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Product Portfolio Management for Value-Based Selling

Metropolia University of Applied Sciences

Bachelor of Engineering

Mechanical Engineering

Bachelor's Thesis

19 May 2024

Abstract

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Title:	Product Portfolio Management for Value-Based Selling
Number of Pages:	40 pages + 3 appendices
Date:	19 May 2024
Degree:	Bachelor of Engineering
Degree Programme:	Mechanical Engineering
Professional Major:	Manufacturing and Production
Supervisors:	Juha Leppälä, Product Director Pekka Hirvonen, Senior Lecturer

The objective of the thesis was to evaluate the current state of the commissioning company's product portfolio and to create an operating model for product portfolio management and a new product portfolio model. In connection with the merger of the companies, the expanded product portfolio has not been managed systematically in relation to the current product strategy, and the product portfolio was found to be fragmented. The purpose of the work was to create the conditions and methods for defining the products on a transactional and value basis as part of the new and better aligned product portfolio.

The scope of the work was limited to the product portfolio of industrial and mining industry filter upgrades and the thesis was carried out by studying the literature on the topic and collecting information from interviews, internal documents, sales presentations, and product databases. The literature review was conducted from the most relevant aspects of product management and value selling for the topic. Based on the gathered data, the current state of the product portfolio was evaluated.

The work resulted in a proposal for an operational model for product portfolio management and a tailored tool for transactional and value-based defining of products. In addition, a proposal for a new product portfolio model was created, which preceded a value-based defining of one of the products by using the tool created and an analysis of the product life cycle status using the BCG matrix.

The operating model created for product portfolio management and the new portfolio model were implemented as is and are expected to be further developed and iterated to better meet the needs of the product management and the upgrade business. As a result of the thesis, the operating model and its tools will enable consistent product portfolio management and organizing all remaining upgrade products into a new product portfolio.

Keywords: Product portfolio management, value selling, product management

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Tiivistelmä

Tekijä:	Aleksi Nilosaari
Otsikko:	Tuoteportfolion hallinta arvoperusteiseen myyntiin
Sivumäärä:	40 sivua + 3 liitettä
Aika:	19.5.2024
Tutkinto:	Insinööri (AMK)
Tutkinto-ohjelma:	Konetekniikka
Ammatillinen pääaine:	Valmistus- ja tuotantotekniikka
Ohjaajat:	Tuotejohtaja, Juha Leppälä Lehtori, Pekka Hirvonen

Opinnäytetyön tavoitteena oli selvittää kohdeyrityksen tuoteportfolion nykytila, luoda tuoteportfolion hallintaan toimintamalli sekä uusi tuoteportfoliomalli. Yhtiöiden fuusioitumisen yhteydessä laajentunutta tuoteportfoliota ei ole johdettu systemaattisesti suhteessa nykyiseen tuotestrategiaan, ja tuoteportfolio todettiin pirstaloituneeksi. Työn tarkoituksena oli luoda menetelmät ja edellytys määritellä tuotteet transaktio- ja arvoperusteisesti osaksi uutta ja linjattua tuoteportfoliota.

Opinnäytetyön laajuus rajattiin teollisuuden ja kaivosteollisuuden suodatinpäivitysten tuoteportfolioon. Työ toteutettiin syventymällä aiheen kirjallisuuteen sekä keräämällä tietoa haastatteluista, sisäisistä dokumenteista, myyntiesitelmistä ja tuotetietokannoista. Aiheeseen perehdyttiin sen kannalta oleellisimmista tuotehallinan ja arvomyynnin näkökulmista. Kerättyjen tietojen pohjalta ryhdyttiin selvittämään tuoteportfolion nykytilaa.

Työn tuloksena syntyi ehdotus toimintamallista tuoteportfolion hallinnalle ja räätälöity työkalu tuotteiden transaktio- ja arvoperusteiseen määrittelyyn. Lisäksi luotiin ehdotus uudesta tuoteportfoliomallista, jota edelsi yhden tuotteen arvoperusteinen määrittely ja analyysi tuotteen elinkaarentilasta BCG-matriisia hyödyntäen.

Tuoteportfolion hallintaan luotu toimintamalli sekä uusi portfoliomalli otettiin käyttöön sellaisenaan ja niiden odotetaan jatkokehityksen sekä iteroinnin myötä vastaavan yhä paremmin tuotehallinnan ja päivitysliiketoiminnan tarpeita. Opinnäytetyön lopputuloksena toimintamalli sekä sen työkalut mahdollistavat johdonmukaisen tuoteportfolion hallinnan ja kaikkien jäljellä olevien päivitystuotteiden järjestelyn uuteen tuoteportfolioon.

Avainsanat: Tuoteportfolion hallinta, arvomyynti, tuotehallinta

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Tämän opinnäytetyön alkuperä on tarkastettu Turnitin Originality Check -ohjelmalla

Contents

List of Abbreviations

CRM:	Customer Relationship Management
KPIs:	Key Performance Indicators
MGR:	Market Growth Rate
MPR:	Market Penetration Rate
NPD:	New Product Development
RMS:	Relative Market Share
OEM:	Original Equipment Manufacturer
PLC:	Product Life Cycle
PLM:	Product Lifecycle Management
PPM:	Product Portfolio Management

1 Introduction

The subject of this thesis is product portfolio management for value-based selling. As products become obsolete over time and market demands change, product portfolio management and renewal are crucial for maintaining a relevant portfolio. Developing a consistent approach to managing and renewing the portfolio is essential for achieving the company's long-term objectives.

The significance of effective product portfolio management can be exemplified by a company with a diverse range of products, some of which may become obsolete or less appealing to customers over time. Without strategic management, renewal of offerings, or the development of new products, a company risks losing its competitive advantage and market position. This thesis investigates the practices of product portfolio management to maintain competitiveness and address evolving customer needs through value-selling perspectives.

1.1 Business Challenge, Scope & Objective

The commissioning company, Metso Corporation is an equipment manufacturer for the mining and technology industry, whose product portfolio has expanded significantly over the years. The challenge is that this growth or expansion has not been systematically directed in relation to the product strategy, which makes it unclear whether the current product portfolio aligns with the product strategy.

Upgrade products are unique product solutions for existing equipment of customers to address operational challenges. These upgrades can include advanced technologies, better materials, improved designs, or additional features that increase efficiency, safety, and productivity. Metso’s expertise in filtration technology is well-demonstrated, with over 5,000 filters delivered worldwide. The filtration product management team leads the upgrades business for filters, which is supported by a broader network of collaborative

internal stakeholders. This thesis focuses on the upgrade products for filtration equipment in the industry and mining sectors, while other aspects of the company’s product portfolio are excluded from this study.

The objective is to evaluate the current state of the product portfolio, create and implement an operating model for product portfolio management, and build a new portfolio model for value-based selling which can be further expanded as part of the filter upgrade business.

1.2 Metso Corporation

Metso Corporation, headquartered in Espoo, Finland and listed on the Nasdaq Helsinki, is at the forefront of providing sustainable technologies, solutions, and services for the aggregates, minerals processing, and metals refining industries worldwide. In 2023, Metso achieved a revenue of EUR 5.4 billion and employed over 17,000 individuals from more than 100 nationalities, emphasizing its extensive global reach and diverse workforce. Operating across approximately 50 countries, Metso has a strong geographic presence, with significant market activities in Europe, North and Central America, Asia Pacific, South America, and the Africa, Middle East, and India regions. (Metso’s General Presentation 2024)

Metso's business operations are diverse and comprehensive, covering segments such as aggregates, minerals, metals, services, and consumables. The company offers a broad spectrum of solutions, ranging from crushing and screening equipment for the aggregates industry to advanced technologies for mineral processing and metal refining. In 2023, services constituted 54% of total sales, underscoring Metso's commitment to providing comprehensive lifecycle and performance solutions that cater to a wide array of customers, from large international corporations to smaller local enterprises. (Metso’s General Presentation 2024)

2 Methods and Materials

At first, the thesis begins with studying the essential fundamentals and theory behind product management and value selling, which are further utilized in the study. Besides theory and literature review, the thesis work is divided into four main sections. The research design is illustrated below in Figure 1.

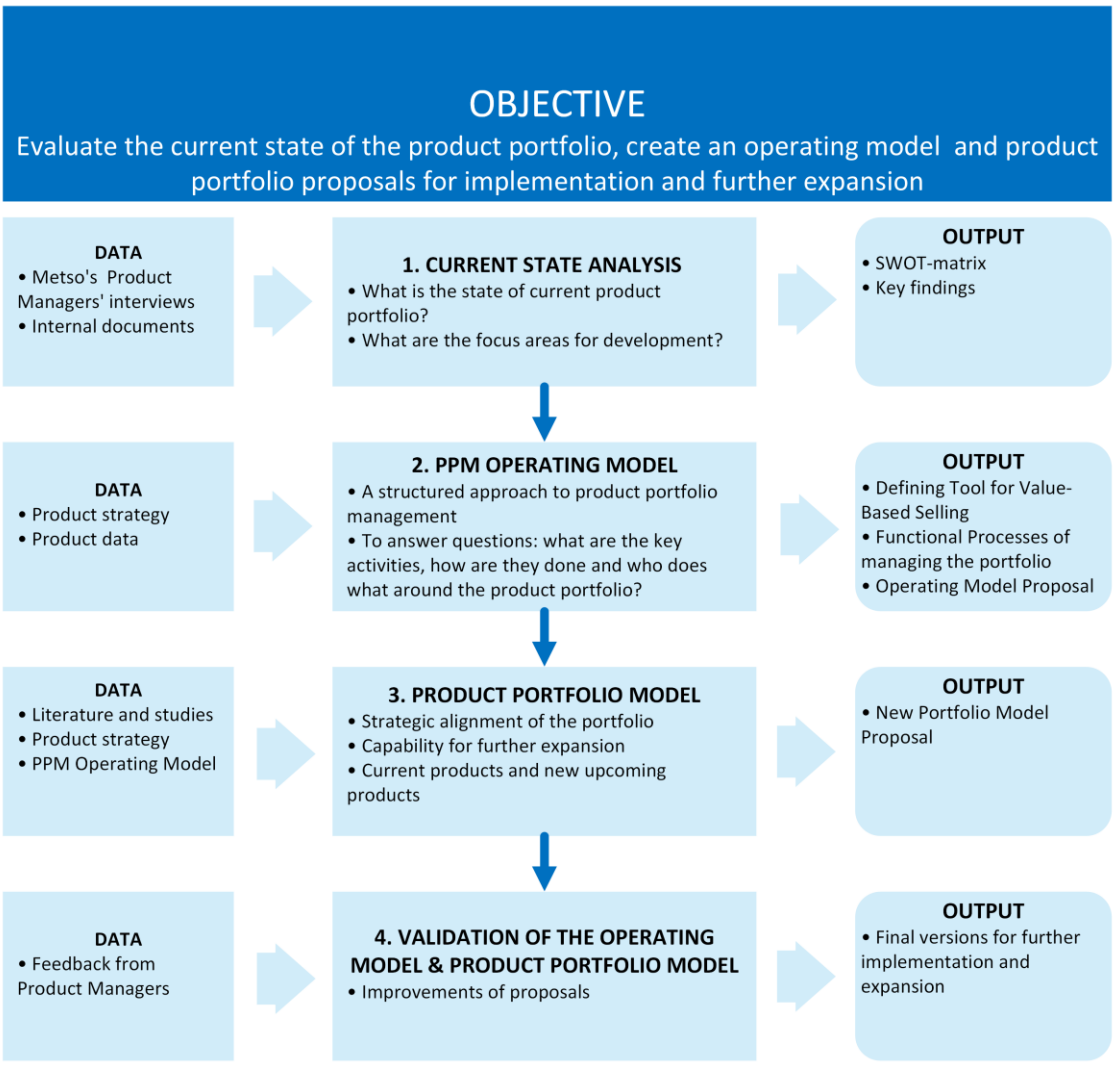

Figure 1. Research Design

The first stage of the research design in the Figure 1, the current state analysis, requires up-to-date data for evaluation, which will be gathered from internal documents and interviews. Interviews are held remotely, and a questionnaire is created for this purpose.

The questionnaire is divided into two parts. In the first part, an interviewee will be asked questions related to the product portfolio and product portfolio management. In the second part of the interview, the interviewee will complete a form by themselves. The self-completion form focuses on evaluating the current state of the product portfolio and product portfolio management. Based on the results and internal documents, the current state will be analysed and key findings will take the study to the next stage.

The second stage of this study is the creation of an operating model which is a structured approach to product portfolio management and includes essential components to execute activities around the upgrade portfolio. The purpose of this operating model is to clarify, improve, and support product portfolio management and the decision-making process.

In the third stage of the study, a new product portfolio proposal is created. The purpose of a new product portfolio is to strategically align it, but also visualize product lifecycle states, characteristics, and classifications, to make understandable each product's relations in the product portfolio. A new product portfolio enables stakeholders to separate which products can be sold on a value basis, but also as transactional-based products.

The final stage of the study concentrates on gathering feedback on the proposals and integrating the product portfolio and operating model into the company's daily operations. Feedback from this stage will also serve as a vital checkpoint for making necessary adjustments and improvements before full-scale implementation.

3 Product Management and Value Selling

3.1 Background of Product Management

Product Management evolved from the realization in 1931 by Neil McElroy at Procter & Gamble that a lack of focus and alignment within companies was

hindering product success. McElroy proposed the idea of "brand men", dedicated individuals responsible for overseeing all aspects of a brand's success, marking the birth of product management. This concept was further developed by companies such as HP, which emphasized close customer decision-making, leading to the formation of product-led companies. (Lukassen & Schuurman, 2023)

Over time, as business complexities increased, the product manager role became fragmented across multiple departments, diluting the original focus on unified product ownership and leading to challenges in alignment and efficiency. Despite the introduction of systematic approaches and agile methodologies aiming to streamline processes and re-centralize product ownership, the industry struggled with the concept of a singular "owner" responsible for a product's success. (Lukassen & Schuurman 2023)

The essence of product management, as derived from its historical development, lies in the comprehensive oversight of a product's lifecycle by dedicated individuals or teams, ensuring alignment across departments, focusing on customer needs, and adapting to market changes. Whether the role is termed Product Owner or Product Manager, the core objective remains to lead the organization in a product-centric and customer-focused direction. (Lukassen & Schuurman 2023)

3.2 Product Portfolio Management

A product portfolio is an offering of all the products or services that a company provides and sells (Chen 2022). Business strategies and product strategies move in both directions, and in many cases, the existing product portfolio directly influences the business strategy decisions. However, in general, the product strategy is created based on the business strategy, which in the end guides the product portfolio. (Saaksvuori & Immonen 2008). Business strategies and objectives adapt rapidly to evolving markets and changing global situations. Keeping up with the development requires companies to keep abreast of trends

and renew strategies time after time, which may change the focus of the product portfolio. (Saaksvuori & Immonen 2008).

A strategy tool called SWOT Analysis can be used to evaluate the strengths, weaknesses, opportunities, and threats of the product portfolio. The tool is commonly used for business purposes, but it can be also applied on an individual level. The SWOT tool is a four-quadrant matrix used to organize aspects of the subject being examined according to strengths, weaknesses, opportunities, and threats. (Teoli, Sanvictores & An 2019). Each quadrant of the matrix represents one of these categories, providing a structured way to analyze internal and external factors that can affect the success of a project, organization, or strategy.

Product Portfolio Management (PPM) involves overseeing a company's entire collection of products and services. It focuses on analysing and making strategic decisions regarding the product mix to ensure the portfolio aligns with the company's overall business goals and market demands. Successful product portfolio management requires a structured approach to achieve the objectives (Pragmatic Institute, n.d.). An operating model describes a company’s way of utilizing its resources to achieve its objectives. An ideal operational model includes much more beyond the boxes and shapes in organization charts, and the responsibilities and roles are part of it. Who’s in charge of profits and losses, what are the roles, and which decisions can be made by whom? Businesses are shifting to agile operating models, and it requires assessing how to balance responsibility and autonomy. (Garton 2017)

A Product Operating Model is an entire structure for defining how teams and procedures work together to deliver value through products. It connects initiatives across departments and aligns them with the strategy of the business and customer needs (Product School Inc 2024). The principles of this operating model are applied further in the thesis as a basis of the PPM Operating Model and developed for further needs of Metso’s upgrades business to meet the product strategy.

3.3 Product Lifecycle Management

Product Portfolio and Product Lifecycle Management (PLM) are closely related concepts within the domain of product management, but they focus on different aspects of managing a company's products. While PPM is broader, assessing the entire portfolio's performance and strategic direction, PLM is more focused on the details and management of each specific product. (Segal 2023)

PPM is concerned with decisions such as which products to develop, which to maintain, and which to divert, based on factors such as market performance, revenue potential, and strategic fit within the portfolio. PLM, on the other hand, examines the detailed management of individual products throughout their lifecycles. PLM integrates data, processes, and business systems, and the PLM software helps to manage this information throughout the entire lifecycle of a product efficiently and cost-effectively.

PLM is not just a specific type of software or methodology but a comprehensive approach encompassing a variety of systematic methods aimed at managing product information efficiently. PLM seeks to oversee the entire process of a product's creation, management, distribution, and documentation, ensuring that all pertinent information throughout its lifespan from development, design, and production to usage is controlled and directed. (Saaksvuori & Immonen 2008)

PLM often utilizes various information systems, though it is not solely dependent on advanced technology. Simple information management standards can also enhance PLM without specialized software, despite the challenges posed by differing operational methods and software diversity. PLM focuses on managing extensive processes and is tailored to a company's specific goals and challenges. Implementing PLM successfully requires carefully aligning the system with a company's operations and strategic objectives (Saaksvuori & Immonen 2008).

3.4 Product Lifecycle Phases

Typically, as a concept product lifecycle management covers several areas, one of which is the product lifecycle phases. Product lifecycle can be divided into four phases and viewed from the financial point of view. (Saaksvuori & Immonen 2008)

The main lifecycle phases are the following:

- Introduction
- Growth
- Maturity
- Decline

The first phase covers several procedures of defining the product, designing, piloting, and launching a product to the market. A commonly used key performance indicator (KPI) for contributing to this phase is time-to-market. (Saaksvuori & Immonen 2008)

The following growth phase is a critical part of the product lifecycle, and it demands consciousness when scaling up the volume of production to meet the market needs. Maintaining high quality is essential, even when striving to achieve sufficient production volume. The most suitable KPI with which to measure this phase is time-to-volume, and it indicates elapsed time from launch to scaling up.

After the product successfully reaches its potential on the market, it shifts towards the maturity phase. In the maturity phase, instead of ramping up the production, the focus is on analysing the profit margins and driving more

demand. This vivid product lifecycle phase can be evaluated by time-to-react key performance indicator.

The total lifecycle time for each product varies case by case but typically new products last only five years while service for the product may last up to 50 years. In the declining phase, a major decision must be made when the product lifecycle will be ended. To measure this final shifting phase the right tool is time-to-service, the KPI which covers the product lifecycle from maturity to the end of the declining phase. (Saaksvuori & Immonen 2008)

The mentioned lifecycle phases and KPIs can be visualized to understand more deeply how they shift. Figure 2 illustrates how the product lifecycle phases change over time and which KPIs apply for different phases.

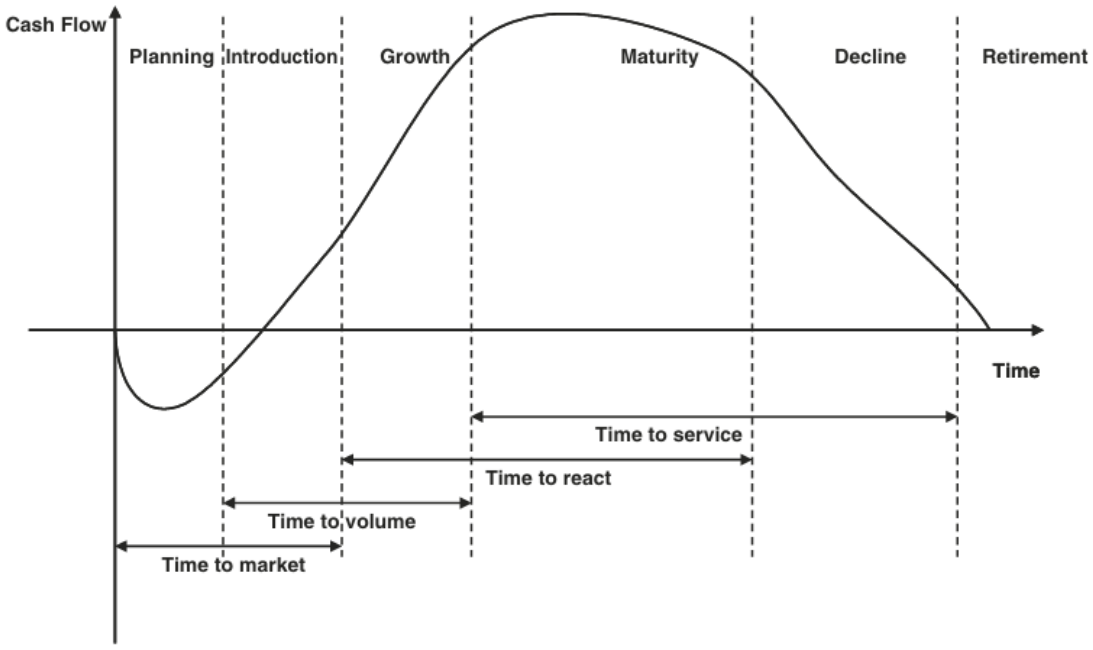

Figure 2. Classical Product Life Cycle model (Saaksvuori & Immonen 2008)

As shown in Figure 2, the lifecycle phases are described on the horizontal axis based on the time and the vertical axis based on the cash flow. This graph is

split into the lifecycle phases based on time and the trend in the graph expresses the performance of the product to time and cash flow.

Regardless of the short lifecycle of new products, the market demands lean towards lengthening the existing product lifetime. In the mining industry, the operating lifetime of the equipment has increased. Companies that sell the equipment have moved towards spare parts and upgrade businesses to capture profits. It has divided business segments into new product sales, upgrade and modernization sales, and maintenance service sales. (Saaksvuori & Immonen 2008).

Product Life Cycle (PLC) has a relationship to a Boston Consulting Group (BCG matrix) , according to Saluja's and Verma's case study in 2017, these two can be combined and positioned in the PLC model by using BCG analysis. A BCG matrix is used to analyse the products' relative market share (RMS) and market growth rate (MGR). RMS quantifies a company's sales compared to its top competitor. To calculate RMS, a company's sales volume from the previous year is divided by the sales volume of the main competitor during the same period (Yahya et al. 2020). Equation 1 for RMS is the following.

$$RMS = \frac{Competitor's\ sales\ volume\ from\ last\ year}{The\ company's\ sales\ volume\ from\ last\ year} \quad (1)$$

The MGR shows how much the sales volume in a market has risen over a given period, generally over one year as a percentage increase (Yahya et al. 2020). This can be calculated with the following Equation 2.

$$MGR = \frac{Unit\ sales\ this\ year - Unit\ sales\ last\ year}{Unit\ sales\ last\ year} \quad (2)$$

In brief, the growth-share matrix is a framework for portfolio management that outlines priorities for different businesses in a company. The analysis clarifies whether the product has reached its potential on the market and if it is worth investing into the product (Boston Consulting Group 2024).

The matrix in Figure 3 below works as follows:

1. Low Growth, High Share. Businesses should utilize these "cash cows" as a source of funds for reinvestment.

2. High Growth, High Share. Businesses should heavily invest in these "stars" due to their considerable potential for future growth.

3. High Growth, Low Share. Businesses should either invest in these "question marks" or consider phasing them out, based on their potential to evolve into stars.

4. Low Share, Low Growth. Businesses should either wind up, divest, or reposition these "dogs".

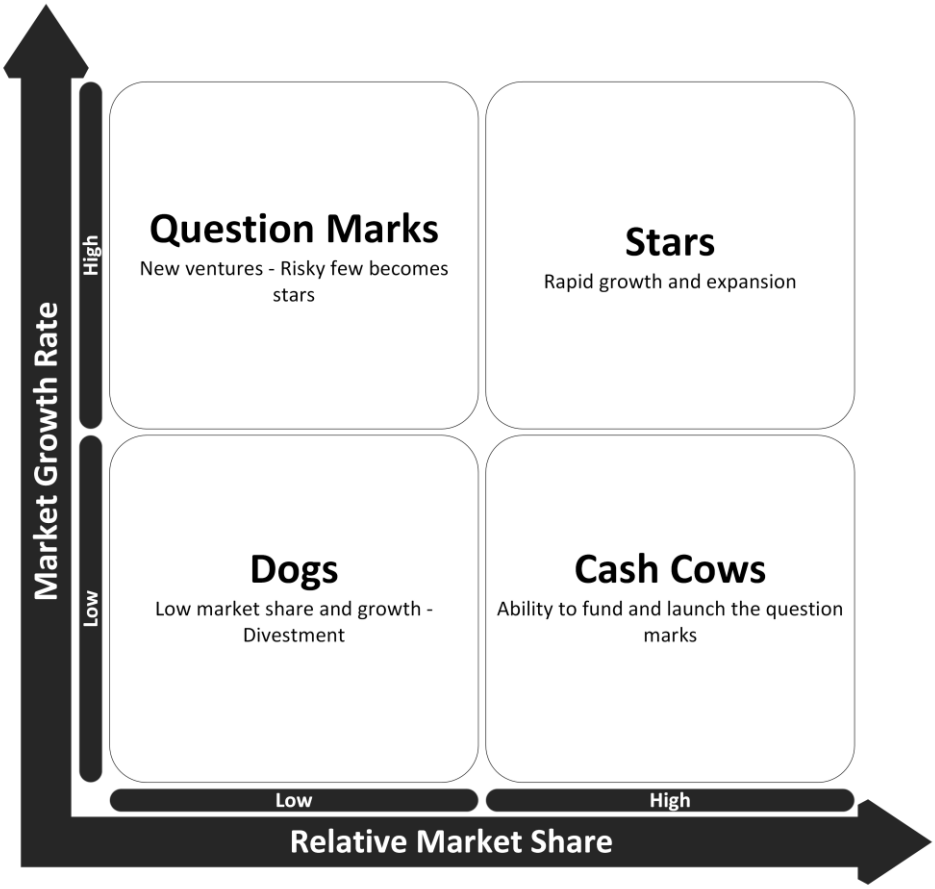

Figure 3. Classical BCG-matrix

This BCG matrix in Figure 3 illustrates the balance in the portfolio by how many products are in each section. When the products are inserted into the matrix, they can be further analysed to decide what to do with, for example weak-performing products.

3.5 Value Selling

The sales process for selling value differs from the process for selling items. Selling value begins early in the process by having a sustained conversation with representatives of the provider and the customer (Storbacka & Pennanen 2014, p. 52). The way businesses convey the advantages to customers is what separates consultative value selling from typical product-oriented sales. Value selling is based on articulating the financial impact that an offering will have on the customer's business, as opposed to a traditional sales technique that focuses on educating customers regarding the many aspects of a product and its demonstrable technical performance benefits. (Storbacka & Pennanen 2014, p. 36)

Demonstrating the value to the customer it requires the solution provider to communicate the expertise and knowledge for the customer’s business. An ideal way to communicate through knowledge is by quantifying the value of the solution. This opens a dialogue between the provider and the customer from product-specific price to the financial impact, which helps significantly to identify customer-specific sales arguments during the process (Storbacka & Pennanen 2014, p. 54-55). Figure 4 below expresses the process mentioned earlier of quantifying value from product-oriented and customer-oriented approaches.

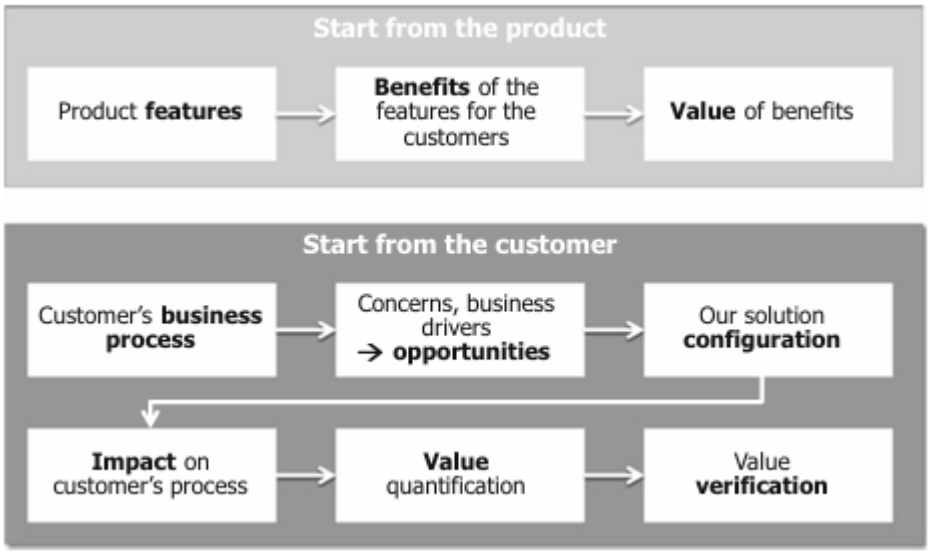

Figure 4. Approaches of quantifying value (Storbacka & Pennanen 2014, p. 55)

The processes in Figure 4 vary by product-oriented and customer-oriented approach. The first process in Figure 4 is called “Start from the product”, where the focus is on the technical aspects of the product and how that creates value for the customer. On the other hand, this process does not describe how it solves a problem on a broader scale.

When starting from the customer, the process begins early on to understand what the customer-specific purpose is to buy the solution. The product is offered to solve a challenge in customers' business. This includes understanding the customer’s business process and concerns to configure or tailor the solution for the customer. This leads to communicating the impact and quantifying the value which can at a later stage be verified.

Storbacka and Pennanen highlight the fact that numerous studies have proven that pricing stands as the most effective tool in enhancing profitability and outperforms all other operational tactics, including reducing costs (2014, p. 58). Common pricing options for businesses are cost-based pricing, market-based pricing, and value-based pricing. Pricing options are further explained in Table 1 below.

Cost-based pricing	Market-based pricing	Value-based pricing
• Based on the cost of the produced goods and services, including material, labor, and capital costs. • Price is calculated on the basis of cost + mark-up.	• Based on the balance between demand and supply in the market (substitutes included) • Margins vary according to the market price, as the cost of goods and services produced is not always linked to the market price.	• Based on the value that the provider's solutions create to the customer. • Customer value quantification is the prerequisite for setting value-based prices. • Provides possibilities for significantly higher margins.

Table 1. Pricing options (Storbacka & Pennanen 2014)

As shown in Table 1 in transactional selling, the businesses can apply various pricing options. Cost-based pricing, known also as cost-plus pricing, is a straightforward pricing method to cover the costs by the sales margin to gain profits. Market-based pricing is an adaptative pricing method by the market and the pricing option's margins vary. On the other hand, value-based pricing offers higher margins through well-created and communicated value of solutions.

The pricing may be more rigid, often based on market prices or cost-plus models. This can be efficient for standardized goods where differentiation is minimal and competition is based primarily on price (Baldenius & Reichelstein 2006, p. 10). In comparison to value-based selling, transactional-based selling focuses on a shorter time frame of the sales process to close the deal with the customer, while value selling aims for a long-term relationship with the customers to achieve mutually beneficial outcomes.

3.6 Value Propositions & Quantification

Value Proposition as a statement explains why a customer should choose a particular product or service. It highlights the unique benefits and features that set the product or service apart from competitors with a focus on the value it adds to the customer's business instead of focusing on detailed technical aspects. More than highlighting some features, the value proposition is all about communicating the core value and the distinctive worth of the product, service, or solution aiming to persuade potential customers that it is the best solution for

their needs (Storbacka & Pennanen, 2014). The focus areas to communicate the value proposition are illustrated below in Figure 5.

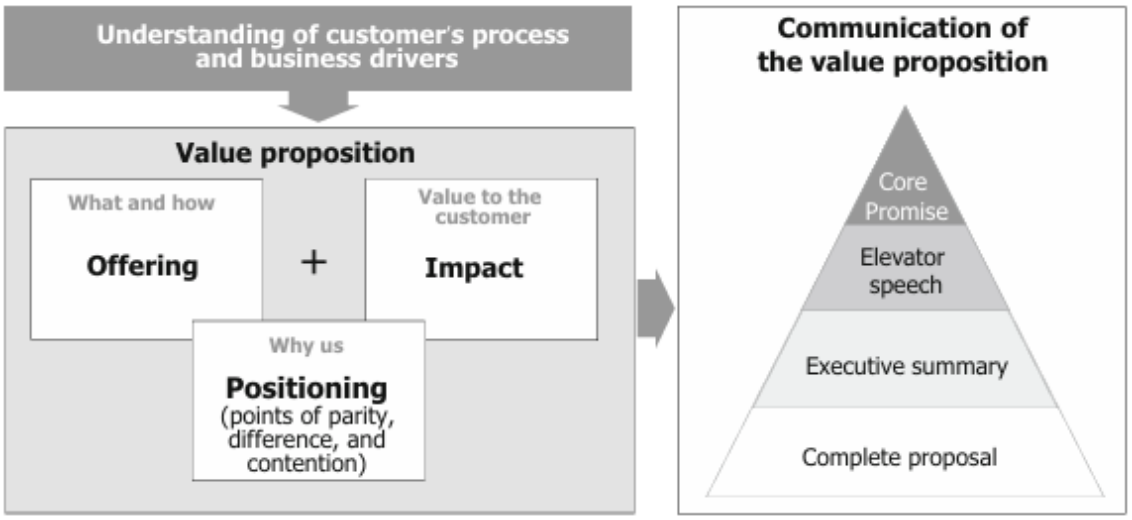

Figure 5. Solution Business. Storbacka & Pennanen, 2014

As Figure 5 expresses the focus areas and communication, when crafting value propositions, it is necessary to have a clear understanding of the capabilities in the portfolio offering as to how they create value but also why would a customer buy it from the provider. When communicating the impacts, this all needs to be formatted into a clear but effective value proposition where the core promise is clear.

According to Storbacka and Pennanen, quantifying the value requires in most cases more than the P&L approach. Value calculation does not need to be decimal precise, and the main objective should be to shift the balance of the conversation between the provider and the customer. The impact of the solution needs to be seen from the level of shareholders, which can be done by analysing the potential of increased revenues, decreased cost, or cost of ownership, balance sheet, and total business risks (Storbacka & Pennanen, 2014).

Metso’s Product Management has developed value calculators as part of the service for the upgrade business, which they use to quantify value and

showcase increased revenue potential and other KPIs in mining operations. These value selling tools play a crucial part in the product portfolio for upgrades business. Complex tools and solutions require ownership and expertise of the solution. Although the sales personnel are the target group who directly benefits from the value quantification tools, they often do not have the capabilities to develop the tools (Storbacka & Pennanen, 2014).

4 Current State Analysis of the Product Portfolio

4.1 Overview of the Current Product Portfolio

Upgrade products in the portfolio are grouped by Larox PF, VPA, Larox FFP, and Larox RT product families of filtration equipment. The company has a wide range of different upgrades for each product family and the offering consists of active products by 50 % and the share for new product development is around 6 %. On the other hand, the number of retired products has grown significantly over the past few years by a share of 44 %. The company has instituted tools to manage this product ecosystem efficiently.

A pivotal component of this toolkit is a Product Wiki, which provides comprehensive access to an array of materials ranging from handbooks and product presentations to other vital internal documentation. As illustrated below in Figure 6, the Product Wiki serves not just as a repository but also as a critical resource facilitating the seamless integration and utilization of extensive product-related information.

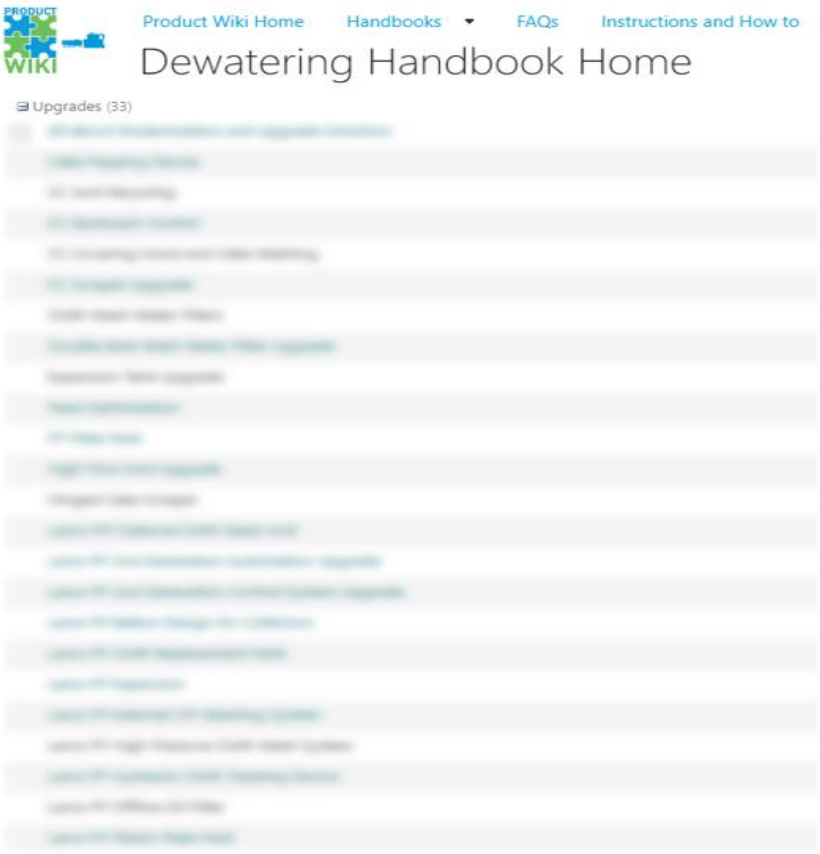

Figure 6. Product Wiki of Upgrades

For Product Lifecycle Management (PLM), the company has a PLM software Enovia which works as a bridge for technical data from product engineering to product management and so on. This can be used as one source for collecting technical data on the product portfolio. Enovia PLM software is shown in the following Figure 7 below.

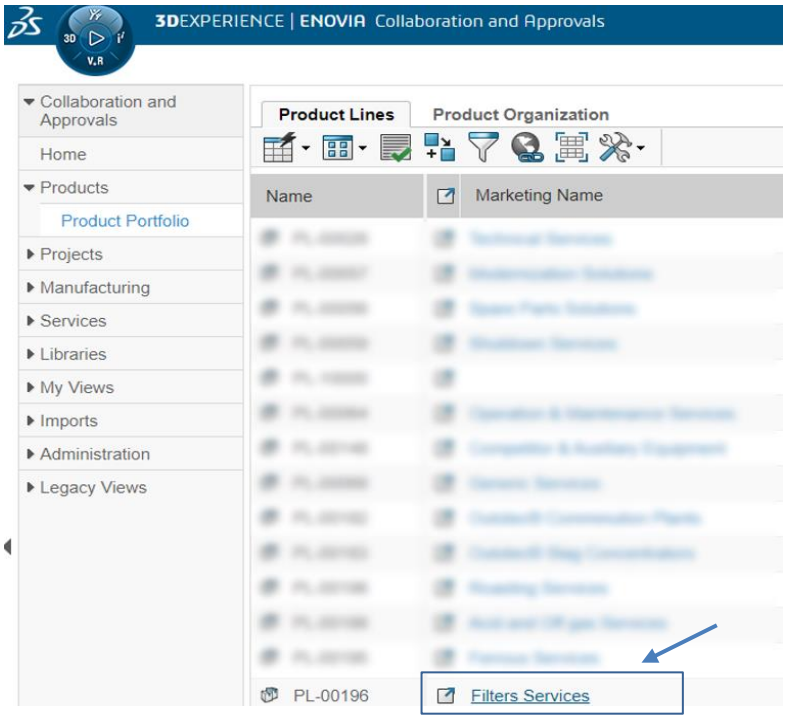

Figure 7. Product Portfolio in Enovia PLM software

For filters, the company has a comprehensive offering of different products. After entering Filters Services section, the Upgrades product portfolio can be reviewed. The Upgrades product portfolio is in the following Figure 8.

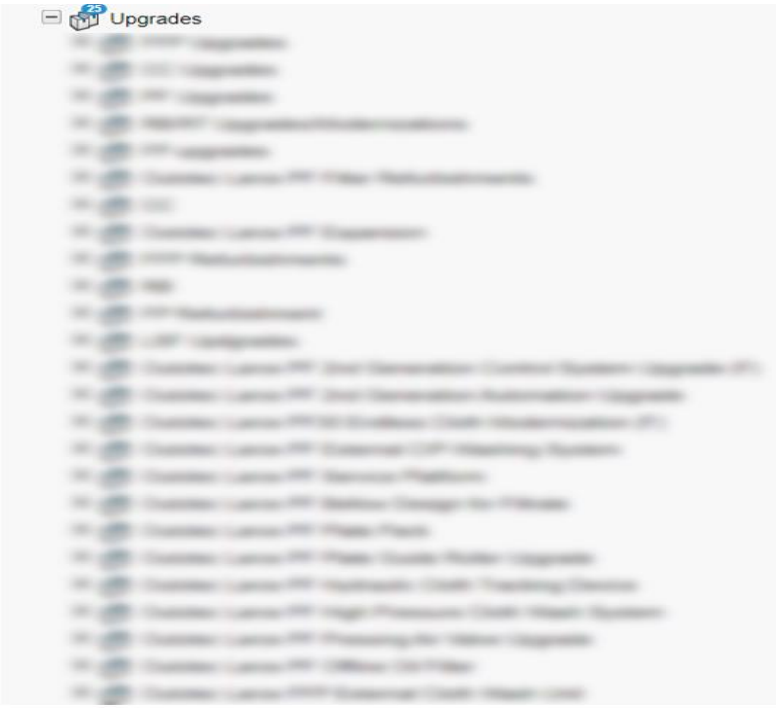

Figure 8. Upgrades Portfolio in Enovia PLM software

Besides these data sources, Figure 9 below is a media portal that the company's marketing team manages for product presentations, case studies, et cetera. The media portal encompasses the latest marketing materials from the entire business portfolio which also includes the filter upgrades marketing materials. However, this concept is new and does not cover all the upgrade products yet. On the other hand, it has the latest publications of product information regarding the portfolio.

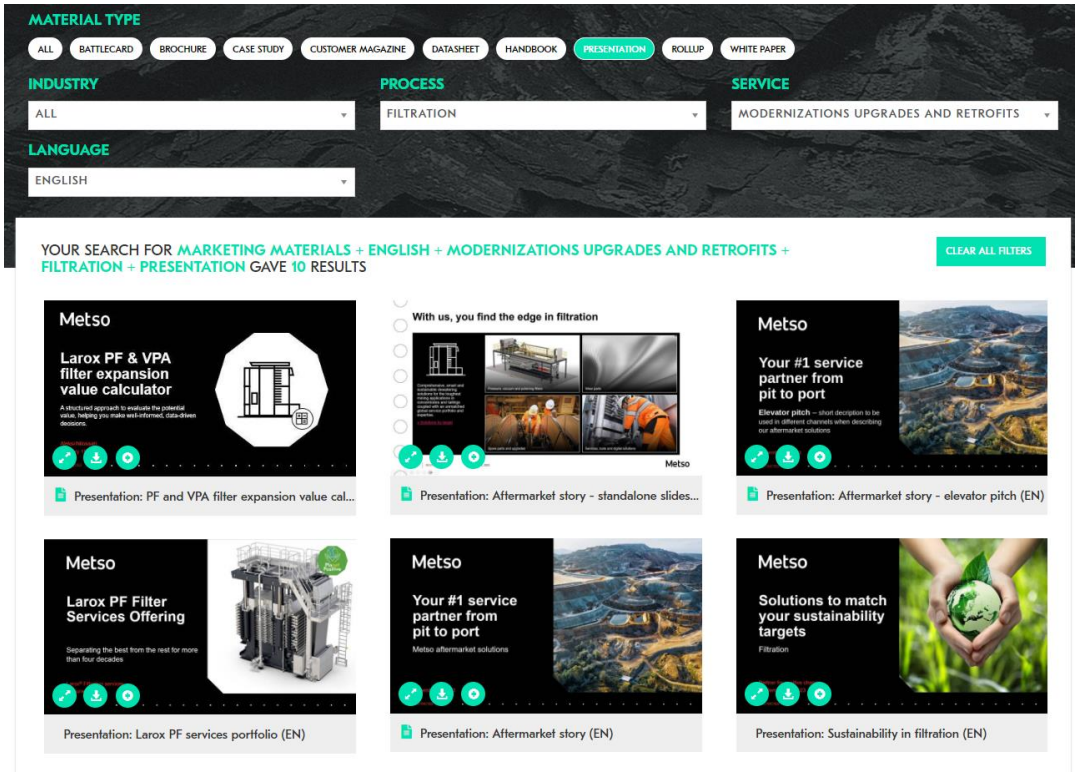

Figure 9. Media Portal's marketing materials

For analysing the portfolio's current state, the media portal in the Figure 9 stands out as an exceptional resource not only for its up-to-date product information but also for its ability to visualize the products. This visualization through high-quality images and videos allows for a deeper understanding of the product features, design, and functionality. Seeing the product from various angles and contexts helps bridge the gap between textual descriptions and practical use from the product's technical point of view. Overall, the portfolio's

current state analysis must be more comprehensive and cover product portfolio management and financial aspects.

A presentation format or a model for the upgrade product portfolio is not available in the company's materials that would explain and visualize relations between the products or their lifecycle state. The current state is assessed by interviewing responsible product managers for the upgrades business and studying the product material for the current product portfolio. This leads the study to a confidential SWOT analysis, with the resulting matrix addressed in Appendix 3.

4.2 Key Findings

A strong installed base of filtration equipment and already good positioning on the market is a clear advantage for contributing to the sustainable and continuous growth of the upgrade business. Digitalization can be seen as a significant opportunity for filtration equipment upgrades and modernizations, which needs more attention along the other product development projects.

The focus is needed on product lifecycle management to understand the state of upgrade products. The threat is that the portfolio is not managed on a necessary level, and it may lead to significantly increased hidden costs, obsolete product information, and uncertainty between the stakeholders. This can divert resources and focus from other crucial new product development projects.

An operating model of product portfolio management is essential for consistent business development and for sorting out the entire portfolio. Along with the operating model, a new product portfolio model needs to be crafted to visualize and understand the relationships, opportunities, and capabilities between the products. The new product portfolio should explicitly identify, and separate which products have the potential to be sold on a value basis. This clarity will

illuminate significant opportunities for stakeholders and ensure that potential revenue streams are fully leveraged.

5 Operating Model for Product Portfolio Management

5.1 Operating Model Proposal

As concluded during the current state analysis, an operating model is essential for PPM. New objectives for PPM were discussed during the interviews and further perfected for product portfolio management. Focus areas and objectives are the following:

1. *Strategic alignment* – Aligned product portfolio

2. *Product Portfolio Model* – Unshattered and new product portfolio

3. *Product Lifecycle Management* – Clarified lifecycle phases

A combination of six key components forms the structure of the operating model. Below in Figure 10 are the components where red coloured shapes describe the focus areas of the operating model, and the objectives mentioned earlier. Additionally, black shapes answer questions of who or how.

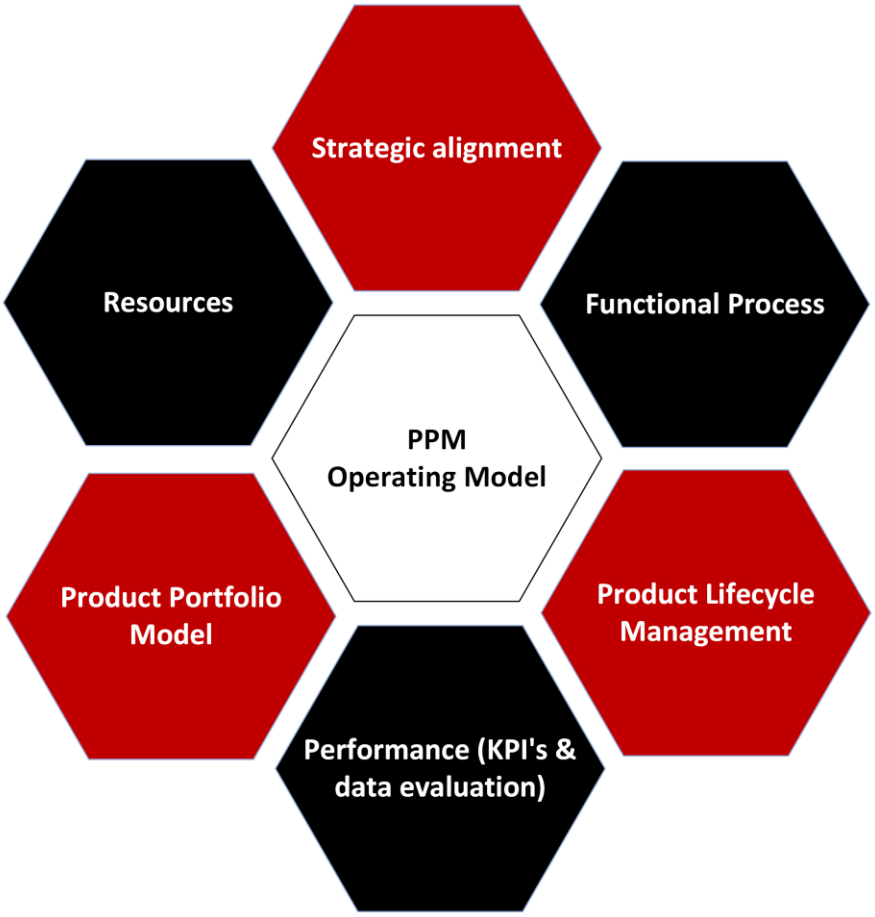

Figure 10. Operating model proposal for Product Portfolio Management

This operating model in Figure 10 functions as the framework for product management activities around the portfolio by describing and visualizing the structured operating model. This visualization of the operating model can be easily communicated and presented in the organization component by component.

5.2 Operating Model Framework

The strategic alignment component ensures that the product portfolio is in line with the company's strategic goals. This involves setting clear objectives that align product plans with the overall direction and priorities of the business and

ensuring that products contribute to the product strategy. The first step to align the portfolio is described below in the functional process section.

Product Lifecycle Management component focuses on the lifecycle phases that each product goes through from conception to decline. This component of the framework emphasizes the importance of managing each phase of a product's lifecycle to maximize its value and ensure timely updates or retirement as part of product portfolio management. It helps to read the market situation and when the focus is essential on new product development and introduction.

The functional process as a component encompasses the operational aspects of PPM, such as portfolio analysis, product lifecycle management activities, product-defining tools, and portfolio development mechanisms. This ensures that the product management activities around the portfolio are efficient and contribute to the smooth execution of the product strategy. In the Piloting Product Defining Tool for Value-Based Selling section of this thesis, tools for functional process are used as first step of strategic alignment.

5.3 Piloting Product Defining Tool for Value-Based Selling

The performance component of this framework involves the monitoring and measurement of product performance using KPIs and other data analytics. This component is critical for informed decision-making, allowing for adjustments based on actual performance versus targets.

Resource is a component that defines responsibilities and roles inside the product management for PPM. This component also clarifies how those working on these products are involved outside product management across the departments. The bottom line is to make sure each team member knows what decisions can be made regarding the product portfolio and who can support in different situations. In this component, the key internal stakeholders that have relationships with the products are listed regardless of whether the stakeholder reports under the other business area. Their expertise or influence on the

products are remarkable and need to be utilized correctly to make sure that the knowledge is not hoarded for any reason. Figure 11 is an example of mapping the key internal stakeholders and it demonstrates their relationships to the products.

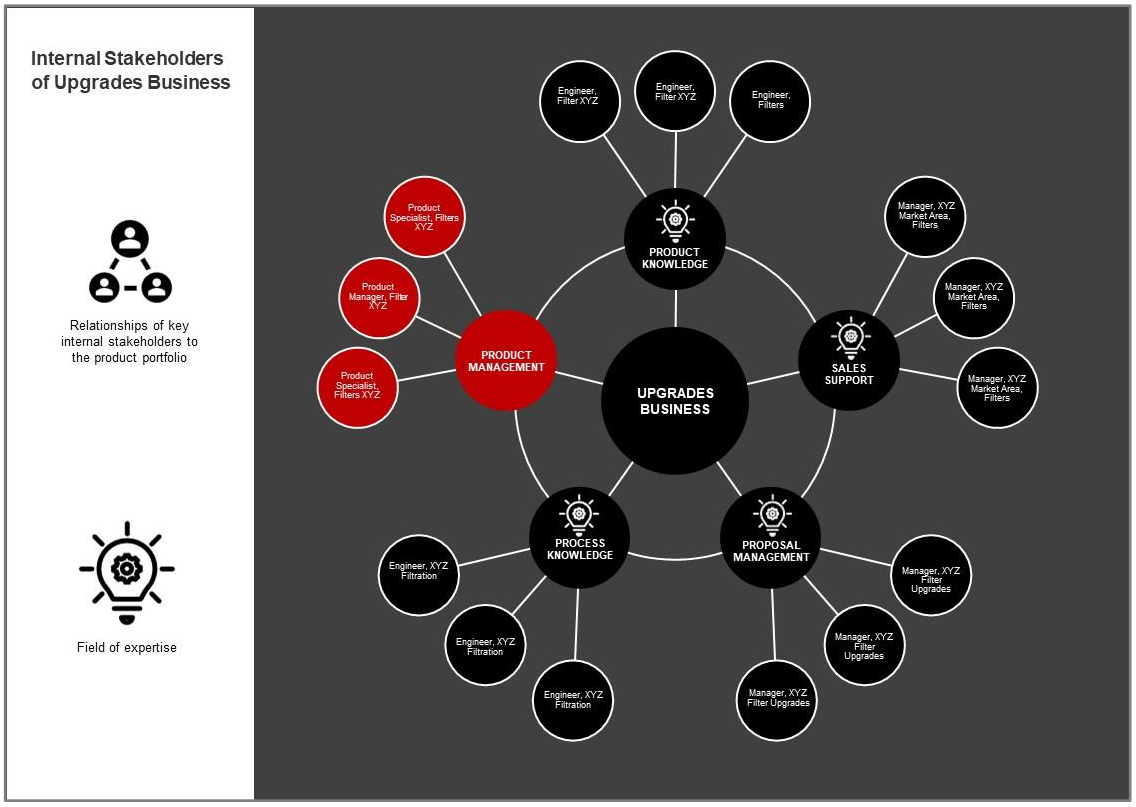

Figure 11. Example of Internal Stakeholder Map

The impact of the example mapping in Figure 11 can be significant if it is well-maintained and available for the key personnel of product management. By identifying and connecting the roles, influence, and interests of various stakeholders across the organization, decision-makers of product management can glean insights that lead to more informed, balanced, and strategic decisions. This collective intelligence ensures that product strategies are not developed in isolation but are reflective of the diverse perspectives and expertise within the organization.

Resource allocation becomes more strategic with a clear understanding of internal stakeholders' needs and priorities. Mapping stakeholders enables organizations to prioritize projects and initiatives based on strategic importance, stakeholder influence, and potential impact on the organization. The visual representation of stakeholder relationships encourages cross-functional collaboration, which as a result breaks down possible silos and promotes a unified approach to product management activities. By understanding the interdependencies and shared objectives, different functions can work together more cohesively to drive the portfolio’s success. This synergy is particularly beneficial in a dynamic market where quick, coordinated actions can capitalize on opportunities or mitigate risks.

For new onboarding team members, the stakeholder map serves as an essential onboarding document that accelerates their understanding of the business ecosystem. It provides a comprehensive overview of the key positions involved in the portfolio’s products, elucidating the relationships and channels through which different departments and roles interact. This clarity reduces the time required for new hires to get up to speed, enabling them to contribute effectively in a shorter time frame.

5.4 Piloting Product Defining Tool for Value-Based Selling

The merger of Metso and Outotec has broadened the product range, presenting an opportunity to reevaluate and streamline the combined portfolio. This reorganization is essential for effectively implementing a value-based selling approach. By understanding and articulating the value that these products bring to customers, such as operational performance and reliability, increased revenue, or long-term savings, the company can better position its offerings in the market. This strategic shift requires a thorough analysis of the expanded portfolio to identify and highlight the distinct value propositions of the combined product lineup.

In this thesis, a tool for sorting out the products is created for the specific need of ensuring the capabilities of configuring products for value-based sales and the tool called a Defining Tool for Value-Based Selling. In the Appendix 2 is a tool for strategically aligning and approximately splitting the product portfolio into two distinguishing factors – transactional and value-based products. This split does not mean that products that are in portion of value-based products, could not be sold on a transactional basis, but instead it highlights and separates products from those that do not significantly affect customers operations by creating remarkable value.

The purpose of this tool is to enable sorting out the existing and upcoming products efficiently and to support the decision-making process for each product. By using the tool and completing the necessary steps, it clarifies which section products fit in the portfolio. In this thesis, one of the filter upgrade products is defined by the tool. Defining the products not only clarifies the suitability for value-based selling but also builds a bridge between the products that have similarities and can be bundled. The pricing options from Storbacka and Pennanen, referred in section 2.5, can be further applied once the portfolio is sorted and unshattered.

The application of the tool to a specific product begins with a thorough assessment within the 'Characteristics' section. This checklist not only ensures that all critical aspects of the product's capabilities are evaluated but also that these capabilities are aligned with the principles of value-based selling. For instance, performance enhancement or increasing filter throughput directly correlate with operational performance that customers deeply value. By systematically confirming which attributes are applicable, the product is defined not merely by its features but by its potential to enhance the customer’s business and operational efficiency through solution configuration.

The inception of the tool began with an extensive analysis of what constitutes value for the customer from the upgrade products. The development of the tool

engaged in research of product characteristics of how different upgrades can solve challenges. For this development phase, company’s value selling tools were utilized to understand the core that customers associate with value, for example cost reduction and increased throughput that can be turned into monetary values. From this foundation, a set of core characteristics was identified. These characteristics have a direct bearing on the customer's operations and each characteristic was defined with clear criteria to ensure objective evaluation.

With the structure in place, the tool is piloted with Product X as part of this thesis. The use of the tool provides practical insights for formulating the criteria sections. The final version of the tool is intuitive to use, and the data produced is relevant for sales and product management teams.

As an outcome of the evaluation in Appendix 2, Product X meets the criteria of value-based selling with significant potential of performance increase. The product is defined by its capabilities to be sold as a value-based upgrade. The Executive Summary was crafted to synthesize the information gathered from the Characteristics and Performance Increase sections. It offers clear guidance on how to proceed with the sale of the product, depending on the assessed value it delivers. The summary's recommendations on sale types — transactional or value-based — were based on predefined thresholds of improvements, linking the assessment directly to actionable sales strategies.

Product defining is at a juncture for the product's integration into the broader product portfolio. This integration is critical not only for maintaining a coherent product strategy but also for capitalizing on the product's unique value proposition.

6 Product Portfolio Model for Upgrade Business

The defined product must be positioned in the product portfolio in a manner that in the context of value-based selling, the product is not merely a static offering;

it is a dynamic solution that promises measurable improvements in customer operations. The strategic placement within the portfolio involves several key considerations. First is differentiation as Product X must be differentiated from other products that can be sold only on a transactional basis. Its unique selling points need to be highlighted and leveraged to set it apart in the portfolio. Complementarity comes second; the product should complement and enhance the existing portfolio. If other similar value-based products exist, Product X must be assessed for synergies and potential bundling opportunities that could offer even greater value to customers.

Pricing strategies within the portfolio must be revisited to accommodate Product X. Its pricing should reflect the value it offers, and this may entail pricing models that are linked to the realized improvements. The core message should be closely tied to sales strategies, which for Product X means aligning sales efforts with the product's value proposition. In some cases, this may require sales training as sales teams must understand the nuances of selling different solutions as upgrade products. They need to articulate the solution for customer business and how it turns into customer value through operation benefits and increased revenue potentials.

6.1 Positioning products in the portfolio

Since the upgrade products are specific aftermarket products and solutions for OEM equipment the classical RMS is not a reliable metric in the niche upgrade market due to lack of direct competition. Instead, for this purpose a Market Penetration Rate (MPR) is applied for more accurate metric where the relative market is the installed base of OEM equipment, as MPR is more universal for various range of upgrade product solutions. The equation of MPR is the following:

$$MPR = \frac{Number\ of\ the\ Upgrade\ Units\ Sold}{Total\ number\ of\ the\ installed\ base} \quad (3)$$

Market Growth Rate (MGR) is calculated with the following equation 2:

$$MGR = \frac{Unit\ sales\ this\ year - Unit\ sales\ last\ year}{Unit\ sales\ last\ year} \quad (1)$$

The BCG-matrix specifically for upgrade products works as the following and is illustrated in Figure 12.

1. Low Growth, High Penetration. Aftermarket upgrades in this quadrant have high penetration in the existing installed base but are in the market with little growth. These ”cash cows” should be a source of steady income and can fund other ventures or product developments.

2. High Growth, High Penetration. Upgrades in this category see high adoption rates and are in a growing market. Significant investment is recommended in these “stars” to capitalize on their potential and to further increase market penetration and revenue.

3. High Growth, Low Penetration. These aftermarket upgrades currently have a low market penetration rate with high growth. Businesses must decide whether to allocate resources in these “question marks” to increase their market presence and potential to become 'stars' or consider discontinuing them if they show limited prospects for significant market penetration.

4. Low Growth, Low Penetration. These “dogs” of upgrades have low penetration and are in markets with little to no growth. These products are the first candidates for discontinuation unless they can be repositioned effectively or “reproductized” to become more attractive to the customer’s installed base.

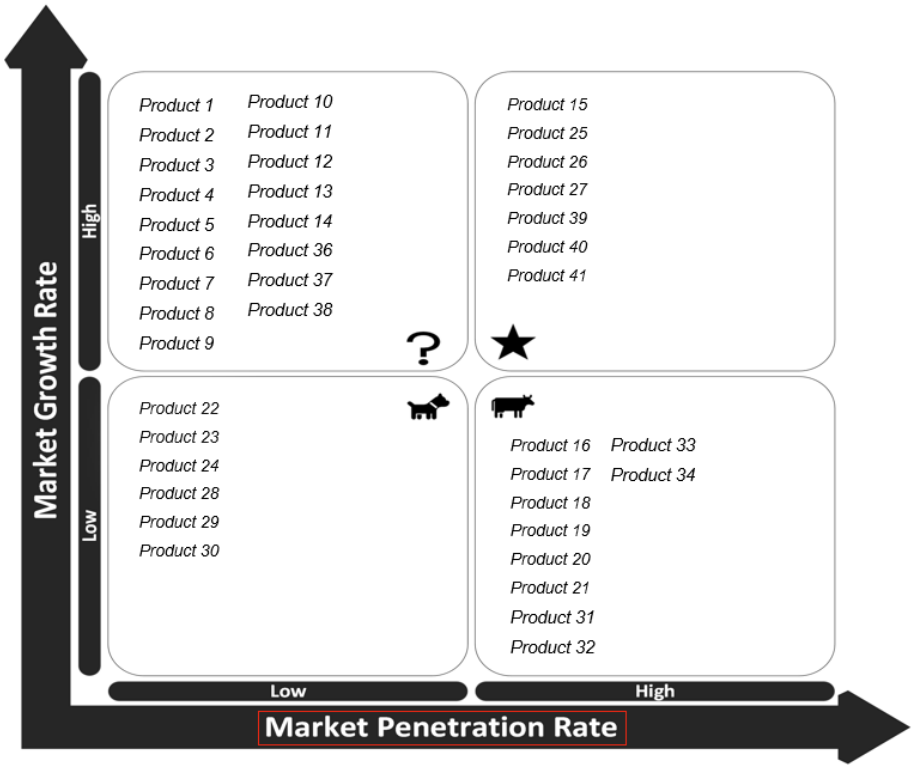

Figure 12. Adapted BCG-matrix for upgrades (Example of Portfolio Analysis)

Using Market Penetration Rate instead of RMS as a horizontal axis is particularly useful in situations of a captive market as with OEM-specific upgrades, and direct competition is either non-existent or difficult to measure. This allows a more accurate assessment of how well the product is doing in relation to the total available market — the install base of the original equipment.

The initial proposal for the new portfolio model is based on a combination of PLC and BCG analysis for upgrades. The products are split between transactional- and value-based products to demonstrate capabilities to pursue the product strategy. By understanding each product's life cycle state, the

portfolio can be monitored and managed on the necessary level. Below, Figure 13 illustrates how upgrade products can be sorted based on the lifecycle state.

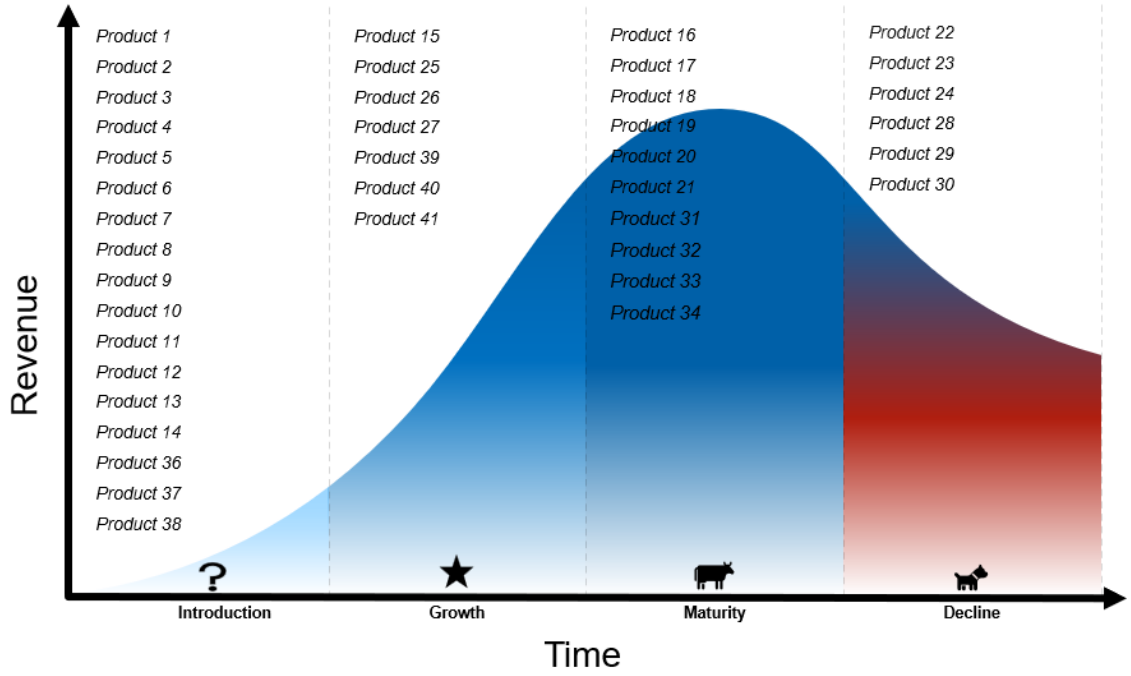

Figure 13. Combination of BCG-matrix & PLC (Example of product states)

The model in Figure 13 combines the BCG-matrix and Product Life Cycle model to explain the state of the products in two ways. BCG analysis helps to understand what kind of measures are needed for the products, and the PLC explains where the product is based on its life cycle.

6.2 Product X Lifecycle Phase Analysis

At this stage, the only data available is from 2022 to 2023, and inspecting these years provides a limited view of how the product performed on the market during that period. For a comprehensive analysis more data is needed, and it may require mapping decades of data. Comprehensive analysis can be done in the thesis if the data can be received or gathered within a reasonable time after the first examination. For the first examination of Product X, the following MPR was calculated with Equation 3.

$$MPR = \frac{Number\ of\ the\ Upgrade\ Units\ Sold\ (2022-2023)}{Total\ number\ of\ the\ installed\ base} = 0{,}6\ \%$$

Equation 2 was used for Product X to calculate MGR as follows.

$$MGR = \frac{Unit\ sales\ 2023\ -\ Unit\ sales\ 2022}{Unit\ sales\ 2022} = 3\ \%$$

Based on the calculations for the period of 2022 – 2023 Product X penetrated and gained a 0,6% share of the relative market. At the same time, the growth rate remained low, and the product failed to succeed in the market during these years. The lifecycle phase and possible scenarios for the product are visualized in Figure 14 below.

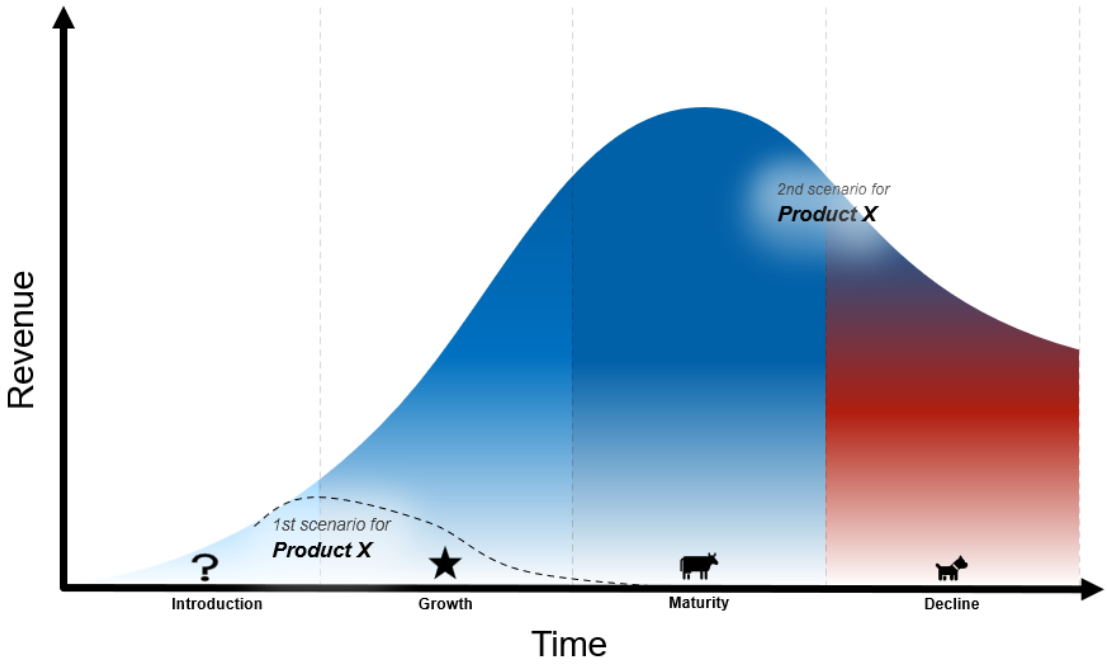

Figure 14. Lifecycle phase of Product X

As shown in Figure 14 and in light of this data, Product X is either a question mark facing a decline in the market since the introduction or a dog shifting towards a decline phase. However, this needs to be further analysed to understand the product's actual state before making conclusions as it falls now between two unreliable options without enough mapped data. If it was the first

scenario, the product would need more market presence and growth by allocating resources to it, otherwise, Metso should consider product disposal.

To enhance the reliability of the analysis, it is crucial to ascertain the uncertainties with the pre-merger period and gather more of the latest data available. To this end, required data is mapped and gathered from the Customer Relationship Management (CRM) system and from individuals who have engaged with the upgrade projects in question. This approach will facilitate doing more comprehensive analysis of the lifecycle and performance of the market and gaining a better understanding of the product before and after the merger.

New calculations were done with mapped data as follows, where Equation 2 to calculate was used to calculate MGR and Equation 3 to calculate MPR.

$$MGR = \frac{Unit\ sales\ 2024 - Unit\ sales\ 2023}{Unit\ sales\ 2023} = 93\ \% \quad (2)$$

$$MPR = \frac{Number\ of\ all\ the\ Upgrade\ Units\ Sold}{Total\ number\ of\ the\ installed\ base} = 2{,}8\ \% \quad (3)$$

As a result of the analysis, Product X is a question mark in the introduction phase of its lifecycle with rapid growth and has yet relatively small share of the installed base. This indicates that the product needs all the support to penetrate the market and win more opportunities. Product X can be positioned in a new portfolio model when the new model is created, approved, and implemented.

6.3 New Product Portfolio Proposal

The portfolio is tailored for the needs of upgrades business with a structural operating model for portfolio management. Functional processes enable analysis of the portfolio and include all practical actions. These methods and processes of defining products on a value or transactional basis with data-driven analysis of BCG and lifecycle states in result create a bridge between the

products. Relationships and product market performance can be understood on a deeper level when the actual product portfolio for upgrades is visualized. The following Figure 15 is the portfolio proposal for the actual implementation.

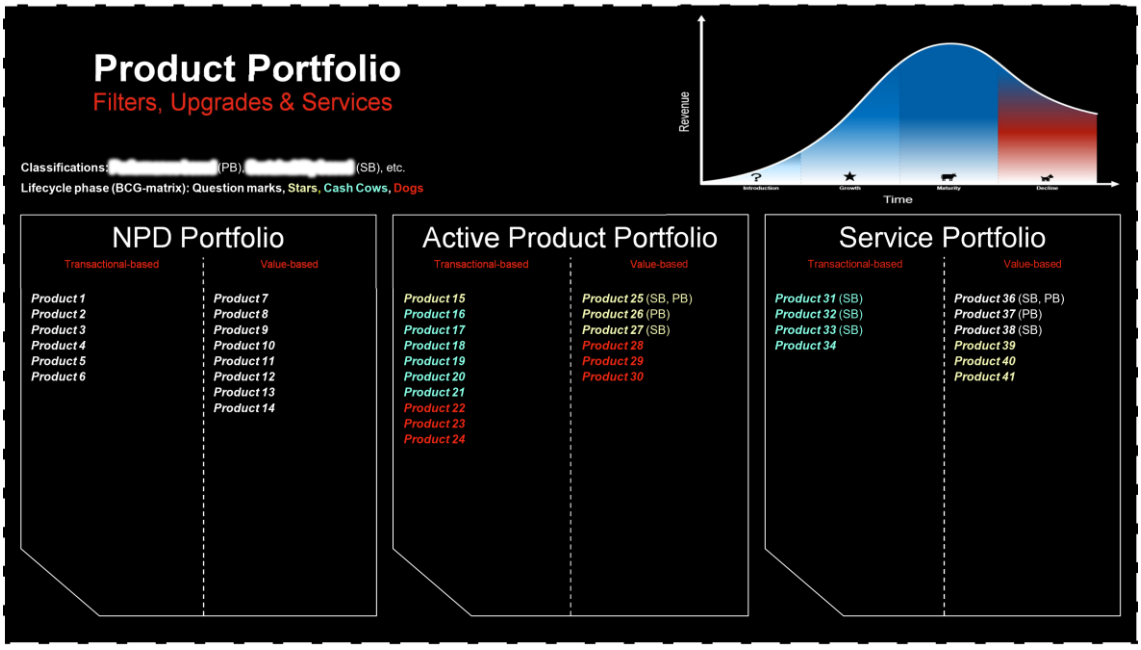

Figure 15. Product Portfolio Proposal for implementation

The portfolio is divided into the New Product Development (NPD) Portfolio, the Active Product Portfolio, and the Service Portfolio, each signifying different types of product offerings. The products in Figure 15 are examples of how the whole product portfolio model would look as finished.

The NPD Portfolio includes the incubation stage of products where ideas are vetted for market viability, productized, and developed for piloting to launching. The example products 1 through 6 are earmarked as transactional-based products with a focus on one-time sales, or direct, short-term revenue generation with minimal customization. In contrast, products 7 through 14 are identified as value-based, representing offerings that promise higher value and differentiation, designed to secure long-term customer engagement.

Transitioning into the Active Product Portfolio, the model advances to showcase products that have successfully traversed the developmental phase and are actively contributing to market penetration and revenue. Here again, the transactional and value-based demarcation is applied, with products 15 through 24 and products 26 through 30 delineated respectively, featuring confidential and internal classifications such as PB and SB to indicate strategic focus areas.

The Service Portfolio encapsulates the service-oriented facet of the offering, adhering to the same transactional and value-based dichotomy, and includes services 31 through 41. This bifurcation ensures that services are not just supplementary to products but are recognized for their standalone value and revenue potential.

A critical facet of this model is the utilization of the BCG matrix and product lifecycle concepts, which facilitates dynamic categorization of the products and services as Question marks, Stars, Cash Cows, or Dogs. This categorization aids in the strategic allocation of resources and directs focus on growth opportunities while managing risk. The lifecycle graph on the right of the portfolio offers a temporal dimension, representing the revenue trajectory of products over time. It underscores the necessity to anticipate and plan for each phase, from the introduction to the decline, ensuring that strategies are recalibrated to maintain a competitive edge and lifecycle vitality.

In synthesis, the product portfolio model presented in Figure 15 serves as a strategic proposal for actual implementation. It functions not only as a visual representation but as a conceptual bridge which combines quantitative data analysis with strategic product and service positioning. The visualization not only clarifies the relationships and market performance of the product and service offerings but also facilitates a deeper understanding of their interplay and collective trajectory, which is essential for informed decision-making in portfolio management and business growth strategies.

7 Results and Implementation

In results of this thesis a new product portfolio model and the operating model for PPM were created to meet the needs of filter upgrade business. The tools developed and tailored for the upgrades business were used as part of the operating model's functional processes and piloted on the Product X. Piloting showed that the process works as intended and the tools can be utilized further for a larger offering of products. The analysis of the Product X revealed that the lifecycle of the product is in the introduction phase.

As conclusions, the analysis revealing the lifecycle phase of Product X has broader implications for the PPM operating model. By identifying that Product X is in the early phase with rapid growth and low market share, the product can be now strategically positioned into a new product portfolio. This accurate positioning guides in allocating resources effectively, ensuring Product X receives the necessary support to grow.

The new PPM operating model and product portfolio offer several key benefits for executing product strategies. By structuring products based on their lifecycle stages and whether they are transactional or value-based, the model allows for more effective resource allocation. This structured approach helps businesses identify where to invest resources and which products to promote for further growth. Data-driven methods such as the BCG matrix assist in this process, providing a clear framework for decision-making.

Overall, the new portfolio model provides a comprehensive and flexible framework for managing a diverse range of products and services. It offers a clear visualization of product categorization and lifecycle stages, allowing for strategic planning and effective portfolio management. The combination of transactional and value-based segmentation, along with the lifecycle approach, helps businesses align their strategies with market trends and product capabilities for value-based selling.

The implementation begins with creating an implementation plan by the Upgrades & Services team, where KPIs, stakeholders, and ways of sharing information are defined. Tools such as RACI (Responsible, Accountable, Consulted, Informed) or RAD (Responsible, Approver, Driver) for mapping the stakeholders could be considered for use. Successful implementation requires that responsibilities and roles are clear and well understood inside the team and among the stakeholders.

Further to implementation, the entire current portfolio of upgrades is being reviewed and product lifecycle phases are mapped for the new portfolio. Also, continuing the work to create strategies and roadmaps for individual products, developing new and existing tools, as part of functional processes of the operating model. All the above requires gathering and analyzing additional information. As addressed, it is essential to invest effort in making this a natural part of Metso's operations.

8 Summary

The objective of this thesis was to evaluate the current state of the product portfolio, create and implement an operating model for PPM, and build a new portfolio model for value-based selling that can be further expanded as part of the filter upgrade business. The purpose was to enable strategic alignment of the current shattered portfolio and enhance the product management activities around the portfolio.

The study began with a current state analysis which included a SWOT matrix and data gathering from different sources. After understanding the portfolio's state and the necessary measures, the operating model was created for product portfolio management. The operating model was structured by six key components.

One of the operating model's components is functional process, which includes practical use of the tool that was specifically created for the upgrade products

and other tools that are commonly known and used in portfolio management. If this study was not done, this specific tool to sort out the upgrade portfolio would not have been created and utilized by piloting it on Product X suitability for value-based selling. This defined Product X led to analysing the lifecycle state of the product and by revealing it, the product could be positioned correctly.

The work culminates in the new product portfolio model which explains product offerings, classifications and suitability for value-based selling, and lifecycle phases. The new product portfolio creates a bridge between products, enabling a clearer understanding of their relationships and collective trajectory, ultimately supporting informed business decisions and strategic planning. In conclusion, the thesis work enables sorting out the entire current portfolio for the new created one, which can be further expanded. The implemented operating model for PPM is further developed for the needs of upgrades business through the iteration.

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