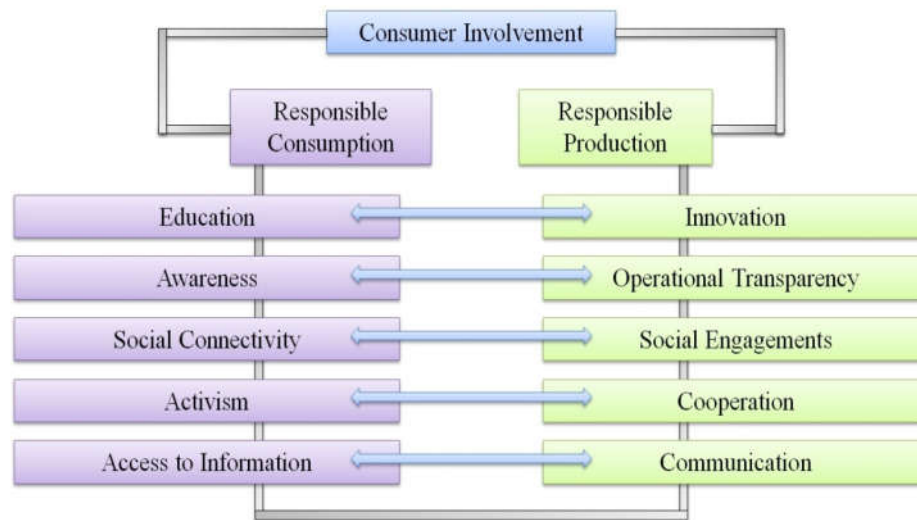


Figure 6.1: Synthesis of Responsible Production & Consumption

As for a particular company producing consumer goods, precise recommendations with financial and technical feasibility for implementing closed-loop solutions within its existing value chain for better consumer involvement would require further extensive analysis of its value creation processes; with exclusive research intentions

that demand a level of focus and attention that can't fit within scope and purpose of this particular study. Yet insights are gained as the general willingness, commitment, enthusiasm and favor being present among different stakeholders clearly revealed evidence for future innovation upon availability of cost-effective, energy-efficient, eco-friendly and pollution-free technological breakthroughs.

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*End of Chapter Six*

## CHAPTER SEVEN: APPENDIX

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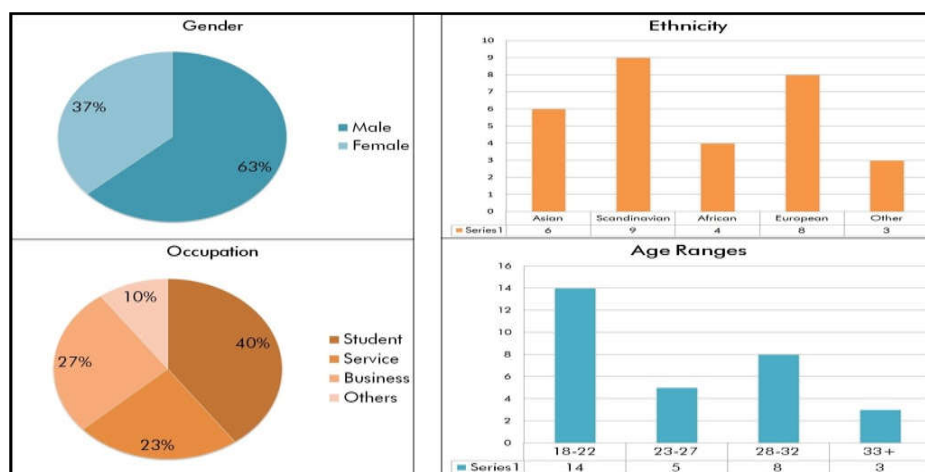


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### Attachment I: Acronyms

ASC	Aquaculture Stewardship Council	QR	Quick Response
B2B	Business to Business	R&D	Research and Development
BAP	Best Aquaculture Practices	RQ	Research Question
FAO	Food and Agriculture Organization	SBM	Sustainable Business Model
GAP	Good Agricultural Practices	SDG	Sustainable Development Goal
GFSI	Global Food Safety Initiative	QR	Quick Response
GSSI	Global Sustainable Seafood Initiative	R&D	Research and Development
KPI	Key Performance Indicator	WWF	World Wide Fund for Nature

### Attachment II: Interview Participant Demographics



### Attachment III: Coding Process for RQ1

Preliminary Nodes	Open Codes	Axial Codes	Selective Code
<ul style="list-style-type: none"> <li>*Salmon products are not cheap all the time</li> <li>*I can't afford salmon</li> <li>*May be once or twice a month</li> <li>*I go for cheaper salmon products</li> <li>*I go for salmon in summer</li> </ul>	<ul style="list-style-type: none"> <li>*Stating concerns for pricing</li> <li>*Favoring cheaper options</li> <li>*Showing preference for seasonal peaks</li> </ul>	<ul style="list-style-type: none"> <li>*Sensitive to fluctuations in retail price</li> <li>*Get motivated when readily available</li> </ul>	<ul style="list-style-type: none"> <li><i>*Price &amp; Availability</i></li> </ul>
<ul style="list-style-type: none"> <li>*I don't do frozen fish</li> <li>*Good salmon is rare</li> <li>*Have you tried the local fish market?</li> <li>*Come on, nothing beats Norwegian salmon</li> </ul>	<ul style="list-style-type: none"> <li>*Showing significance of preservation methods</li> <li>*Preferring Norwegian salmon</li> <li>*Favoring conventional fish market</li> </ul>	<ul style="list-style-type: none"> <li>*Influenced by freshness</li> <li>*Seek quality around marketplaces</li> <li>*Concerned for product origin</li> </ul>	<ul style="list-style-type: none"> <li><i>*Freshness, Quality &amp; Origin</i></li> </ul>
<ul style="list-style-type: none"> <li>*I don't like salmon</li> <li>*Salmon doesn't do with the diet I follow</li> <li>*Can't cook fish well</li> <li>*I hate fish</li> <li>*I love salmon</li> <li>*My mom cooks awesome salmon</li> </ul>	<ul style="list-style-type: none"> <li>*Expressing dislike</li> <li>*Stressing a match with regular diet plan</li> <li>*Showing favor when cooked well</li> </ul>	<ul style="list-style-type: none"> <li>*Associate consumer goods with personal preferences</li> <li>*Don't get motivated if mismatches adapted lifestyles</li> </ul>	<ul style="list-style-type: none"> <li><i>*Suitability with Personal Taste, Preference &amp; Lifestyle</i></li> </ul>
<ul style="list-style-type: none"> <li>*I like discounts</li> <li>*May be I'll try if they come with some promotional offerings</li> <li>*Sometimes they do special volume discounts</li> </ul>	<ul style="list-style-type: none"> <li>*Stating favor for cash discounts</li> <li>*Showing interests for volume discounts</li> <li>*Purchasing if promotional campaigns are available</li> </ul>	<ul style="list-style-type: none"> <li>*Seek for promotional initiatives</li> <li>*Motivated when special offers are available</li> </ul>	<ul style="list-style-type: none"> <li><i>*Promotions &amp; Campaigns</i></li> </ul>
<ul style="list-style-type: none"> <li>*I have my favorite salmon brand</li> <li>*Their smoked salmon is totally cool</li> <li>*It's been 10 years with that brand</li> <li>*The restaurant near my workplace do some sick salmon</li> </ul>	<ul style="list-style-type: none"> <li>*Preferring favored brand</li> <li>*Expressing loyalty while making decisions for eating out</li> </ul>	<ul style="list-style-type: none"> <li>*Show loyalty</li> <li>*Favor reputation</li> </ul>	<ul style="list-style-type: none"> <li><i>*Brand Reputation &amp; Loyalty</i></li> </ul>

## Attachment IV: Coding Process for RQ2

Preliminary Nodes	Open Codes	Axial Codes	Selective Code
<p>*You don't know what they do with the fish feed</p> <p>*They use chemicals that degrade the environment</p> <p>*I'm with organic food</p> <p>*Can't they go for greener farming concepts</p>	<p>*Showing concerns for inorganic production processes</p> <p>*Favoring food coming from organic sources</p>	<p>*Concerned for environmentally responsible farming</p> <p>*Favor organic practices</p>	<p><i>*Organic Farming Practices</i></p>
<p>*I could use a forum for discussion</p> <p>*I often look out for online communities with similar worries</p> <p>*We don't have any exclusive club for this kind of talks</p>	<p>*Expressing importance of community engagement for responsible consumption</p> <p>*Favoring group talks for sustainability</p>	<p>*Incentivized for online community formation</p> <p>*Seek active community engagement</p>	<p><i>*Online Engagements &amp; Community Formation</i></p>
<p>*I give feedback and they never really listen</p> <p>*What can one consumer do with feedback</p> <p>*You think top management really cares for what I have to say</p>	<p>*Stating negligence for personal opinions</p> <p>*Getting less motivated to provide feedback when the incentive isn't there</p>	<p>*Motivated when opinion is counted at top management level</p> <p>*Incentivized when get involved with strategic decision making</p>	<p><i>*End Consumer Feedback &amp; Strategic Management</i></p>
<p>*They never tell you what's going on</p> <p>*I don't know how they make all the money</p> <p>*They'll never show you what they do with all the genetic modifications</p>	<p>*Expressing concerns for lack of transparency</p> <p>*Requiring greater sharing of information regarding production practices</p>	<p>*Favor greater accountability</p> <p>*Incentivized for transparency</p>	<p><i>*Transparency &amp; Accountability</i></p>
<p>*I'd love to contribute if they show where the money is going</p> <p>*If they need money they can ask for donations</p> <p>*They can go for percentage donations</p>	<p>*Expressing significance of financial resources for environmental management</p> <p>*Associating financial contribution with responsible consumption</p>	<p>*Show favor for financial contribution</p> <p>*Motivated when retail purchase include donations</p>	<p><i>*Donations for Environment Protection Initiatives</i></p>

## Attachment V: Coding Process for RQ3

Preliminary Nodes	Open Codes	Axial Codes	Selective Code
<p>*Technology is the driving force for sustainability innovation</p> <p>*Commercial firms lack resources for technology innovation</p>	<p>*Showing favor for resource efficient technology management</p> <p>*Expressing concerns for profitability impact</p> <p>*Stating presence of financial constraints</p>	<p>*Favor implementation of better technology</p> <p>*Get motivated when technology innovation is cost effective</p>	<p><i>*Cost-Effective Technology Innovation</i></p>
<p>*Presence of social benefits are essential for responsible production</p> <p>*Greater acceptability influences sustainability.</p>	<p>*Favoring sustainable production when stressed by community</p> <p>*Expressing need for sustainability initiatives being recognized</p>	<p>*Concerned for social acceptance with sustainability programs</p> <p>*Incentivized by broader recognition</p>	<p><i>*Social Recognition for Sustainability</i></p>
<p>*Stakeholder clusters influence sustainability initiatives</p> <p>*Connecting clusters with common issues facilitate implementation</p>	<p>*Showing need for connecting stakeholder groups</p> <p>*Stating connectivity is maximized when favorable platform is provided</p>	<p>*Associate greater connectivity with stakeholders for sustainability</p> <p>*Prefer open environment for discussions</p>	<p><i>*Stakeholder Connectivity</i></p>
<p>*Responsible production require robust infrastructure support</p> <p>*Commercial firms can't allocate resources for framework improvement</p>	<p>*Favoring role of government for infrastructure development</p> <p>*Showing interest for investment when economy framework is upgraded</p>	<p>*Incentivized with government support</p> <p>*Motivated when favorable policies are applied</p>	<p><i>*Government Policy &amp; Infrastructure Support</i></p>
<p>*Communication defines profitability</p> <p>*Profitability is required for investment with sustainability</p> <p>*Strategic management is responsible for investment decisions</p>	<p>*Stressing importance for effective communication</p> <p>*Stating concerns for management efficiency with responsible production</p>	<p>*Consider effective communication for business functionality</p> <p>*Incentivized when management performs with better communication</p>	<p><i>*Effective Communication for Management</i></p>

## Attachment VI: Coding Process for RQ4

Preliminary Nodes	Open Codes	Axial Codes	Selective Code
<p>*Foreign investments are influenced by local government policies</p> <p>*Commercial Sustainable production initiatives are hard to imply without government support</p>	<p>*Showing importance of the role of government for SDG implementation</p> <p>*Expressing concerns for updated policies</p> <p>*Favoring government support for investment in emerging economies</p>	<p>*Favor investment when national policies are modified for sustainability initiatives</p> <p>*Motivated when government emphasizes sustainable production</p>	<p><i>*National Policy Review for Sustainable Production</i></p>
<p>*International authorities have the political influences to facilitate sustainability dialogues</p> <p>*Responsible production requires cooperation beyond national borders</p> <p>*R&amp;D for sustainability initiatives are hard to imply</p> <p>*R&amp;D takes a significant amount of resources</p> <p>*Risk is minimized when companies join forces</p>	<p>*Stating significance for greater cooperation</p> <p>*Showing interests for engagements beyond national borders</p> <p>*Expressing reasons behind existence of independent authorities for accreditation</p>	<p>*Seek greater cooperation beyond national borders</p> <p>*Concerned for greater initiatives with climate change</p>	<p><i>*Active Cooperation with International Authorities</i></p>
<p>*R&amp;D for sustainability initiatives are hard to imply</p> <p>*R&amp;D takes a significant amount of resources</p> <p>*Risk is minimized when companies join forces</p>	<p>*Expressing risks associated with R&amp;D</p> <p>*Stating concerns for investment return</p> <p>*Showing importance for greater collaboration</p>	<p>*Consider R&amp;D as a costly process</p> <p>*Favor investment in R&amp;D when risk is shared</p>	<p><i>*Investments in Joint R&amp;D</i></p>
<p>*Education is essential among youth for responsible consumption</p> <p>*Institutions require revised curriculums for sustainability concepts</p> <p>*Sustainability is hard to achieve with individual measures</p> <p>*Activism is significant for sustainable policy formation</p> <p>*Sustainable consumption needs collective awareness</p>	<p>*Stating importance of sustainability with education</p> <p>*Favoring academic education for concept development</p> <p>*Showing significance of research</p> <p>*Favoring collective measures for greater sustainability</p> <p>*Showing importance of acceptability for activism</p> <p>*Stating role of greater awareness</p>	<p>*Lack understanding of basic principles with sustainable consumption</p> <p>*Consider significance of sustainability with education</p> <p>*Prefer collective awareness for sustainable consumption</p> <p>*Show significance of activism with sustainability issues</p>	<p><i>*Academic Research for Sustainability in Education</i></p> <p><i>*Community Awareness &amp; Activism</i></p>



