

Midocean university
Faculty of Management
Project Management

The Impact of Product Management Strategies on Perceived Product Quality: Applied on the Technology Consulting Sector: Code Design Company, Riyadh, Saudi Arabia “Case Study”

Ghada Hamed ali
2021205043

Graduation Project – 1

Faculty of Management - Midocean University

Supervisor

Dr. Mona Moustafa Elashry

Faculty member- Faculty of management- Midocean University

1st Semester- 2024-02-23

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Research Title:

The Impact of Product Management Strategies on Perceived Product Quality: Applied on the Technology Consulting Industry Code Design Company, Riyadh, Saudi Arabia “Case Study”

1. Chapter 1: Overview

1.1.Introduction:

Product management strategies refer to the approaches and techniques used by companies to effectively manage their products throughout their lifecycle and maximize their success in the market. These strategies involve various steps and considerations, such as identifying growth opportunities, integrating data assets, understanding digital touchpoints, ensuring supply chain capabilities, and building supporting infrastructure (Langer & Mukherjee, 2023). Software product management, in particular, plays a crucial role in increasing the success rate of IT projects, and software product managers employ strategies to overcome challenges in their work. These strategies include identifying and evaluating solutions to common problems, developing guidelines for product management, and improving software engineering practices (Springer et al., 2023). Additionally, product management strategies encompass the concept of new product development, including options such as mergers, acquisitions, licensing, franchising, and proactive development, as well as product management strategies based on the product life cycle or individual product management (Kuka, 2018). The digital transformation has also influenced product management strategies, with a shift towards agile environments and a focus on marketing innovation and customer satisfaction (Jílková, 2019b). Finally, an integrated strategic project management framework has been developed to optimize business value creation and increase the likelihood of success in product innovation projects (Andersson & Chapman, 2017).

Perceived product quality refers to the consumer's impression or assessment of the quality of a product (Solin & Curry, 2022). It is a subjective perception that takes into account various factors such as the product's capabilities, advantages, durability, and functions (Springer et al.,

2023). Perceived quality can be influenced by different aspects, including service quality, price perceptions, and product design (Kato,;Yang et al. (2022) It is an important factor that directly affects the overall evaluation of a product by consumers. Nassè (2022) The concept of perceived quality is particularly relevant in the automobile industry, where it has been found that different attributes of a car can have asymmetric effects on overall evaluation . In low-income countries, perceived product quality also plays a role in customer satisfaction, highlighting the importance of offering high-quality products and services to increase customer satisfaction.

Product management strategies have a significant impact on perceived product quality Turcan & Turcan,(2023). Quality management, including measures such as understanding the market, providing excellent customer service, and establishing a quality management system, can improve product quality and customer satisfaction. The adoption of product quality management leads to higher competitive advantage, sustainability, and financial health for small and medium-sized enterprises (SMEs) (Kuka,2018). Additionally, the use of strategic management tools is believed to have a positive impact on product quality and business performance, although statistical analysis did not confirm this association in a study of Czech food processing companies. Solin & Curry (2022). Perceived quality is an important factor influencing purchasing decisions, with consumers prioritizing products with higher perceived quality Hosseini and Korani (2022). Overall, implementing product management strategies and quality management practices can contribute to improved perceived product quality and business performance.

Product management strategies significantly impact perceived product quality by enhancing market understanding, customer service, and quality management systems, leading to improved consumer satisfaction and loyalty (Stylidis et al., 2019; Bin et al., 2013). Quality management practices, such as understanding the market and providing excellent customer service, contribute to enhancing perceived product quality and customer satisfaction (Nassè (2022). Additionally, strategic management tools play a crucial role in improving product quality and business performance (Kuta,2018). Overall, implementing effective product management and quality management practices positively influences perceived product quality and consumer behavior.

1.2. Research Problem:

This paper investigates the correlation between product management tactics and perceived quality of products as applied to the technology consulting. Notably these procedures are presented for Code Design Company that is located in Riyadh, Saudi Arabia. Previous research by Springer et al., (2023). underscores the core role of product management strategies in business growth and customer satisfaction. In recent years, business landscapes have been going through major revolutions where such strategies play a key role. Though the management dynamics are not unknown, given that there is a plethora of writings on the subject, what is lacking is exploring clearly the effect they have on the perception of product quality. For events, Kuka, (2018). poke out the fact that additional examples of product management strategies should be set up to show their influence on project result and customer opinion improvement. This research attempt less to address the market deficits in the subject through an extensive investigation into the connection between product management strategies and perceived quality of the product in the long run which hopefully will be the bridge between the companies and the customer in their experience of using the product.

1.2.1. Theoretical gaps:

1.2.1.1. Limited Integration of Product Quality Frameworks:

Despite advancements in various product development approaches, there is a failure to integrate these innovations into existing evaluation systems, hindering the enhancement of product quality (Stylidis et al., 2019).

1.2.1.2. Inadequate Understanding of Consumer Perception Dynamics:

The assessment of product quality by consumers is influenced by factors such as brand image customer experience, and social media presence. However, there exists a gap in comprehensive research regarding the interactions among these factors and their impact on perceived product quality (Yang et al., 2022).

1.2.1.3. Limited Exploration of Industry-Specific Implications:

Research often fails to examine the relevance of models to specific industries, resulting in a lack of understanding of how these models affect product quality perception in sectors such as IT consulting (Springer et al., 2023).

1.2.2. Empirical Gaps:

1.2.2.1. Insufficient Case Studies on Product Quality:

While conceptual models offer insights into product management approaches, empirical studies on specific cases, like those of Code Design Company, are lacking. A conceptual model for gaps in product quality global journal of management science and technology (Hosseini & Korani, 2022).

1.2.2.2. Lack of Comprehensive Analysis of Consumer Behavior:

Many empirical studies overlook the role of consumer decision-making in conjunction with product management strategies, neglecting crucial aspects that influence consumer preferences and responses (Solin & Curry, 2022).

1.2.2.3. Absence of Longitudinal Studies:

Research often overlooks longitudinal analysis to track changes in consumer perception over time, which is essential for understanding the effectiveness of product management strategies (Yang et al, 2022)

1.2.2.4. Lack of Comparative Analyses:

The scarcity of comparative studies across different firms impedes the development of generalized insights into the effects of sales management on product quality (Nasse, 2022).

Given the identified theoretical and empirical gaps, the main research question for this study is to dig into “What is the relationship between product management strategies and perceived product quality, especially within the context of the Code Design Company in Riyadh, Saudi Arabia?”

1.3. Research Significance:

Theoretical and empirical significance of this research is under the umbrella of bridging gaps and progressing our understanding of the connection between product management strategies and perceived product quality in the technology consulting industry.

1.3.1. Theoretical Significance:

1.3.1.1. Development of Comprehensive Frameworks:

This research aims to enrich the understanding of product management philosophies and their impact on perceived product quality by synthesizing existing theories and empirical evidence, it sheds light on the mechanisms behind this relationship (Springer et al, 2022)

1.3.1.2. Advancement of Conceptual Models:

Through critical evaluation and integration of existing studies, this study improves conceptual models of product management. It identifies key variables and links affecting product quality, offering alternative models for theoretical growth (Springer & Miler, 2022)

1.3.2. Empirical Significance:

1.3.2.1. Validation of Theoretical Propositions:

By empirically testing hypotheses within the technology consulting industry, this study validates theoretical propositions regarding the link between product management strategies and perceived product quality (Springer et al, 2022)

1.3.2.2. Generation of Actionable Insights:

The study's empirical findings provide actionable insights for practitioners, enabling informed decisions on product management strategies. Identification of best practices enhances firms' ability to optimize strategies and improve customer satisfaction (Turcan & Turcan, 2023).

Overall, this research contributes to theoretical understanding and practical applications in product management, fostering innovation and competitiveness in the technology consulting industry.

1.4. Research Question:

The current study aims to answer the main Research Question:

What is the relationship between product management strategies and perceived product quality?

To answer this question we would have to answer the following sub questions:

1. How do product management strategies influence customer satisfaction levels?
2. How do pricing, branding, and distribution contribute most to enhancing perceived product quality?
3. What ways do product management strategies impact customer experience, product features, design, and functionality?
4. How extensively are product management strategies utilized within the Code Design company?

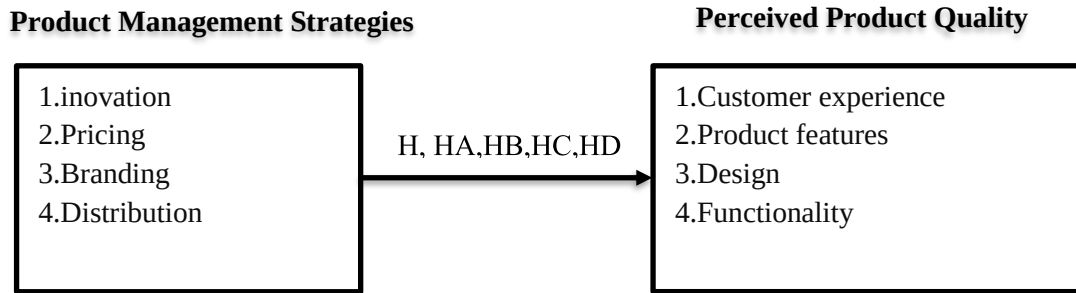
1.5. Research objective:

1. To examine the influence of product management strategies on customer satisfaction levels.
2. To identify the key elements of product management strategies, including pricing, branding, and distribution, that contribute most to enhancing perceived product quality.
3. To assess the impact of product management strategies on various dimensions of perceived product quality, including customer experience, product features, design, and functionality.
4. To evaluate the implementation level of product management strategies at Code Design Company.

1.6. Research hypotheses:

1. There is a statistically significant positive relationship between product management strategies and customer satisfaction levels.
2. There is a significant positive correlation between pricing, branding, and distribution strategies and perceived product quality.
3. There is a statistically significant positive relationship between the impact of product management strategies on customer experience, product features, design, and functionality.

1.7. Research model:



Suggested project model Source: Researcher

1.8. Empirical Study:

1.8.1. Introduction About Code Design Company:

Code Design Company: Product Management as service.

Code Design Company is a provider of product management services, its headquarter is in Riyadh, Saudi Arabia. With a focus on innovation and excellence, they specialize in empowering businesses to achieve extraordinary products and services that drive meaningful impact and value.

1.8.2. Vision:

Their vision is to revolutionize the landscape of product conceptualization, development, and market launch, transcending industry boundaries to unlock a future where innovation and business values take center stage.

1.8.3. Mission:

At Code Design, they are committed to partnering with their clients to articulate a discernible product vision, delineate strategic objectives, and meticulously construct roadmaps intricately aligned with their overarching business goals.

1.8.4. Services:

1.8.4.1. Product Strategy and Road mapping:

They work closely with your team to define a clear product vision, set strategic objectives, and create roadmaps aligned with your business goals, ensuring your product maintains a distinct edge over competitors.

1.8.4.2. Product Discovery:

Their streamlined process enables the exploration of our product's intrinsic value, identifying challenges and unmet customer needs to expedite the delivery of value to our customers.

1.8.4.3. Product Development:

Leveraging the expertise of their technical product managers, they establish a superlative product development experience, bidding farewell to uncertainty in planning and release preparations.

1.8.4.4. Market Research and User Insights:

Their research experts conduct thorough market analyses to gather invaluable user insights, informing decision-making, identifying trends, and unveiling opportunities for innovation.

1.8.4.5. User Experience Design:

Critical to product adoption and customer satisfaction, our adept UX designers craft intuitive interfaces and optimize interactions, ensuring a visually appealing product and a gratifying user journey.

1.8.4.6. User Experience Research:

Serving as the linchpin for validation and empowerment within any successful product team, their UX research services, including usability and user testing, ensure our product seamlessly aligns with user needs.

1.8.4.7. Product Launch and Optimization:

They support us in developing effective go-to-market strategies, ensuring a smooth rollout and maximum impact. Additionally, they continuously monitor and analyze performance, providing actionable insights for ongoing optimization.

1.8.5. Importance of Studying Code Design Company:

Studying Code Design Company's approach to product management is crucial for several reasons:

1.8.5.1. Innovative Practices:

Code Design Company's innovative approach to product management, characterized by strategic planning, user-centric design, and continuous optimization, offers valuable insights into best practices for driving product success in today's competitive market.

1.8.5.2. Customer-Centric Focus:

By prioritizing user research, user experience design, and market analysis, Code Design Company demonstrates a commitment to understanding and meeting the needs of customers, providing a blueprint for creating products that resonate with target audiences.

1.8.5.3. Industry Leadership:

As a trusted partner for leading brands, Code Design Company's proven track record of success positions it as a thought leader in the product management space, making its strategies and methodologies worthy of study and emulation by industry peers.

1.8.5.4. Business Impact:

By studying Code Design Company's approach to product management, businesses can gain actionable insights and practical strategies for enhancing product development processes, optimizing user experiences, and driving business growth and success.

1.8.6. Conclusion:

Studying code design company's innovative approach to product management offers valuable lessons and insights for business seeking to create extraordinary product management services that deliver meaningful value to customers and drive sustainable businesses to grow and succeed.

1.9. Research Design:

Research Philosophy: Positivist

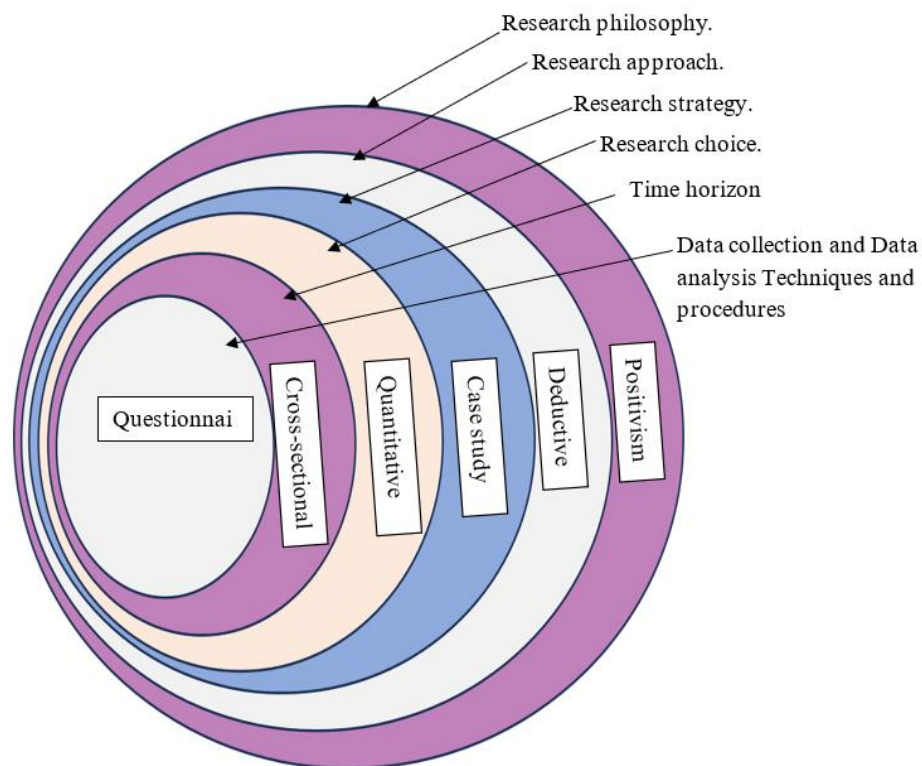
Research Approach: Deductive

Research Strategy: Case study.

Research Choice: Quantitative

Time Horizon: Cross-sectional

Data Collection and Analysis Techniques : Questionnaire



1.10. The suggested research structure:



2. Chapter 2: literature review

2.1. Introduction:

Market competition is so fierce in this day and age when consumers get to contend with a whole stream of products for their choosing is a proof that people will always look for a product that can undoubtedly draw their attention and interest to satisfy their needs. Product management, as a discipline, involves a particular role in the product management field, namely monitoring and implementation of the strategy throughout the whole product lifecycle at all stages, from concept development to the last launch and beyond. Efficient product management strategies, beside the fact that, make space for creativity and success in the market, influence the ways that buyers judge the products' quality.

While in days gone by, the product management or marketing's role was simpler, marked with such core elements as technological innovations, changing consumer choices, and a planet-wide interrelated trading environment, modern era has witnessed a complete change in the dynamics of product management. More and more managers are expected to adjust their services to be able to encompass the changes in the environment, and prioritize their consumers' needs. If they want to keep up with the market trends, companies cannot but change their policies and strategic frameworks corresponding the customer requirements and evolving preferences.

The main aim of this paper is to explore connection between product management techniques from different standpoints and step into the matter of the factors that are comprised by the present leading consumer's perception. Our ultimate goal is to supply the right information and pragmatic solutions to companies that want to improve the value of their product management and give more value to the consumers.

To obtain a well-rounded study of this issue, we will adopt a multipronged approach that covers several perspectives on product management and the significance of this factor for perceived product quality. The work will be aimed at such type of strategic issues as product planning, market research, competitive analysis, and pricing strategy that are shared and interrelated so that the product's characteristics and target market are defined. Moreover, we would talk about the

best way of communicating, branding and engaging customers that could influence the customer perception about a product that will be high or low quality.

The next stage will involve combining the both quantitative and qualitative research methods so as to collect and analyze the information. We will conduct surveys, interviews, as well as case studies to collect direct data from customers, product managers and experts in this field, to grasp all the aspects of customers' perception of product quality as connected to particular product management strategies that are being implemented. For data implementation, I will apply statistical analysis and thematic coding to reveal trends, associations, and key findings.

Through the study of links between approach to product management and consumers' perceptions about product quality advanced era of now, this research aims to add to current knowledge base in product management. The outcomes of this study would not only supply decision-making managers with significant knowledge obtained but additionally provide a base for future exploration and investigation of this area which is moving and evolving.

At the end, it is up to decision-makers to blend their product management strategies based on their niche and encumbered competitive environment. As a result, consumer perceptions of product quality are formed. Research on the relationships between the technical and marketing sides of product management through this paper aims at revealing all ins and outs of a modern product management and preparing its practical guidelines for the management teams who prescribe to contemporary requirements of their clients.

Questions:

1. How does the rapidly evolving technological landscape and changing consumer preferences challenge traditional product management strategies, and what adaptations are necessary to ensure sustained product quality?
2. In a highly interconnected global marketplace, where consumers have access to a vast array of product choices, how can effective product management strategies influence and shape consumer perceptions of product quality?

3. What are the key factors that bridge the gap between product management strategies and perceived product quality in the modern era, and how can organizations effectively leverage these factors to gain a competitive edge and drive customer satisfaction?

2.2. Product Management Strategies

2.2.1. Introduction:

In In the constantly-changing world of business, strategies must be supported by effective product management strategies being a critical factor for organizations that try to survive against a fierce combat. The product management plays a catalyst role in ensuring the success of the product development programs; it is more like an integral part of the strategic exercise of market segmentation and trends, customer needs, and organizational goals. In the scope of this study, management strategies related to product development are explored in the section, putting emphasis on their nature as one of the driving forces to organizations to create sustainable success. Product management strategies cover there wide range of methods that help to conduct research of the market, create products plans, pricing and positioning as well as product lifecycle management. Such strategies lie between a wide range of parties such as customers, marketing, the executive office and the development office, unifying the thinking as a whole.

The constantly changing market setting is the engine which drives the product managers. They, on the other hand, get the advantages as well as challenges out of the market's dynamics. Innovative, tech-based solutions, along with tougher clients with new tastes and elevated level of competitiveness, make it necessary to create new and sharp approaches towards the product being offered. Through the use of truly inventive methods, product managers break through the limits of the existing market, defining the space for new products, which not only satisfy but also go beyond customers' expectations. In the present study we take a dispassionate look, we examine emerging streams and we deal with product management's best practices. This is a goal we seek to achieve and that can be useful for people that plan on being product managers or those already following this field by providing them with enough information and the right tools so they can conquer this tough road.

2.2.2. Understanding Product management strategies:

Product management strategies are central in the operation of the organizations in today's highly dynamic and highly-competitive business environment. Product managers try to develop a set of methods and approaches by engaging in deliberate actions, and these are intended to help companies in the direction of creating, launching and managing their products successfully (Cooper, 2019; Gorchels, 2015). They involve various actions engaged in the areas of the match between products and customer necessities and other market dynamic, and the company's mission.

It is not only about product development strategies that fall within the scope of product strategy but also the communication and relationship strategies between the them and the surrounding world characterize a well-planned product strategy. It can be defined as the whole process of a product providing all its key stages such as thought processes, developmental ideas, releases and amazing performance, and even product shift or replacement (Pich et al., 2019). Product managers act as conductors to carry out the combined strategies and using products to shoot competitors out of the water in the end.

Product management methodology consists of major elements such as market research, product planning, pricing, positioning, and product lifecycle management. Market research enables product managers to have knowledge about what customers want; competitive nature of the market and are always updated with the trending market price of products. With acquaintance of customer base and their needs one can drive the product's direction to address the shortcomings by delivering the innovative products designed to match the expectations of product users as outlined by (Wong , 2018).

Generally, a product planning comprises a vision of the product, setting goals and drawing a road map for product development and marketing (Ulrich & Eppinger, 2015). It is a holistic process that includes tasks like articulating product traits, assignment of priorities, and specification writing based on the inputs obtained through the customer research and market analysis.

Proper pricing with a carefully placed positioning wording is essential for the goods to perform well. Proper pricing involves taking into account factors such as production costs, competitive

prices, valuated value and demand able to sell in the market. (Cravens & Piercy, 2020). Whether the product manager is looking to maximize profits or just want to raise the bar for the competition, an accurate price point needs to be set.

It is difficult to overestimate the responsibility of product managers for the successful development of product and implementation of this. Instead of working individually, they play the role of a connector between customers, marketing groups, product development teams (Cagan, 2018). Managers of the product facilitate the communication of the key actors players as well as their cooperation so that product development doesn't go out of sync with what people want and business objectives.

Product managers have the responsibility of guiding the other group of people engaged in the product development process from early development phase to final stage of the product life cycle (Majumdar, 2019). They manage the product development end-to-end, play a role in the coordination of activities, and engage in determining the feature set, allocating resources, and balancing trade-offs. Moreover, their work involves product launches management, strategy formation, and equipping the after-sale results with the information.

Conclusively, product management strategies are based on myriad activities that are supposed to make a winning product. Product managers are an important part of strategic product management process because they bring products to life and align product penetration into the market with company goals and customers needs. Through the use of market research and its components such as product planning, pricing, and positioning strategies, product managers aim to get the maximum product level in the marketplace.

2.2.3. Customer -Centric Approaches in Product Management:

2.2.3.1. Affording Customer Needs and Preferences Understanding:

Knowing and satisfying customer requirements and preponderances is a key part of successful product management. Scholars point out the importance of customer's self-centered approach in the process of product creation. According to Cooper (2019), gaining a deep insight into customer needs is the spring that bring up innovation and the value creation. Product managers

can bridge the gap between the customers and the product by looking into and solving the customer's problems. This in turn may make the products popular in the intended target market.

2.2.3.2. Marketing Research Methods That Will or Through which Customer Insights Can Be Gathered:

One of the most important tools for gathering customer insights is market research which consists of different techniques. Per the definition as stated by Gorchels (2015), customer behavior, preferences, and movement of market indicators can be meticulously discovered and analyzed in market research. Methods that are employed such as researchers, picture examinations, and interviews lead to collecting qualitative and quantitative data. Wong (2018), argues that involving lean research methods, such as minimum viable products and feedback from customers, in the early stages of product development, assists in getting the right data, and making fast decisions about the product features.

2.2.3.3. Customer Segmenting and Customized Persona Development will help in Tailored Strategies:

The initial stages of creating a customer-driven product management approach are participant profiling and building specific user patterns. As mentioned by Majumdar (2019) this technique (customer segmenting) as per the Johnsons, (2012), suggestion means splitting the target market into homogeneous groups with similar characteristics, needs, and behavior patterns. The customer groups can be identified by up of the product manager that is able to adapt the strategy of the product to the unique needs of any of the customer group. In their opinion paper, Gupta (2016), following persona development idea, recommended creation of fake people from the target audience that could help to illustrate their reasons, goals, and issues behind the back. The normal is the persona construction that allows the product managers to group product features, messaging, and the user experience with the demands and preferences of different customer set. And Finally,

2.2.3.4. Customer oriented strategies are the mains of the consumer base:

Understanding the needs and preferences of the customer is crucial to finally be able to innovate and make value to them. Market research procedures help product manager to discover the factors revolving customer's behaviors as well as market trends. customer segmentation and persona making additionally proves helpful in focused approach and ensuring that made products

are customized to specific customer segments. Through such client-oriented usages, a PM may build an increased chance of bringing into life products which are both advantageous and competitive.

2.2.4. Data-Driven Decision Making in Product Management:

2.2.4.1. Leveraging Data Analytics for Informed Product Decisions:

Reporting analysis provided to product managers by data analytics is of great importance as it allows for better decision making. Experts argue that data should be used to gain knowledge of how the market moves, the shopping habits of the clients, and how the product performance can be recorded. Provost & Fawcett ,(2013),acknowledge the fact that, by using data analytics, product managers can draw away from basing their decisions solely on intuition and story telling. With fancy data analysis techniques like predictive modeling and segmentation, product management can find and pick the patterns, figure out the possibilities, and base the decisions they make on the data to live the quality product.

2.2.4.2. Expected and Needed Metrics in KPIs and Analytical Tools that will help for the Product Performance Measurements and Evaluation:

Performance of product can be assessed and evaluated after auditing key indicators like metrics which also provide evidence of the success rate and consequences of the product. Anderson et al. (2018), argues the standard of effective product management including revenue growth, customer acquisition and retention rates, customers' easedness, and market share. Product managers deliver this purpose by providing data collection, organization, and analysis tools for the analytics team. Provided with tools such as Google Analytics, Mixpanel and also Amplitude, among others, the product manager gets the chance to analyze data elaborately to understand user engagement level, their conversion rate as well as their behavior which indeed helps in the product performance evaluation.

2.2.4.3. By Using Data for the Purpose of Streamlining Product Functions, Prices, Competitive Position, You can Reduce the Time to Market:

Data-driven decision making in products allows the creation of prioritised product features, pricing, and positioning Through the big data analysis and feedback collection product managers have the ability to get the information on the most wanted features from the client, as well as the most common complaints and how clients use the product. As Raynor & Ahmed (2013), puts

out, customers make decisions through conjoint analysis and A/B testing, so it is vital to know your preferences and refine features. Pricing optimization can be done by exploring market trends, competitive prices, and customer valuation of the offering (Luan et al., 2019). Besides that, data-driven market segmentation and customer profiling pave the way for profitable positioning, which enables products perfectly meet the precise wants of their distinctive target groups.

Summarizing, data-based decision making is, indeed, essential for the product management. The use of data analytics provides product managers with the ability to make informed decisions instead of depending on behaviours oriented decision making. The critical performance indicators and analytic tools present evidence in the evaluation of the product performance. The data enables the product managers' ability to enhance the product features, pricing, and positioning by making sure that these aspects are in line with the customer's preferences and the market dynamics. The embracing data-driven decision making by PMs, enables them to make strategic and well-articulated decisions that lead to the success of their products.

2.2.5. Product Lifecycle Management and Strategies:

2.2.5.1. Strategies throughout the Different Stages of the Product Life Cycle:

An item lifecycle consists of very different stages and appropriate strategies that are implemented in these stages will take to product management. In their book "Product Lifecycle Management: Chapters such as "The Role of the Top Management: Driving the Lean Journey" (2005) by Grieves and Vickers contribute to the consideration of different methods. There is a need to develop a strategy, when the product is in the market, so that it will bring awareness, produce demand, and build a presence for the brand. It may comprise laser-targeted marketing endeavors, leadership customers groups, and smart pricing methodologies. As we get into the growth phase, expanding distribution channels, spending in product improvement and gaining more market share could be the most strategic moves, according to Kotler and Keller (2015, p. 231). The last stage of product life cycle, mature stage, would be differentiated tactically with product development efforts, cost reduction measures, and customer retention programs. Further, in the stage of decline, product managers can think of strategies like ceasing or reducing the product, offering discounts, and diversifying the product in that ways to minimize the negative impact of decline gracefully.

2.2.5.2. Selling Off Product Launch Plan and Manufacturing Actual Process:

Product introductions are never just about creating a product. A lot of planning and projecting at work ensure the success of a new product. Cooper et al. (2002) emphasize the importance of a structured product launch process in their book "Product Leadership: "Creating and launching better products than competitors." The process which includes activities like market research, target customers, and competitors' analysis precedes the new product placement. A product manager must create an outline of all the tasks for the product launch. These include marketing campaigns, enablement materials, and effective communication. Collaboration across functions that is prevalent as indicated by Kagan et al. (2018) in "Overcoming the Build Trap" therefore becomes very essential during this period to guarantee that all the product managers, marketing teams, sales people and other people involved agree. The prompt execution, following the track of the KPIs which indicate the success of the launch and rouse the activity of the clients are the most important factors which improve the overall influence of the product.

2.2.5.3. Ensuring that product alterations and upgrading as well as their end-of-life decisions are effectively implemented and communicated:

The product manager's prime function is to oversee the life cycle of products via their updates and refinements and end-of-life management. As per Ulrich and Eppinger's (2015) "product Design and Development", the issue of how to respond to both customer feedback and technological development, as well as changing market standards, involves product updates and enhancements. The product managers will have to identify and decide when these updates are to be done according to the customer needs, available resources, and look at the competitive landscape. Sometimes it is needed for product managers to establish communication channels, as Brown reported in 'Change by Design' (2009), from customers and stakeholders which will allow them to get knowledge and make wise decisions. Accordingly, end-of-life decisions management and stay-after-deaths impact minimization is required for customers' smooth transition and preventive and negative consequences. Policy avenues for the end of life may include phase-outs of products, customer migration plans and do's and don'ts of discontinuation.

At the end of everything, it becomes evident that peculiar plans are the key to efficient product lifecycle management for each stage of the model. The execution of product launch plan and its

implementation entail an exhaustive market investigation with appropriate positioning and cross-functional collaboration. Handling of product upgrades, enhancement and end-of-life decisions require of such activities as: prioritisation, timely and effective communication as well as customer oriented decision-making. Using some correct approaches and processes for the product lifecycle, product managers will try to ensure product success, customer satisfaction and the company excellence as a whole.

2.2.6. Case Studies and Best Practices in Product Management:

2.2.6.1. Delving into The Key Successful Product Management Strategies in a Real-World Scenario:

Accordingly, looking at real-life examples of winning product management strategies is critical in getting to know winning tactics. In their book "Inspired: In 2017 an informational book called "How to Create Tech Products Customers Love" was released, which includes case studies of such companies as Spotify and Netflix that are now recognized for their excellence in product management. These case studies underline customer-centricity as the key ingredient of successful product development, iterative technique, and constant improvement and learning. Through the study of real world cases, product managers can insight customer needs focusing, learn to use data base driven decision making as well as creating friendly environment that is conducive for innovation culture.

2.2.6.2. Analysis of Company that are in the Front Line and Zoom in on Product Management of Such Companies:

Researching how cutting edge companies are going about their product management can serve as a catalyst to learning some great management tactics for product managers. In their article, "How Google Works"(2014),Schmidt and Rosenberg depict the methodology of product management at Google. They are also telling the audience who are they are going to hire and will empower product managers to have the authority to make their decisions, and to create an environment to develop the culture of experimentation and risk-taking. Just as in "The Lean Startup"(Ries.2011) Dropbox and Zappos are mentioned as examples and the most discussed cases. Among them, they all paid great attention to the aspects of meeting demands, fast-iteration as well as analytic driven decisions and so on. These evaluations give product managers the chance to obtain

information about success strategies and practices of the market leaders that may be used to support and enhance the products that on sale.

2.2.6.3. Drawing Out the Most Essential and Vital Messages and Practices that can be Applied in Different Sense:

Through the critical analysis of cases studies and industry experienced managers product managers can be able to replicate the strategies to different business settings. In their research article "Best Practices in New Product Development Processes: Among those, two remarkable practices in the telecommunications sector that Zeng et al. (2018) provided in their paper "Empirical Evidence in the Telecommunications Industry" are listed. For these, we have multi-functional teams participant at each formation phase, a deep research carried out in the market, and the customer feedbacks all through the product life cycle. Moreover, in the book "The Innovator's Dilemma" (1997), Christensen explores the importance of disruptive innovation through a framework which he identifies as comprising satisfying customer needs, exploring the frontiers of new technologies, and attuning oneself to adapt to impending industry disruptions. These studies and best practices constitute the main principles for managers in different industries, providing companies with a strategic solution to tough situations and product development.

To summarize, case study and best practices in product management have proven to be very useful medium where one can gain a perspective on effective strategies and tactics. Seeing in real world what other companies did and how successfully they did it will useful for the product manager to understand the ways companies are able to excel at product management. The anatomy of leading companies when studied can provide you with relevant ideas and offer an insight into their systems. Discovering what worked and what did not, and how to apply these to different scenarios allows product managers to make better decisions in the long run. Product managers can apply these resources and achieve a better governing process, stimulative innovation and high response products that meet customers necessities and organizational goals.

2.3. Perceived Product Quality:

2.3.1. Introduction:

Consumers now not only rely on the quality of the product, but also on the brand's reputation and its implied product quality. Consumers base their views about a product's quality on whether they are or are not satisfied by the product; information which is used in an assessment of the value, potential satisfaction and in an overall desirability of the product. With the notion of "perceived product quality" being crucial for businesses which aim to hit customers' expectations and as well to hold on to the competitive advantage in the market, it can be emphasized that the correct identity of the determinants is of extreme importance. This research attempts to illustrate the meaning of product quality perceptions, discusses ways to measure them and their practical implications for businesses. Through analyzing the many variables which influence consumers' perception about product quality, organizations stand to gain valuable insights concerning the best ways to provide products which are at least satisfactory to consumers hence exceeding their expectations.

The paper will start off by examining the definition and conceptualization of perceived quality provided by the consumers and using it to distinguish it from the objective measurement of quality. Then, it makes the analysis of the quality by perception, through the product attributes, brand reputation, price, consumers' expectations as well as social influences. The next segment is dedicated to using different measuring methods, covering both subjective, objective and comparative methods. Analyzing the factors that affect the quality position of a brand is vital as it is important to know the impact of quality perceptions on consumer behavior. Additionally, the strategies focusing on increasing the product perceived quality, avoiding the disappointment of prospective customers, as well as building sustainable marketing campaigns are examined. The paper is concluded with the consideration of probable challenges, future research prospects and recommendations that can be applicable in academia and business. This study will be focused on a complex analysis that is aimed at enlarging our understanding of the issues related to perceived product quality and facilitating researchers with the real-life information to strengthen business structure and retail.

2.3.2. Definition and Conceptualization:

2.3.2.1. Defining Perceived Product Quality:

The product quality understood is here how consumers' look into it or the subjective judgment made on the basis of excellence, superiority or desirability of the product. This refers to all of consumers' judgements and opinions the product is made up of based on past experiences, assumptions, and personalized priorities. However, as defined by Zeithaml (1988), perceived quality is an aggregated view of customers on the product's superiority/superb nature compared to competitive products

2.3.2.2. Differentiating perceived quality from objective quality:

It becomes imperative to distinguish an image and reality. They are 'twin-sided coin' and not a matter of debate. Objectives quality is a conceptually oriented or quantifiable properties and characteristics of a product to be manufacturing like matter composition, durability and objective specifications (Garvin, 1984). In comparison to the real deal quality, the perceived quality is a personal subjective perception of the consumer that would reflect those objective quality features that are already there (Parasuraman et al., 1988). What is the concrete quality of a product? On the other hand, how consumers feel and think about that product? It includes not only expectations, as well as prior experiences, but also brand associations of those people. Oliver (1981) proved it.

2.3.2.3. Theoretical frameworks and models related to perceived quality:

The area of perceived product quality has been explored in many ways with the different theoretical frameworks and models. Mentioning one model, the theory of Expectancy-Disconfirmation (Oliver, 1980) is referred, which supposes the distinction between expectations and the actual perceptions after the purchase to define the product quality. If the contrary is true - the expected quality is better than the experienced, it will lead to a situation of positive disconfirmation as you will find more content, which causes higher satisfaction. Under reciprocal figuring, a confirmation result in higher satisfaction, while negative disconfirmation leads to lower satisfaction.

Another influential framework is the Kano Model (Kano et al., 1984), which categorizes product attributes into three categories: affordable, premium, and precision, respectively. Expectations

for the basics do not create a value to perception and thus consumers ignore their existence, while performance attributes are believed to significantly affect one's level of satisfaction. Surprise features, on the contrary, are unpredicted ones which can become the dominant factor that consumers feel happy about the product quality.

The SERVQUAL model, which was first developed by Parasuraman et al. (1988), is an extension of the traditional concept of perceived quality to the service industry and is widely used for this purpose. It identifies five dimensions of service quality: trustworthiness, timely response, security of information, emotional support, and product quality. The model concludes that attaining or improving customers' expectations in these dimensions leads them to an overall feeling of service quality.

2.3.3. Determination of Perceived Product Quality:

2.3.3.1. Product Attributes and Features:

Product attributes and features are the backbone of a product its all about the quality perception towards it. Quality of product often was built on dependability for consumers with tangible features like functionality, design, durability, and performance. The illustration of Zeithaml (1988) is good at combining the desirable product features touching the consumers' hearts when they judge the quality of a product. Aside from this, product attributes also allow various product characteristics to be a quality cues for consumers and this influences their overall quality evaluations of the product.

2.3.3.2. Brand Reputation and Image:

Brand reputation and publicity are an essential component of consumers forming an opinion about the products at a high level. High brand reputation may be a mean referring to the brand products of high-quality (Aaker, 1991). Consumers tend to have a good image of those brands which are well-known and have good reputation. Such associations are usually based on those companies having established themselves in the market by delivering satisfaction covering product quality as well as customers experience. Keller (1993) claims that elements of brand image, including brand associations and personality, are capable to transform consumers' impressions of product quality and head up their purchase when it comes to making decisions.

2.3.3.3. Price and value Perceptions:

People are very much likely to judge a product by its price which is among its key quality attributes. While the pricing might be a reference to the product quality, it is complex to know whether the sales price and quality are related. Oliver and Swan stated that the quality perception of consumers is fundamentally determined by the value for the price paid. Imagined value inheres in the dependable benefits that a customer gets in return for the painstaking effort and money invested. Hence, as far as consumer's value perception is concerned it can be stated that this is a significant factor which affect the judgments of their products' quality

2.3.3.4. Consumer Expectations and Past Experience:

Consumer estimations and memories of past experiences are the most important factors when products are perceived as good quality. High or unrealistic expectations are a threat to consumer satisfaction as they act as a reference point which the consumers compare their actual experience to (Oliver, 1980). Good performance of the product which exactly matches or surpasses the expectations of consumers forms a positive opinion about quality. However, expectations about negative confirmation will be lowered due to the fact that the product did not meet those expectations, and do not seem to be of good quality (Oliver, 1980). Furthermore, the previous interaction with brands and products can mold the perspectives of consumers on high quality standards because bygone experiences become the reference points for future estimations (Zeithaml, 1988).

2.3.3.5. Social Influence and word- of -Mouth:

Social influence, when it comes to brands and products, plays a big role in forming consumer's perspective of quality. People take other's perspectives into account so much, that much of the time these points of view are influencing their choices. Through positive word-of-mouth, perceived value and trustworthiness can be improved by dispelling doubt and building credibility (Hennig-Thurau et al., 2004). Many times consumers make use the opinions and experiences that have been shared by peers, clan members or online companies as they consider the quality of a product. Also as social networks and consumer review websites are used for consumers to interact and discuss about the quality of a product which in turn affect how consumers perceive the quality of a given product (Chevalier & Mayzlin, 2006).

2.3.4. Implications for Business:

2.3.4.1. Impact of perceived product quality on consumer behavior:

Overall product quality is recognized to be of important meaning in terms of judgement and choice of consumer goods. Many research findings point to the power of a quality perceived product on user preferences, satisfaction, and retention. Apart from this, rational motivation which was used by Kim et al. (2010) while working in the automobile industry presented that product quality consciously impacts consumers' buying intentions. In this vein, Homburg et al. (2017) in their research showed a strong positive connection between the perceived quality and customers' loyalty in different segments of the market. The study confirms the fact that the level at which the expected product quality perception is managed and improved can be the basis behind one's market competitiveness.

2.3.4.2. Strategies for improving perceived product quality:

If a business wants to make its customer's impression of product quality increased, it can use different types of strategies. A choice could entail the setting up of a product design and innovation department. If companies compare product features and attributes with consumers' preferences and requirements, it may lead to a rise in the quality image (Chaudhuri and Holbrook, 2001). Secondly in quality management process, quality control is to be used to standardize performance of products and derive positive perception of quality (Garvin, 1984). Then, the last one to be mentioned is that appealing branding and marketing with quality-related messages can also influence consumers' view on the product (Aaker, 1991). These strategies jointly reinforce consumer viewing of the product as of high quality in all aspects.

2.3.4.3. Managing customer expectations and perceptions:

The customer experience management and perception is a significant influence over brand quality, especially on quality-conscious business. Companies should tailor their marketing-driven promises and slogans to the actual customer experience to minimize the differences between the claimed value and the value the customers can attain. According to Elizabeth Olives in her recent article (2014), businesses should propose as much objective info as possible about their products and should influence the buyers' expectations to a reasonable level. In addition to this, timely and straightforward communication with users as well as open customer relationship management are an effective groundwork for managing customer expectations (Lemon & Verhoef, 2016). Through providing outstanding customer service and meeting and even

exceeding their customers' expectations businesses thus create a positive image of product quality, and build good and long-standing business-to-customer relationship that is no doubt profitable.

2.3.4.4. Creating effective marketing and communication strategies:

It is worth emphasizing that; marketing and communication strategies are important tools that determine customers' perception of product quality of products. Companies can use plenty of ways conveying somehow the value and quality of the products they are offering. For example, social media networks and internet reviews could be used in ways that feature more personal contact with customers, thus, giving an impression of "word-of-mouth" communication (Hennig-Thurau et al., 2004). Furthermore, grades-based advertising and promotional activities that personalize and emphasize the product specificities and benefits can serve as tools for altering the customer's perception about quality (Keller, 2013). Besides, any visible proofs that assert quality like certifications or medals have great effect on making product credible and strengthening their perceptions towards consumers (Zeithaml, 1988). Such communication and marketing campaigns are key to molding consumer opinions when it comes to an image of quality of product.

2.3.5. Future Research Direction:

2.3.5.1. Emerging trends and advancements in measuring perceived product quality:

As the field of consumer behavior is in constant flux, scientists keep digging for the leaders of the latest trends in the lines of measuring perceived product quality. A planetary station concerns the spacecraft's propulsion system and its integration with landing situation scenario. For instance, managers and researchers are looking at employing virtual reality (VR) and augmented reality (AR) to replicate consumer behavior by capturing real-time quality (Choi et al., 2021). These technologies provide the possibility to build up extremely personal and self-involving situations which virtually resemble those what people ordinarily encounter in their everyday life. This helps to improve the truthfulness of the opinions and judgments that people have about the quality of products or services. Furthermore, advances in functional magnetic resonance imaging (fMRI) and electroencephalography (EEG) methodologies are offering us further opportunities of getting deeper insights into consumers' quality offers (Giraud et al., 2017). Through these technological developments prospective research in terms of product

quality measurement becomes not only a possibility but the urge to advance since these technologies extend the boundaries of measurement.

2.3.5.2. Cross-cultural studies on perceived quality:

Since the last few years there has been enough focus on cross-culturally studying the concept of perceived quality focusing on how cultural differences influence the trap of consumers in difference perception. People in culture are considered to be drivers of consumer perception, tastes and judgment criteria. It is evident that the role of culture is highly significant for forcing consumer attitude towards product quality (Usunier & Lee, 2017). Further research in this field could look towards comparing different cultural contexts to identify universals and differences in evaluations published as well as feedback provided by reviewers and message interpreters. In addition, the research team could examine the effect of cultural values and behaviors on the consumers' sensitivity to different quality attributes. They could, for example, investigate the customers' response to functional, aesthetic and symbolic attributes of products (Sharma et al., 2014). Hence, they can play an important role in making the world of perceived product quality more stable, by contributing to the overall knowledge about how culture affects this perception. Also, this can be used in the development of good marketing strategies for international markets.

2.3.5.3. The role of technology and e-commerce in shaping perceived quality:

Many consumers use search engines, social media, blogs, and online reviews to make purchase decisions. This scour the main change that come after the technological progress and e-commerce revolution. Thus, the research could be expanded to explore the mechanisms by which digital technology and virtual marketplaces influence the quality assessment and decision-making skills of consumers. For instance, the researchers can observe how people conceive quality through online reviews, ratings, and social influence in digital environments and they can try to explain the quality perception issue by the user-generated content in digital environment (Chevalier & Mayzlin, 2006). Moreover, the effects of items including web design, interface of online users and online product communication on customer possession may be studied (Kim & Lennon, 2011). On the other hand, AI and machine learning technologies become more and more prevalent in e-commerce, personalized suggestions of products and user-defined product's quality perceptions is an important part of the work of the e-commerce space. It can be a topic for further investigation to identify the impact of AI driven

personalization on consumer perceptions of the product quality and also focus on the ethics surrounding algorithmic decision making.

2.4. The Relationship Between Product Management Strategies and Perceived Product Quality:

According to Teleaba & Popescu (2020), In “The relationship between Product Management Strategies and Perceived Product Quality,” the writer discusses the importance of customer loyalty in the retail industry, particularly in the transition from a multi-channel to an omnichannel space. The paper highlights the importance of customer experience, competitive pricing, optimal assortment, and product quality in maximizing customer loyalty. It emphasizes the need to understand which factors play a major role in driving customer behavioral loyalty across different channels.

Loyalty of customers in a retail industry, especially during the omnichannel emergence. Factors influencing customer loyalty: smart pricing based on the markets, product quality, correct assortment, and customer experience. Non-strategic investigations of salient components of loyalty across various channels and intentionally adopting omnichannel concepts. Research objective: integrated analysis of the client loyalty factors for the behavioral attributes in large regions as well as considering their varying effects. Discuss the toys section and ways of gaining the loyalty of customers - namely assortment, price, and quality of the products. Loyal Customers profile is formed as the behavioral dimension that consists of customers repeatedly visit. The proposed business plan which tends to elaborate all possible methods and factors for study of loyalty and brand positioning to formulate differentiation strategies. Results: In selling loyalty to the offline and online channels, mixed factors are what are evident. The main principles emerge, product quality, price, and a product range alongside customer experience are the keys to success. Conclusions and recommendations for follow-up studies as well as the managerial implications. Limitations: size of the sample, possibility of increasing the statistical significance, pleasant attitudes research and a diagramming system breaking components down to the smallest possible entity. Understanding of the relationship between the business and customer loyalty with product quality at all and online channels.

According to Waseem (2022), The article emphasizes branding impact on an individual organization's performance and how the brand valuation trend has shifted with the developed countries becoming less dominant in comparison to the developing ones. Brand strategy seems to

organization's main competitive weapon and customer-based brand equity factor. Customer-based brand equity includes elements such as brand recognition, image, loyalty, and reputation for quality. Product perceived value is a really important factor in purchasing decision making, brand cognition and repurchase intentions. In marketing, the perceived value of a product refers to the worth consumers see in it.

The article identifies two dimensions of product perceived value: acquisitive value (utility derived by the product) and transaction value (happiness or confidence obtained through the process). Brand resonance, which means brand-consumer connection, determines both consumer loyalty and brand equity. Affective commitment which stems from personal identification, recognition of similarity and on the part of customer as well, is another factor contributing to the link between product perceived value and customer-based brand equity.

The research discusses both theoretical and practical implications that are absent in literature to interpret the causal effects of a brand's perceived value on its customer-based brand equity, and the mediating roles between brand resonance and affective commitment. Strategies on how perceived product value can be improved and how brands can create deeper resonance with customers are presented with the advice of enhancing product quality, effective marketing communication, and successful marketing campaigns.

Nevertheless, the study has some shortcomings, such as the use of a small sample and the emphasis on Chinese consumers. However, it offers a number of important findings notwithstanding these limitations. Future studies may be centered on the bigger samples and broader geographical coverage in addition to the other mediating factors and longitudinal designs that will justify the reviews more.

According to Szabo & Webster (2020), To further explore the influences and outcomes of perceived greenwashing, the writer conducted two studies: users from numerous consumer product and consulting firms having interviews and participants to work with websites of companies. Two research methods were utilized: the use of interviews, questionnaires, and neurophysiological tools.

The results of the research suggest that people not only change not only their attitude distinguishing between environmental and product features but also shape their degree of happiness interacting with a company site. The interaction characteristics of the website was

found that associated with the perception greenwashing, environmental and product perception, and the amount of interaction with the website.

The article finishes by explaining the research outcomes from the perspective of both management and ethics, targeting green marketing and product management as main areas in practice and research.

According to the following : Aydin (2011); Çetin (2021); Özer (2007), “The Relationships Between Marketing Performance and Product Development Process, and Their Effects on Firm Performance” is predicated on the interaction between marketing performance, new product development process and general firm performance. It expresses that, solely innovation is not enough, but new product design capability is also required for achieving a competitive edge. Marketing performance is pinpointed as a key enabler of speeding up the new product cycle time and boosting the innovation capability.

The paper suggests that marketing proficiency is a key area to cater for consumer interests, adapt to market trends, create difference, and, therefore, make a firm successful. Winning new product development shows the future profits and competitiveness, but low cost and competitive pricing also should be ensured.

Research outcomes show that marketing performance, innovation capacity, and product design capacity have positive impacts on firm performance as a whole, with marketing performance having a particularly strong effect on product design capacity. It is put forward that companies demonstrate their ability to adapt to new technological trends and meet customer demands.

Concerning the new product development, the article highlights the importance of coordinating the marketing and product development approaches. These techniques including balanced scorecard, concurrent engineering, and quality function deployment can be used to deliver organizational functions effectively.

The paper ends that marketing performance, innovation capability, and product design capability promote favorably to firm performance. It gives an indication to the management to focus on research and development, in spite of the fact that limited R&D budgets in several countries may sabotage a large effect on firm performance by the new product development cycle time. Nevertheless, the study does not claim to be comprehensive and it relies on a small sample with perceptions of only one manager from each firm. Further research will benefit from inclusion of

other factors that influence on innovation and product design capability, and manufacturing competence as well.

2.5. Conclusion:

The research findings on the "Perceived Product Quality" reveal the dimension in which consumers now perceive quality not just in a tangible sense but also on an emotional level and that of culture has widened. Digital technologies, social media, and the experience economy are the factors that caused changes in consumers' idea of what great quality product should be. The study suggests that the necessity for companies to be well-informed by the mindset of consumers has crucial role to play in order to make a difference in the market and gain their trust and loyalty.

With all the new research fields to cover, these gaps include in-depth analysis of the role of digital technologies, social media, and culture in the consumers' view of product quality. Also, in the process of deeper researches we should look into the influence of emotion to the perception of products quality. Another area of interest would be investigation of different product management techniques for firms in terms of the raise product quality perception of consumers.

With "Product Management Strategies" theme, the research highlights how the new environment created by fast-changing technology and customers behavior influence the conventional strategies of product management. The research proposes a future design of organizational plans in line with the maintenance of products quality. But, the detail address for those challenges, adaptations that are required are not mentioned and further investigation is needed to develop these adaptations.

Finally, the study examines the strategies of product management in connection with the perceived quality of the goods. The results imply that such product management tactics can have a considerable impact on customer perception of products. The relevance of factors such as product planning, market research, competitive analysis, pricing strategy, communication, branding, and customer engagement for the quality level is explained in the research. Although additional empirical evidence and in-depth studies are imperative for a deep understanding of this connection, it is clear that the factors listed have a bearing on perceived product quality.

In essence, the study on customer quality perception and product management practices shows that firms should focus on customer perception, modification of strategies being utilized as the

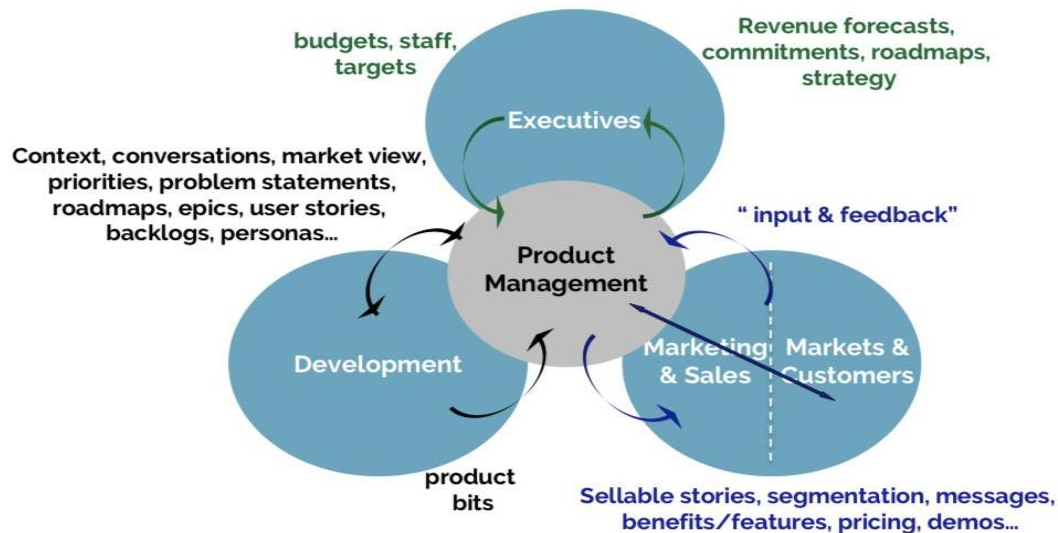
market landscape changes and reinvention of factors which could help them increase customer satisfaction and be competitive. Nevertheless, in terms of these research areas gaps exist that need to be filled with experimental studies and empirical evidence to arrive at the most complete information about them.

Alex (2019) Product managers play a crucial role in product development, and their responsibilities include: Product managers play a crucial role in product development, and their responsibilities include:

1. **Strategic Vision:** Product managers are responsible for forging the product vision, defining metrics for goals, and structuring the team around a common explanation.
2. **Market Research:** The conduct necessary to comprehend user needs, market trends, and competitors of a particular industry.
3. **Roadmapping:** Product Managers do specifying and defining product roadmap which enables them prioritizing features and improvements.
4. **Collaboration:** They work with departments such as design, engineering, and marketing, to which they pay much attention when it comes to successful product launching.
5. **User-Centric Approach:** Product managers act as a voice for their users, constantly advocating for their needs and ensuring that products are not only useful but also solve significant problems.
6. **Data-Driven Decision-Making:** A/B testing experiments are their tasks. They gather data, monitor the KPIs and adjust the content based on the observations.
7. **Risk Management:** Product managers are always on a lookout for risks, as well as challenges. They make changes, when needed.

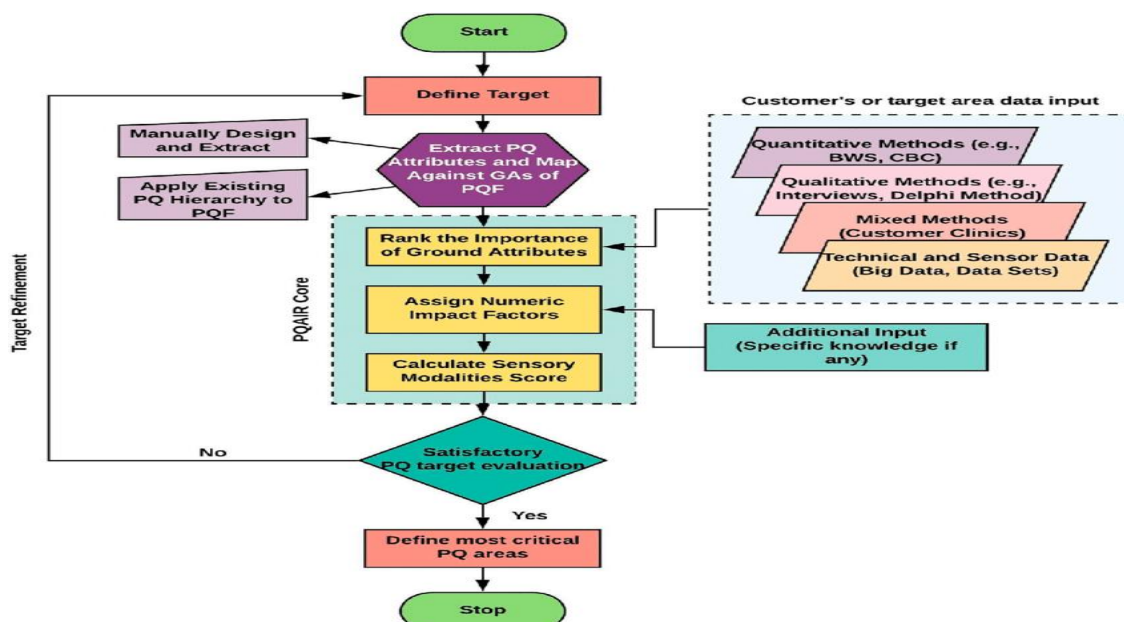
For UX research by product managers, it is important not to avoid. The UX research team may not be responsible to be user researchers themselves but having the knowledge to work with them is crucial. The basis of the product design researches that are conducted in UX practice are observations, filters, and the data received from users which help product managers to make reasonable decisions, save costs, and stick to evidence-based product strategy.

- (Figure.1): Product Management skills



- Alex. (2019). Product managers play a crucial role in product development, and their responsibilities include.

- (Figure.2) PQAIR method analysis procedure



- Kostas Stylidis & Casper Wickman & Rikard Söderberg(2019), Journal of Engineering Perceived quality of products: a framework and attributes ranking method

Kostas Stylidis & Casper Wickman & Rikard Söderberg(2019), The PQAIR (Perceived Quality Attributes Importance Ranking) method is the kind of a procedure that engineers and designers usually employ in order to determine the relative importance of those attributes that are perceived as quality ones when the decisions about the final product development turn up Here's how it works:

The PQAIR method involves both the element of objectivity and subjective knowledge. It does not just measure the numbers, but also looks at customer feedback. The overall purpose which defines the research is to appraise the quality characteristics as perceived them and to rank them based on their significance.

The first step is to rank Ground Attributes that we have previously listed. The Importance of Ground Attributes, on the other hand, are the topmost figures that determine perceived quality. What ways to measure their positions can be chosen among others. An aspect that is considered to be very important is the experience and expertise within a specific company, for example, sending such opinions by experts on the topic. The other way is via data analytics, which can be extracted from sources like surveys, customer clinics, interviews, or internal systems and big data resources. Through these rankings the system will allot importance grades from the highest to the lowest level for each link in the chain.

The method of carrying out the PQAIR method is done in sequence, as represented in The (Figure 2.)The process begins with a determination of the level of quality that should be gained or maintained by the customers. Following such identification, the critical perceived quality attributes that form the baseline design performance for the entire product or specific areas are outlined based on the design intent.

Therefore, for each Original Equipment Manufacturer (OEM) to utilize the said method, they should link their product attributes to the Perceived Quality Framework (PQF) matrix. Thus, one can confidently state that the latter is linked with the specified Ground Attributes of the PQF. Moreover, the OEM alongside has the option to select perceived quality attributes which match with PQF preceding principles.

After concluded mapping, the PQAIR method is employed that then yields an importance score or ranking to the particular attributes. With PQF taking the role of gauging the perceived quality, the former becomes a benchmark. Such as, the rankings of Ground Attributes can be identified based on a discrete-choice experiments or quantitative survey strategies initially. Which method will be selected, will be decided on the basis of the company's resources and the nature of the situation.

The four steps of PQAIR method broadly cover the whole process of engineers and designers so that they can come to the reasonable conclusion based on the evaluation of their perceived quality attributes primarily as well as the determination of relative importance of those attributes to the product development. Both tangible and felt attributes make the user's mind, therefore impacting the perception of the final product.

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