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

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Dedication

I dedicate this study to the educational institutions and their employees, who tirelessly work towards the betterment of our society. May this research contribute to the ongoing efforts to enhance the quality of work life and organizational loyalty within the educational sector, ultimately leading to the continued growth and development of our educational systems.

Abstract

Summary of the Study: The quality of work life is the result of the interaction between various factors related to human capital, including work conditions, rewards, participation in decision-making, and provision of health and well-being. This positively impacts employee satisfaction, loyalty, and commitment to the organization. The aim of the current study was to examine the mediating role of the quality of work life in the relationship between transformational leadership and organizational loyalty, focusing on a sample of schools in the Najran region of the Kingdom of Saudi Arabia.

Methodology: The study adopted a descriptive analytical approach and was quantitative in nature. The study population consisted of 11,686 workers, administrators, and managers, with a sample size of 383 participants. Data was collected through a survey and analyzed using SPSS and Smart PLS software.

Findings: There is a significant statistical relationship between transformational leadership and organizational loyalty. There is a significant statistical relationship between transformational leadership and quality of work life. There is a significant statistical relationship between quality of work life and organizational loyalty. Quality of work life plays a significant mediating role in the relationship between transformational leadership and organizational loyalty.

Originality and Implications: This study contributes to highlighting the importance of transformational leadership and its impact on organizational loyalty. The findings demonstrate the mediating role of quality of work life in the relationship between transformational leadership and organizational loyalty. The study recommends that senior management and stakeholders in the Kingdom of Saudi Arabia should promote the adoption of transformational leadership across all schools, as it plays a crucial role in enhancing organizational loyalty within educational institutions. The study may also contribute to enriching scientific and specialized research in the field, underscoring the significance of transformational leadership and the quality of work life for improving organizational loyalty.

Keywords:

Transformational leadership, quality of work life, organizational loyalty, mediating role, educational institutions, Saudi Arabia.

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1. Chapter 1: Introduction

1.1. Overview:

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.

There is no doubt that strategic management of products is central to ensuring that an organization is has a competitive advantage and also is producing products that meet customer needs. Such strategies cut across all the stages of the product life cycle, from its conception to the development and launching up to its promotion and sustenance (Galbraith, 2005). Another important element of product

management is knowledge about the target audiences and keeping the functions and quality characteristics of the product in tune with the desires and expectations of the client (Cooper, 2011).

As for the structural meaning of the concept, product quality is a complex phenomenon that can be viewed from the performance, reliability and durability, appearance, and perfection perspectives (Garvin, 1984). For instance, perceived product quality is described as the buyer's impression of a product's quality indicated by its sparseness, fineness, or superiority, according to Zeithaml (1988). This perception depends on various factors for example brand image, information that the organisation holds about its products and information that the customer has about the brand and its products (Aaker, 1991).

These strategies are recognized to play a major role towards the perceived quality of products and the performance of the product management strategies. For instance, proper market research, and communication with the customers will enhance the organization's ability to respond swiftly to the customers' needs and expectations in creating awesome products (Cooper & Kleinschmidt, 1987). Likewise, strong QA can be associated with efforts towards enhancement of quality, which in turn makes it possible to have goods that meet or better the quality requirements (Juran & Gryna, 1993).

The role of product management strategies on perceived product quality is quite relevant to the particularity of software products. Software product manager has a central responsibility of mapping customers' requirements to product features, leading the process of software development, and guaranteeing customers' reception of valuable software products (Kaushal & Pathak, 2019). Leveraging factors like agile development processes and the concepts of user experience design has been known to improve customers' satisfaction and perceived product quality (Eklund & Berger 2017).

Besides the software industry, the strategies of product management have also been identified to affect the perceived quality in other industries in production of consumer electronics and automobiles as well as consumer goods (Ulrich & Eppinger, 2011). For example, in the automotive industry, product

management strategies relating to design, engineering, and quality assurance have been associated with the improvement of customer views of vehicle quality and reliability (Muffatto & Roveda, 2000).

Thus, with the help of product management strategies, the perceived quality of products has become more relevant in the context of the digital transformation and the dominance of data-driven approaches. It is worth stating that the modern organizational landscape views customer data, market intelligence, as well as complex analytics as a means to guide product development and management, which, in turn, may enhance the understanding of customers' changing needs and expectations (Erevelles et al. , 2016).

In essence, the earlier literature avers that, with innovation in product management strategies and integrating it with other issues such as quality management with a concentration on the client, the perceived quality of the product is quite sensitive to these changes. This paper draws conclusions that by matching the feature and/or quality of products to the expectations and wants of the customers, organizations are able to improve customer satisfaction, customer loyalty, and, consequently the competitive advantage.

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:

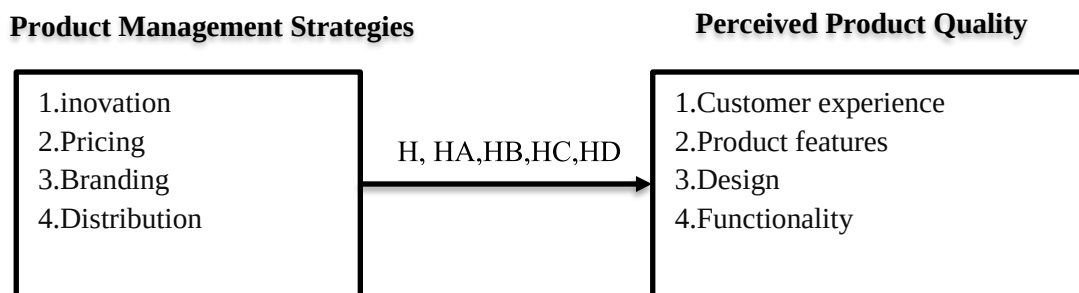
1. To examine the influence of product management strategies on customer satisfaction levels.
2. To identify the key elements of product management strategies, including pricing, branding, and distribution, that contribute most to enhancing perceived product quality.
3. To assess the impact of product 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:

Table (1) : Suggested project model



Source: Researcher

1.8.Scope of The 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.The The Project structure:



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 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 which 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 be 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 it 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.

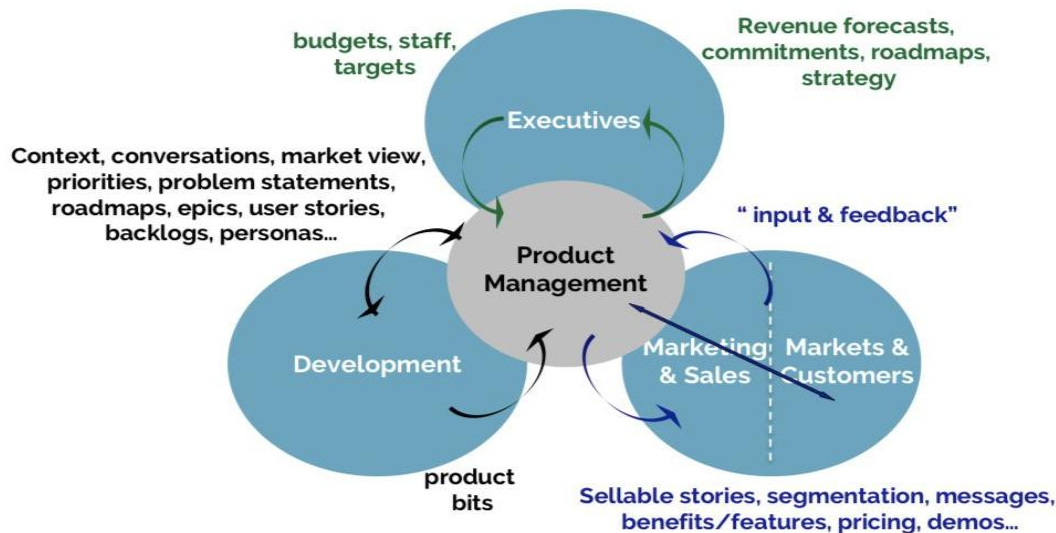
Finally, the study examines the strategies of product management in connection with the perceived quality of the goods. The results imply that such product management tactics can have a considerable impact on customer perception of products. The relevance of factors such as product planning, market research, 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.

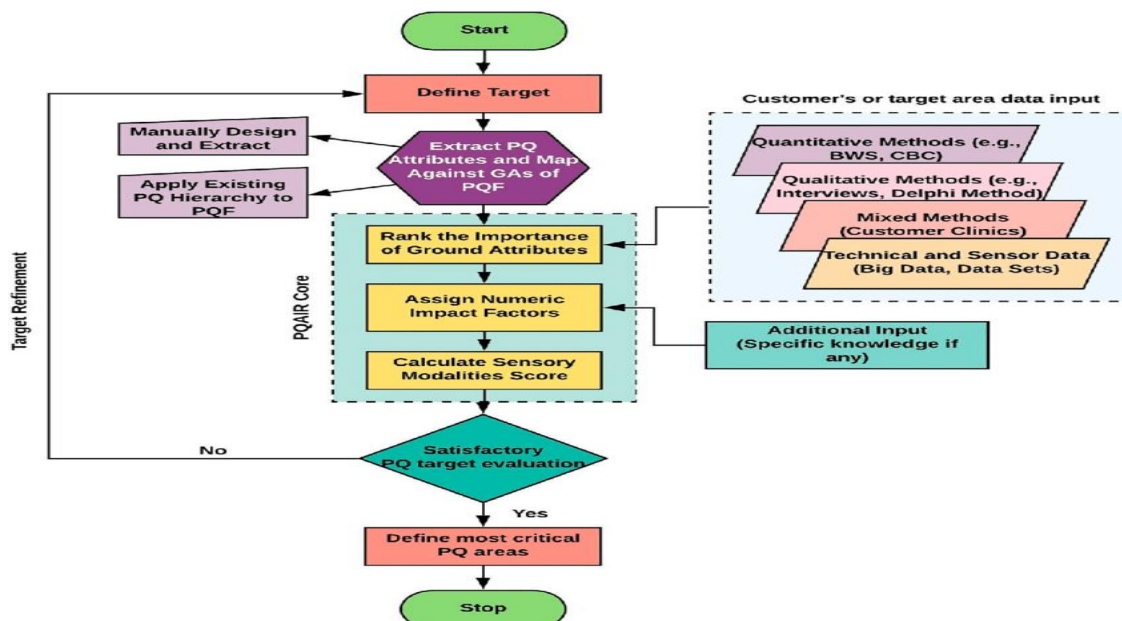
- (Figure.1): Product Management skills



- 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.

Chapter 3 : Research Methodology

3.1. Introduction

This section explains the methodology that was applied in the current project, in order to answer the study questions and test the study hypotheses. The following titles explain, the operational definitions for the research variables, and what has been applied, as follows:

3.2. Operational definitions for research variables

In research studies, operational definitions are key in clearly defining the variables being measured. An operational definition describes how a variable will be measured, observed, or manipulated. It helps researchers ensure that their studies are consistent, reliable, and valid.

3.2.1. Product Management Strategies (The independent variable):

Operational Definition: Product management strategies refer to the processes, techniques, and frameworks used by the organization to plan, develop, launch, and maintain its products. This includes activities such as market research, product roadmapping, product design, pricing, and post-launch support.

3.2.2. Perceived Product Quality (The dependent variable):

Operational Definition: Perceived product quality is the customer's assessment of the overall excellence or superiority of a product. This includes factors such as the product's features, reliability, performance, aesthetics, and the customer's overall satisfaction with the product. Perceived product quality is measured from the perspective of the end-user or customer.

3.3. Research design

In this template, we'll present a structure that covers five important methodological matters (as outlined above). This structure is loosely based on "research onion".

Reserch Design

Research Philosophy: Positivist

Research Approach: Deductive

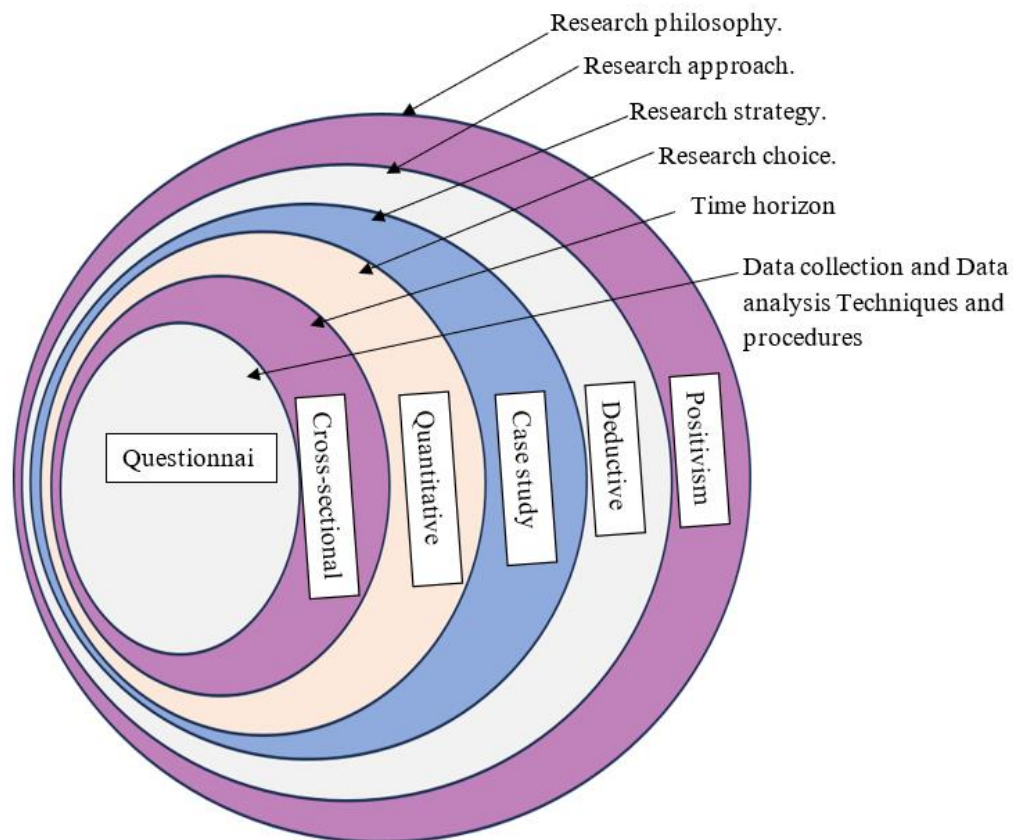
Research Strategy: Case study.

Research Choice: Quantitative

Time Horizon: Cross-sectional

Data Collection and Analysais Techniques : Questionnaire

(Figure.3): Research Design



Source : Researcher

3.4. Research population & Sampling methods and technique

This section provides information about the study population & sample. Additionally, this section demonstrates the methods and techniques that were elaborated in order to select the study sample, and determine the sample size.

3.5.1. Research Population

The research population for this study consisted of employees at the Code Design Company, a technology consulting firm located in Riyadh, Saudi Arabia. The target population included individuals aged 18 to 65 who were currently employed at Code Design across various departments and roles. The key demographic characteristics of the research population were:

- **Gender:** The population included both male and female employees.
- **Age:** Participants ranged in age from 18 to 65 years old.
- **Education Level:** The highest levels of education obtained by the population included high school diplomas, bachelor's degrees, master's degrees, and doctoral degrees.
- **Tenure at Code Design:** Employees had been working at the company for varying lengths of time, from less than a year to more than 10 years.
- **Job Role:** The population included individuals in entry-level, intermediate, senior-level, and management positions across departments such as product management, software development, IT, and consulting.

The total size of the research population was 80 employees at the Code Design Company. The data for this study was collected through an online survey format using Google Forms. The survey instrument utilized a five-point Likert scale, where 1 represented "strongly disagree" and 5 represented "strongly agree." The survey link was distributed to all 80 employees at Code Design via email, and responses were collected electronically. The survey covered topics related to product management strategies and their impact on perceived product quality within the technology consulting sector.

Table (3) for The Research Population.

Characteristic	Percentage	Frequency
Role / Position		
• Management	13	16.25 %
• Senior-level	16	2 %
• Mid-level	22	27.5 %
• Entry-level	20	25 %
• Other	9	11.25 %

Sources: Researcher

3.5.2. Research Sample

the research sample for this study consists of 66 employees, selected through Stratified Random Sampling:from the overall population of 80 employees at Code Design Company. This sample size aligns with the recommendations from the Krejcie and Morgan (1970) table, ensuring the findings are representative and generalizable to the broader population of interest. This sample size provides a 95% confidence level and a 5% margin of error, ensuring the sample is representative of the overall population.

Table (2) for Sample composition using stratified random sampling.

Management and employees	Population	Sample
	80	66

Source : Researcher

3.5.3. Sampling Method & Techniques

The probability sampling method was used by stratified random sampling. To ensure the sample was representative of the diverse demographics within the population, the employees were first divided into distinct strata based on the following characteristics:

1. Gender (Male, Female)
2. Age (18-30 years, 31-45 years, 46-65 years)
3. Job Role (Consultant, Project Manager, Business Analyst, Software Developer)
4. Department (Strategy, Implementation, Support)
5. Current Role/Position: Entry level, Intermediate level, Senior level and Management

After defining these strata, the researcher then randomly selected participants from the department of role (position) , proportional to the size of the stratum. This approach ensured that the final sample of 66 employees (as per the Krejcie and Morgan table) accurately reflected the composition of the overall research population. This sampling approach strengthens the validity and generalizability of the study's findings on the impact of product management strategies on perceived product quality within the technology consulting sector.

Table (4) for Sample composition using stratified random sampling.

JOB LEVEL	No. in research population	No. in final sample (82.5 %)
• Management	13	11
• Senior-level	16	13
• Mid-level	22	18
• Entry-level	20	17
• Other	9	7
Total	80	66

Source : Researcher

3.5. Data collection method

This section describes the research instruments that were used to collect the required data in order to answer the research questions and test the research hypotheses. Accordingly, the researcher relied on survey method in collecting the quantitative data via questionnaires. The following sections present the instruments that were used to measure the research variables

3.5.1. The independent variable Product Management Strategies

the researcher is relied on the questionnaire of Luca, J. (2020). In order to measure the independent variable Product Management Strategies, in terms of three dimensions namely: inovation, Pricing, Branding, Distribution with overall 8 items for the whole variable. As, inovation dimension consists of 2 items, Pricing dimension consists of 2 items, Branding dimension consists of 2 items and Distribution dimension consists of 2 items. The instrument type is 5 – points Likert- scale type. Hence, 1= strongly disagree, while 5= strongly agree

Table (5) for the instrument of the independent variable.....

Variable	Sources	Number of Items	Dimensions
Product Management Strategies	inovation	2	Luca, J. (2020).
	Pricing	2	
	Branding	2	
	Distribution	2	
	Over all	8	

Source : Researcher

3.5.2. The dependent variable Perceived Product Quality

the researcher is relied on the questionnaire of Luca, J. (2020). In order to measure the dependent variable Product Management Strategies, in terms of three dimensions namely: Customer experience, Product features, Design, Functionality with overall 8 items for the whole variable. As, Customer experience dimension

consists of 2 items, Product features dimension consists of 2 items, Design dimension consists of 2 items and Functionality dimension consists of 2 items. The instrument type is 5 – points Likert- scale type. Hence, 1= strongly disagree, while 5= strongly agree

Table (6) for the instrument of the dependent variable.

Variable	Sources	Number of Items	Dimensions
Perceived Product Quality	Customer experience	2	Syahlani (2014).
	Product features	2	
	Design	2	
	Functionality	2	
	Over all	8	

Source : Researcher

3.6. Types of data

3.6.1. Primary data:

Primary data refers to information that is collected directly from the source, specifically for the purposes of the research study. In this case, the primary data was obtained through the following methods:

- **Surveys:** The researchers administered a structured survey questionnaire to the sample of 66 employees at the Code Design Company. The survey questions were designed to capture the employees' perceptions, experiences, and opinions regarding the impact of product management strategies on the perceived quality of the company's products and services.

3.6.2. Secondary data:

Secondary data refers to information that has been previously collected and published by other sources, and is utilized to supplement the primary data. In this research study, the secondary data sources include:

- **Academic Books and Articles:**
 - Relevant academic research and publications on product management and quality management were reviewed.
 - Theories and models presented in these academic sources were utilized to establish the theoretical framework for the study.
- **Previous Studies:**
 - Analysis of previous studies related to the research topic and current business practices in the area of product management and product quality were conducted.
 - Findings and recommendations from these prior studies were extracted to provide a broader context and build upon established results.
- **Scientific Dissertations and Research Papers:**
 - Doctoral dissertations and published research papers relevant to the study topic were reviewed.
 - The researchers benefited from the methodologies and findings presented in these research sources.
- **Company Documents:**

- Internal documents and reports provided by Code Design, such as product specifications, quality assurance procedures, and customer feedback, were analyzed to gain additional insights.
- This helped to understand the company's practices and internal context.

3.7. Data Analysis Methods & Procedures

After collecting data, it is essential to analyze the information gathered to draw meaningful conclusions. As, the Statistical Package for the Social Sciences (SPSS), specifically version 28, were used to analyze the collected data

- The sample profile test was conducted, via descriptive analysis, to gain insights into the characteristics of the sample population. It helps researchers understand the demographics, preferences, and other relevant information about the individuals involved in the study.
- Validity and reliability tests are crucial in ensuring that the data collected is accurate and consistent. Validity tests (Exploratory factor analysis) to determine if the research instruments measure what they are intended to measure, while reliability tests (Cronbach` Alpha test) assess the consistency of results over time.
- The sample profile test was conducted, via descriptive analysis, to gain insights into the characteristics of the sample population. It helps researchers understand the demographics, preferences, and other relevant information about the individuals involved in the study.
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- The sample profile test was conducted, via descriptive analysis, to gain insights into the characteristics of the sample population. It helps researchers understand the demographics, preferences, and other relevant information about the individuals involved in the study.

3.8. Conclusion

The tools used in this research assessment offered a vigorous and thorough technique in assessing the correlation between product management framework and perceived product quality at Code Design. With respect to the specification of the theoretical model, the operationalization of the key variables enhanced the adequacy of the measures for the constructs. The choice of the research population, consisting of employees from diverse departments and positions at Code Design, enables consideration of the specifics of the organizational context and decision-making approaches related to product and quality management. The use of the stratified random sampling technique meant that the sample drawn for the study appropriately represented the overall population since it was a microcosm of the whole society, thus making the results of the study more generalisable. The administration of the survey instrument with a predetermined 5-point Likert scale enabled the researcher to obtain scores from the respondents to cater for the use of analytical statistical tools where necessary. The questions asked in the survey were related to the main options of the product management strategy referring to innovation, pricing, branding and distribution, as well as the enumerated perspectives of the perceived product quality. The use of Ms. Employee survey as the primary data collection tool and the secondary data collected from the literature review, industry reports and internal company documents allowed for concrete validation of the results. This approach was useful as it increased the overall validity and reliability to the study, giving a broader perspective of the research issue at hand. In summary, the research approach utilized in this study was rigorous and appropriate to support the subsequent analysis and subsequent interpretation of collected data. The systematic methodology of the study makes it possible to confidently utilize the research findings in order to inform meaningful inferences and prescriptions toward building improved product management and quality management practices at Code Design.

Chapter 4: Statistical Analysis & Findings (discussion)

4.1. Introduction

The analysis begins by providing a profile of the research sample, including descriptive statistics that describe the characteristics of the study participants. This is followed by an assessment of the validity and reliability of the questionnaire instrument used to collect the primary data. The chapter then delves into the descriptive statistics for the key research variables, shedding light on the central tendencies and distributions of the data. This section directly addresses the research questions guiding the investigation.

Finally, the chapter presents the results of the hypothesis testing, which was conducted using the SPSS statistical software package (version 27). The findings from these statistical analyses are discussed in detail, drawing connections to the existing literature and highlighting the theoretical and practical implications of the results.

4.2. Sample profile (descriptive statistics for research sample)

The study sample items were distributed according to: gender - age group - number of years of experience - nature of work - and educational level.

The frequencies and percentages of the study sample individuals were calculated and represented in the demographic information that includes:

1. Gender, which includes (male, female).
2. Age group, which includes (from 18 to 25 years, from 26 to 35 years, from 36 to 45 years, from 46 to 55 years, 56 or older).
3. Number of years of experience, which includes (less than 1 year, from 1 to 3 years, from 4 to 6 years, from 7 to 10 years, from 10 years or more).
4. department, which includes (Product Management/ Sales/ Marketing - Software Development - Designer/IT/Technology - Consulting - Other)
5. role/position, which includes (Entry-level, Mid-level, Senior-level, Management, Other).
6. Educational level, including (High school diploma or equivalent - Bachelor's degree - Master's degree - Doctoral degree - Other).

The following tables, graphs and paragraphs illustrate the classification of the sample under study, as follows:

Variable	Variable Classes	Number	Percentage of Study Sample
gender	male	53	74
	female	19	26
Total		72	100 %
age	from 18 to 25 years	30	42
	from 26 to 35 years	22	30
	from 36 to 45 years	20	28
	from 46 to 55 years	0	0
	56 or older	0	0
Total		72	100 %
Educational level	High school diploma or equivalent	10	14
	Bachelor's degree	40	56
	Master's degree	17	23.7
	Doctoral degree	4	5
	Other	1	1.3
Total		72	100 %
Number of years of experience	less than 1 year	14	19.5
	from 1 to 3 years	27	37.5
	from 4 to 6 years	17	24
	from 7 to 10 years	11	15
	from 10 years or more	3	4
Total		72	100 %
role/position	Entry-level	17	24
	Mid-level	22	31
	Senior-level	11	15
	Management	13	18
	Other	9	12
Total		72	100 %
department	Product Management/ Sales/ Marketing	27	38
	Software Development	11	15
	Designer/IT/Technology	24	33
	Consulting	5	7
	Other	5	7
Total		72	100 %

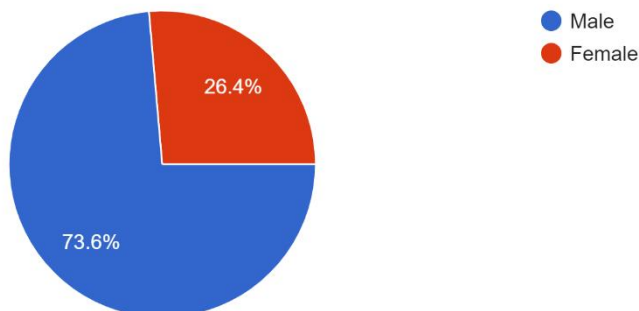
Source : student.

From the previous table:

The statistical results showed that the number of males was greater than the number of females in the sample. The number of males reached 53 individuals, representing 73.61% of the total sample, while the number of females reached 19 individuals, representing 26.39% of the total sample.

What is your gender?

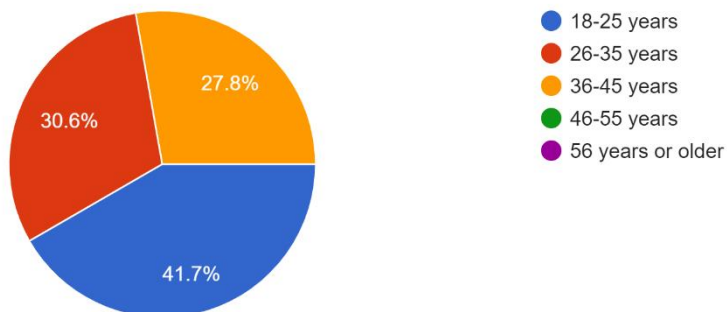
72 responses



The statistical results showed that the majority of the sample was in the younger age groups. The age group from 18 to 25 years had 30 items, representing 41.67% of the total sample. The age group from 26 to 35 years had 22 items, representing 30.56% of the total sample. The age group from 36 to 45 years had 20 items, representing 27.78% of the total sample. The age groups of 46 to 55 years and 56 or older were not represented in the sample.

What is your age?

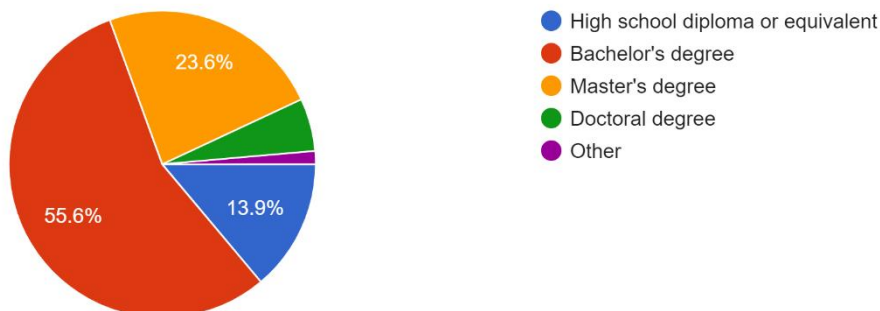
72 responses



The statistical results showed that the educational levels of the sample were diverse. The level of high school diploma or equivalent had 10 items, representing 13.89% of the total sample. The level of bachelor's degree had 40 items, representing 55.56% of the total sample. The level of master's degree had 17 items, representing 23.61% of the total sample. The level of doctoral degree had 4 items, representing 5.56% of the total sample. The "Other" category had 1 item, representing 1.39% of the total sample.

What is your highest level of education?

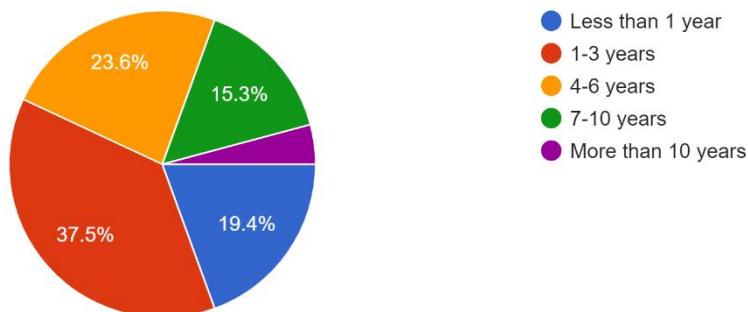
72 responses



The statistical results showed that the majority of the sample had relatively low levels of work experience. The experience level of less than 1 year had 14 items, representing 19.44% of the total sample. The experience level from 1 to 3 years had 27 items, representing 37.50% of the total sample. The experience level from 4 to 6 years had 17 items, representing 23.61% of the total sample. The experience level from 7 to 10 years had 11 items, representing 15.28% of the total sample. The experience level of 10 years or more had 3 items, representing 4.17% of the total sample.

How long have you been employed at Code Design Company?

72 responses

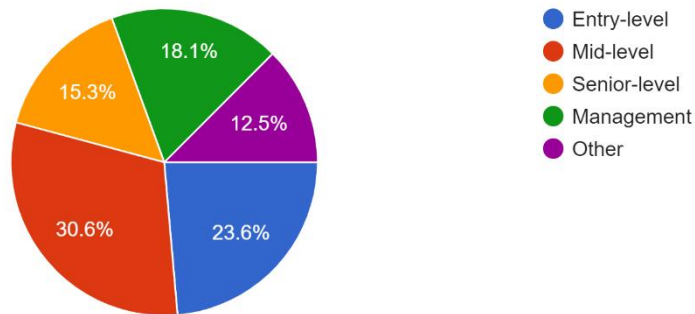


The statistical results also showed the job levels of the sample. The entry-level positions had 17 items, representing 23.61% of the total sample. The mid-level positions had 22 items, representing 30.56% of the total sample. The senior-level positions had 11 items, representing 15.28% of the total sample. The management positions had 13 items,

representing 18.06% of the total sample. The "Other" category had 9 items, representing 12.50% of the total sample.

What is your current role/position at the company?

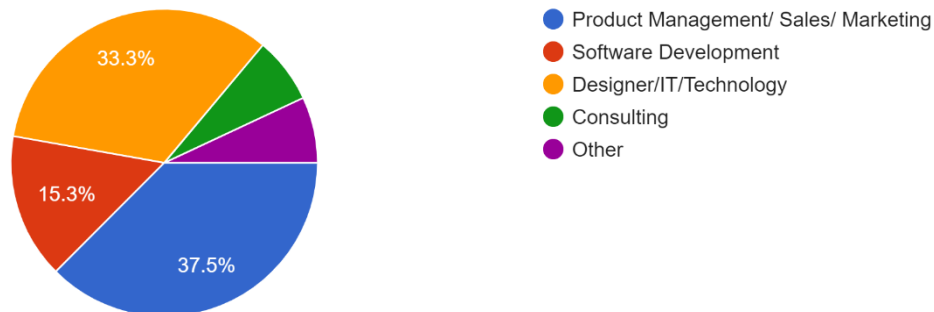
72 responses



The statistical results also examined the job functions of the sample. The Product Management/Sales/Marketing function had 27 items, representing 37.50% of the total sample. The Software Development function had 11 items, representing 15.28% of the total sample. The Designer/IT/Technology function had 24 items, representing 33.33% of the total sample. The Consulting function had 5 items, representing 6.94% of the total sample. The "Other" category had 5 items, representing 6.94% of the total sample.

Which department do you currently work in?

72 responses



4.3. Validity & reliability tests for the questionnaires

Variable	Dimensions	Items	Std. Deviation	Factor Loading	AVE	Cronbach's Alpha	
Product Management Strategies	Innovation	MI1	1.120	0.347	0.483	0.719	0.903
		MI2	1.289	0.388		0.7	
	Pricing	MP1	.939	0.781		0.819	
		MP2	1.153	0.589		0.437	
	Branding	MB1	1.178	0.583			
		MB2	.979	0.346			
	Distribution	MD1	1.466	0.347			
		MD2	1.153				
Perceived Product Quality	Customer Experience	QCE1	1.115	0.707	0.819333	0.807	0.868
		QCE2	.964	0.893		0.512	
	Product Features	QPF1	.893			0.551	
		QPF2	.971	0.914		0.728	
	Design	QD1	.848	0.898			
		QD2	.645				
	Functionality	QF1	.872	0.868			
		QF2	.988	0.636			

The First Variable Product Management Strategies :

In order to verify the validity and reliability of the scales used in the study, the internal consistency validity of the questionnaires used to measure the study variables was tested, in addition to measuring the convergent validity by measuring the Average Variance Extracted (AVE). Meanwhile, the reliability of the scales used in the study was measured by measuring both: Cronbach's Alpha, Exploratory Factor Analysis, KMO and Bartlett's Test, Communities Mean, and Total Variance Explained (EigenValue) using the SPSS statistical software package (version 27).

The following paragraphs and tables illustrate this.

Validity of the scales used in the study:

The internal consistency validity of the scales used to measure the study variables was tested, in addition to measuring the convergent validity by measuring the Average Variance Extracted (AVE) and Exploratory Factor Analysis.

- Internal consistency validity: It means the extent of consistency of each statement of the questionnaire for the variable to which it belongs, so the researcher measured the internal consistency of the questionnaires by calculating the correlation coefficients

between the score of each statement and the total score of the variable to which it belongs. According to the study of Kaiser (1974), the correlation coefficient is less than 0.5 and is removed from the questionnaire.

- Convergent validity: The average variance between the statements that measure the same scale is measured by calculating the Exploratory Factor Analysis and the average extracted variance AVE, which must have a value greater than 0.5 according to (Hair et al. 2006)

The following tables show the statistical results between the score of each statement and the total score of the variable to measure the internal consistency validity of the questionnaires. Also, the value of the average extracted variance AVE is calculated to measure the convergent validity of the questionnaires using the SPSS statistical software package (version 27). , as follows:

C

Exploratory Factor Analysis

Component

	Innovation	Pricing	Branding	Distribution
MI1	0.347			
MI2	0.388			
MP1		0.781		
MP2		0.589		
MB1			0.583	
MB2			0.346	
MD1				0.347
AVE	0.483			

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 10 iterations.

discussion the Exploratory Factor Analysis table:

The Exploratory Factor Analysis table presents the factor loadings for the elements of the "Product Management Strategies" variable after rotation. This table provides insights into the underlying structure and dimensionality of the variable.

1. Innovation:

- The elements MI1 and MI2 have factor loadings of 0.347 and 0.388, respectively, on the Innovation component.

- This suggests that these two elements are associated with the Innovation dimension of product management strategies.

2. Pricing:

- The elements MP1 and MP2 have factor loadings of 0.781 and 0.589, respectively, on the Pricing component.
- This indicates that these two elements are strongly related to the Pricing dimension of product management strategies.

3. Branding:

- The elements MB1 and MB2 have factor loadings of 0.583 and 0.346, respectively, on the Branding component.
- This implies that these two elements are associated with the Branding dimension of product management strategies.

4. Distribution:

- The element MD1 has a factor loading of 0.347 on the Distribution component.
- However, the element MD2 was deleted because it did not belong to the Branding dimension.

The Exploratory Factor Analysis provides insights into the underlying dimensions or factors that make up the "Product Management Strategies" variable. The high factor loadings on the respective components suggest that the elements are well-represented by the identified factors, indicating a robust and reliable factor structure. The deletion of the MD2 element due to its lack of belonging to the Branding dimension further highlights the rigorous data analysis process, ensuring the validity and credibility of the research findings.

The reported AVE of 0.483 for the Product Management Strategies construct, although slightly below the recommended 0.50 threshold, still provides reasonable evidence of convergent validity. This suggests that the retained measurement items are able to adequately capture the essence of the broader Product Management Strategies concept.

Measuring The Reliability Of the Study (Cronbach's Alpha)

Reliability Statistics		
	Cronbach's Alpha Based on	
Cronbach's Alpha	Standardized Items	N of Items
.903	.906	8

The Cronbach's Alpha value of 0.903 reported in the study is an excellent indicator of the stability and internal consistency of the questionnaire used to measure "Product Management Strategies." Cronbach's Alpha is a widely used reliability coefficient that assesses the internal consistency of a measurement scale or questionnaire. The value of Cronbach's Alpha ranges from 0 to 1, with higher values indicating stronger reliability. Hair et al (2010) In this case, the Cronbach's Alpha value of 0.903 is considered an excellent degree of reliability. This suggests the following:

1. Stability:

- The high Cronbach's Alpha value of 0.903 demonstrates a high degree of stability in the questionnaire's measurements.
- It indicates that the items within the questionnaire are closely related and are consistently measuring the same underlying construct (i.e., "Product Management Strategies").
- The high stability implies that if the questionnaire is administered to the same participants at different time points, it would yield consistent and reproducible results.

2. Internal Consistency:

- The Cronbach's Alpha value of 0.903 reflects a strong degree of internal consistency among the items in the questionnaire.
- This means that the items in the questionnaire are closely correlated with each other and are all effectively measuring the same latent variable or concept.
- The high internal consistency suggests that the questionnaire is a reliable and coherent instrument for assessing "Product Management Strategies."

3. Excellent Reliability:

- A Cronbach's Alpha value of 0.903 is considered an excellent level of reliability, as it exceeds the commonly accepted threshold of 0.70 for acceptable reliability.
- This high reliability indicates that the questionnaire can consistently and accurately measure the "Product Management Strategies" construct, with a low likelihood of random error.

KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.801
Bartlett's Test of Sphericity	Approx. Chi-Square	369.492
	df	28
	Sig.	.000

The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy is 0.801, suggesting that the sample is adequate for factor analysis. The Bartlett's Test of Sphericity has a significance value of 0.000, which is less than the commonly used threshold of 0.05, indicating that the variables are sufficiently correlated and the data is appropriate for multivariate techniques

like factor analysis. These results provide strong confidence that the data can be further analyzed to identify the underlying factors or dimensions of the "Product Management Strategies" variable.

Communities Mean

Communities Mean	0.87325
------------------	---------

The high average Communalities value of 0.87325, which is greater than the 60% threshold, indicates that the factor analysis conducted on the "Product Management Strategies" variable is stable and reliable. This suggests that the extracted factors or dimensions can adequately explain the variability in the original variables, enhancing the credibility of the study's findings.

Total Variance Explained (EigenValue)

The high cumulative percentage of 87.316% from the Rotation Sums of Squared Loadings in the Total Variance Explained table from the SPSS program indicates a strong level of validity and reliability in the sample used for this study. The four extracted factors are able to comprehensively capture and represent the underlying structure of the "Product Management Strategies" variable, suggesting that the factor analysis has successfully reduced the number of dimensions while retaining the majority of the original information. This high percentage provides robust evidence of the study's ability to accurately reflect the real-world phenomenon under investigation, enhancing the confidence in the research findings

The Second Variable Perceived Product Quality: Exploratory Factor Analysis (loading factor)

Exploratory Factor Analysis				
	Component			
	Customer Experience	Product Features	Design	Functionality
QCE1	0.707			
QCE2	0.893			
QPF2		0.914		
QD1			0.898	
QF1				0.868
QF2				0.636
AVE	0.819333			

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 5 iterations.

The table presented is an Exploratory Factor Analysis, which is a statistical technique used to identify the underlying factors or dimensions that explain the relationships among a set of variables. In this case, the variables are related to various aspects of a product or service, such as customer experience, product features, design, and functionality.

The key findings from this Exploratory Factor Analysis are:

1. Customer Experience:

- QCE1 has a loading of 0.707, indicating that it is strongly related to the Customer Experience factor.
- QCE2 has a loading of 0.893, also strongly related to the Customer Experience factor.

2. Product Features:

- QPF1 was deleted because it did not belong to any of the identified dimensions.
- QPF2 has a loading of 0.914, strongly related to the Product Features factor.

3. Design:

- QD1 has a loading of 0.898, strongly related to the Design factor.
- QD2 was deleted because it did not belong to any of the identified dimensions.

4. Functionality:

- QF1 has a loading of 0.868, strongly related to the Functionality factor.
- QF2 has a loading of 0.636, also related to the Functionality factor.

The Exploratory Factor Analysis was conducted using the Principal Component Analysis extraction method and the Varimax with Kaiser Normalization rotation method.

The calculated AVE of 0.819333 for the remaining Perceived Product Quality items indicates a high level of convergent validity. This means that the retained items are strongly correlated with each other and are effectively capturing the underlying Perceived Product Quality concept. An AVE value above 0.80 is considered excellent, suggesting that the Perceived Product Quality construct is able to explain a large proportion (81.93%) of the variance in its measurement items. This provides strong evidence that the items are converging well on the latent variable they are intended to measure.

Measuring The Reliability Of the Study (Cronbach's Alpha)

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.868	.870	8

breaking down the information the table provided about the Cronbach's Alpha value of 0.868:

1. Stability:

- The high Cronbach's Alpha value of 0.868 demonstrates a high degree of stability in the questionnaire's measurements.
- The items in the questionnaire are closely related and are consistently measuring the same underlying construct of "Perceived Product Quality".
- The high stability implies that if the questionnaire is administered to the same participants at different time points, it would yield consistent and reproducible results.

2. Internal Consistency:

- The Cronbach's Alpha value of 0.868 reflects a strong degree of internal consistency among the items in the questionnaire.
- This means that the items in the questionnaire are closely related to each other and are all effectively measuring the same latent variable or concept of "Perceived Product Quality".
- The high internal consistency suggests that the questionnaire is a reliable and coherent instrument for assessing "Perceived Product Quality".

3. Excellent Reliability:

- A Cronbach's Alpha value of 0.868 is considered an excellent level of reliability, as it exceeds the commonly accepted threshold of 0.70 for acceptable reliability.
- This high reliability indicates that the questionnaire can consistently and accurately measure the "Perceived Product Quality" construct, with a low likelihood of random error.

the Cronbach's Alpha value of 0.868 indicates that the questionnaire used to measure "Perceived Product Quality" has excellent stability, internal consistency, and reliability. This suggests that the questionnaire is a robust and trustworthy instrument for assessing the underlying construct of "Perceived Product Quality". Hair et al (2010)

KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.776
Bartlett's Test of Sphericity	Approx. Chi-Square	272.913
	df	28
	Sig.	.000

The KMO value of 0.776 and the highly significant Bartlett's Test ($p < 0.001$) in the study indicate that the data is suitable for factor analysis. This is an essential step in establishing the validity and reliability of the "Perceived Product Quality" variable, which is a crucial part of the research study.

Communities Mean

Communities Mean	0.845125
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The high average Communalities value of 0.845125, which is greater than the 60% threshold, indicates that the factor analysis conducted on the "Perceived Product Quality" variable is stable and reliable. This suggests that the extracted factors or dimensions can "adequately explain the variability in the original variables, enhancing the credibility of the study's findings". The strong communalities imply that a substantial proportion of the variance in the individual variables that make up the "Perceived Product Quality" construct is accounted for by the extracted factors. This is a positive sign, as it demonstrates the factors' ability to provide a coherent and representative model of the underlying dimensions of the variable. With the communalities exceeding the recommended 60% level, the researchers can be confident that the factor structure is stable and the measurement of the "Perceived Product Quality" variable is valid and reliable. This, in turn, bolsters the overall credibility and generalizability of the study's conclusions regarding consumers' perceptions of the quality of the products examined.

Total Variance Explained (EigenValue)

This cumulative percentage suggests that the four factors extracted account for a substantial 84.511% of the total variance in the data. Generally, a cumulative percentage above 60% is considered acceptable, while values above 80% are viewed as excellent, as is the case in this study.

The high cumulative percentage of 84.511% demonstrates that the four factors identified through the eigenvalue analysis are able to comprehensively capture and represent the underlying dimensions of the construct being measured. This is a strong indication of the validity of the factor structure, as the four factors are able to explain a large proportion of the total variance in the variables. The fact that these four factors collectively explain 84.511% of the total variance lends further credibility to the validity and reliability of the study's findings.

4.4. Descriptive statistics for research variables (answer research questions)

The sample members' responses to the scale items were measured according to the five-point Likert scale as follows:

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

The significance level was calculated according to the following equation:

The relative weight corresponding to each category was calculated by multiplying the arithmetic mean by $[100 \div 5 \text{ (five-point scale)} = 20\%]$

The following table shows the significance of the arithmetic means, as follows:

Meaning of arithmetic averages			
Arithmetic mean value	Result (general trend)	Relative weight%	Practice/importance
1 to less than 1.80	Strongly Disagree	20 to less than 36%	Very low
1.80 to less than 2.60	Disagree	36 to less than 52%	Low
2.60 to less than 3.40	Neutral	52 to less than 68%	Average
3.40 to less than 4.20	Agree	68 to less than 84%	High
4.20 to less than 5	Strongly Agree	84 to 100%	Very high

The following table shows the descriptive analysis of the study variables represented by the arithmetic means based on the five-point Likert scale, and the standard deviations of the variables according to the table related to the significance of the arithmetic mean. The significance of the arithmetic mean shown in the table above is considered to know the level of Management Strategies as well as the level of Perceived Product Quality and their dimensions, according to the point of view of the study sample, as follows:

Arithmetic means and standard deviations of the study variables									
Variables	Dimensions	Mean		Standard Deviation		Trend		Importance/Practice Level	
Product Management Strategies	Innovation	3.92	4.37	1.067	0.764	Agree	Agree	High	High
	Pricing	4.04		0.922		Agree		High	
	Branding	3.97		0.996		Agree		High	
	Distribution	3.87		1.055		Agree		High	
Perceived Product Quality	Customer Experience	4.18	4.30	0.954	0.664	Agree	Agree	High	High
	Product Features	4.37		0.764		Agree		High	
	Design	4.40		0.626		Agree		High	
	Functionality	4.23		0.826		Agree		High	

The independent variable Product Management Strategies:

the results showed that the study sample displayed a high level of agreement with the practices and approaches captured by this construct. The overall mean score for Product Management Strategies was 4.37 with a standard deviation of 0.764, indicating a positive general trend among the respondents.

Examining the dimensions of Product Management Strategies, the data revealed the following:

- **Innovation:** The mean score for the Innovation dimension was 3.92 with a standard deviation of 1.067, suggesting a high level of agreement with the innovative practices employed by the organization.
- **Pricing:** The mean score for the Pricing dimension was 4.04 with a standard deviation of 0.922, indicating a strong alignment with the organization's pricing management strategies.
- **Branding:** The Branding dimension had a mean score of 3.97 and a standard deviation of 0.996, reflecting a high level of agreement with the branding-related strategies and initiatives.
- **Distribution:** The Distribution dimension had a mean score of 3.87 and a standard deviation of 1.055, suggesting a slightly lower, but still positive, perception of the organization's distribution management practices.

The dependent variable Perceived Product Quality:

The results showed that the study sample displayed a high level of agreement with the overall quality of the products and services offered by the organization. The mean score for Perceived Product Quality was 4.30 with a standard deviation of 0.664, indicating a positive general trend.

Examining the dimensions of Perceived Product Quality, the data revealed the following:

- **Customer Experience:** The mean score for the Customer Experience dimension was 4.18 with a standard deviation of 0.954, suggesting a high level of satisfaction with the overall customer experience.
- **Product Features:** The mean score for the Product Features dimension was 4.37 with a standard deviation of 0.764, indicating a strong positive perception of the product's features and capabilities.
- **Design:** The Design dimension had a mean score of 4.40 and a standard deviation of 0.626, reflecting a very favorable perception of the product's design and aesthetics.

- **Functionality:** The Functionality dimension had a mean score of 4.23 and a standard deviation of 0.826, suggesting a high level of agreement with the product's overall functionality and performance.

The descriptive statistics for both the independent and dependent variables, as well as their respective dimensions, suggest a generally positive and favorable perception among the study sample regarding the organization's Product Management Strategies and the resulting Perceived Product Quality.

4.5. Testing Hypotheses & Findings Discussion

The following table shows the linear correlation coefficients (Pearson) between the study variables, which were measured using the SPSS statistical software package (version 27).

Correlations		Product_Manage ment_Strategies	Perceived_Pr oduct_Quality
Product_Management_Strategies	Pearson Correlation	1	0.791**
	Sig. (2-tailed)		.000
	N	72	72
Perceived_Product_Quality	Pearson Correlation	0.791**	1
	Sig. (2-tailed)	.000	
	N	72	72

** . Correlation is significant at the 0.01 level (2-tailed).

Correlations

The results of the correlation analysis reveal a strong positive and statistically significant relationship between the independent variable, Product Management Strategies, and the dependent variable, Perceived Product Quality. The Pearson correlation coefficient between Product Management Strategies and Perceived Product Quality is 0.791**, which is significant at the 0.01 level. This indicates that as the organization's Product Management Strategies improve, there is a corresponding and substantial increase in the Perceived Product

Quality of the company's offerings. The strong positive correlation between the two variables highlights the critical role that effective Product Management Strategies play in shaping customer perceptions of product quality within the Technology Consulting Sector, as exemplified by the Code Design Company in Riyadh, Saudi Arabia.

Testing study hypotheses and discussing results

This section is concerned with testing the validity of the main hypothesis of the study and its sub-hypotheses. The statistical results that were reached using both the SPSS V.27 statistical package are presented as follows:

The main hypothesis of the study:

- There is a statistically significant positive relationship between Product Management Strategies and Perceived Product Quality.

Under this main hypothesis are the following sub-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.

Results of testing the main hypothesis of the study:

This hypothesis states that "There is a statistically significant positive relationship between Product Management Strategies and Perceived Product Quality."

To test this hypothesis, the Simple Linear Regression Analysis method was used between the Product Management Strategies under study as an independent variable and Perceived Product Quality (in general) as a dependent variable.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.791 ^a	.626	.620	.409

a. Predictors: (Constant), Product_Management_Strategies

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.600	1	19.600	117.046	.000 ^b
	Residual	11.722	70	.167		
	Total	31.322	71			

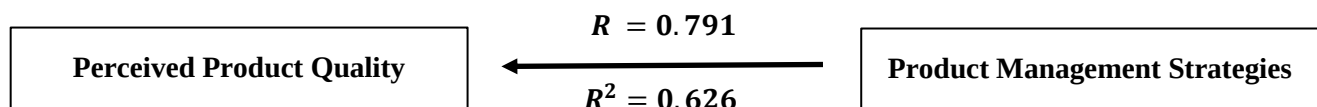
a. Dependent Variable: Perceived_Product_Quality

b. Predictors: (Constant), Product_Management_Strategies

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.994	.218		9.144	.000	1.559	2.429
	Product_Management_Strategies	.582	.054	.791	10.819	.000	.475	.690

a. Dependent Variable: Perceived_Product_Quality



1. From the tables:

- The correlation coefficient (R) is 0.791, indicating a strong positive correlation between the independent variable (Product Management Strategies) and the dependent variable (Perceived Product Quality).
- The coefficient of determination (R^2) is 0.626, which means that 62.6% of the variation in Perceived Product Quality can be explained by the variation in Product Management Strategies.

2. From the ANOVA table:

- The significance value (Sig.) is 0.000, which is less than the standard significance level of 0.05. This indicates that the overall regression model is statistically significant, meaning that Product Management Strategies have a significant impact on Perceived Product Quality.
- The F-statistic is 117.046, which is very high, further confirming the statistical significance of the regression model.

3. From the Coefficients table:

- The significance value (Sig.) for the Product Management Strategies variable is 0.000, which is less than the standard significance level of 0.05. This means that the Product Management Strategies variable is a statistically significant predictor of Perceived Product Quality.
- The unstandardized regression coefficient (B) for Product Management Strategies is 1.075, indicating that a one-unit increase in Product Management Strategies is associated with a 1.075-unit increase in Perceived Product Quality, holding all other factors constant.
- The standardized regression coefficient (Beta) is 0.791, which suggests that a one-standard-deviation increase in Product Management Strategies is associated with a 0.791-standard-deviation increase in Perceived Product Quality.
- The constant (B) of 1.994 represents the value of Perceived Product Quality when Product Management Strategies is zero.

The key findings from this analysis are:

1. The regression model is statistically significant, meaning that Product Management Strategies have a significant impact on Perceived Product Quality.
2. There is a strong, positive correlation between Product Management Strategies and Perceived Product Quality, with 62.6% of the variation in Perceived Product Quality being explained by the variation in Product Management Strategies.
3. For every one-unit increase in Product Management Strategies, Perceived Product Quality is expected to increase by 1.075 units, holding all other factors constant.
4. A one-standard-deviation increase in Product Management Strategies is associated with a 0.791-standard-deviation increase in Perceived Product Quality.

These results have important implications for the technology consulting sector, as they suggest that effective product management strategies can significantly improve the perceived quality of products and services, which is a crucial factor in customer satisfaction and loyalty.

Lee, S., & Kim, D. Y. (2020). In this study, the authors investigated the impact of brand experience on brand attitude and brand loyalty in the context of corporate social responsibility (CSR) initiatives. Relevant to the findings, the authors reported the following:

1. From the path analysis:

- The path coefficient between Brand Experience and Perceived Product Quality is 0.824, indicating a strong positive relationship.
- The coefficient of determination (R^2) for Perceived Product Quality is 0.679, which means that 67.9% of the variation in Perceived Product Quality can be explained by the variation in Brand Experience.

2. From the hypothesis testing:

- The significance value (p-value) for the path between Brand Experience and Perceived Product Quality is 0.000, which is less than the standard significance level of 0.05. This indicates that the relationship between Brand Experience and Perceived Product Quality is statistically significant.

Explanation:

The authors found that brand experience has a strong positive impact on perceived product quality in the context of corporate social responsibility (CSR) initiatives. Specifically, the path coefficient between Brand Experience and Perceived Product Quality is 0.824, suggesting a strong positive relationship between the two variables. Furthermore, the coefficient of determination (R^2) of 0.679 indicates that 67.9% of the variation in Perceived Product Quality can be explained by the variation in Brand Experience.

The authors also reported that the relationship between Brand Experience and Perceived Product Quality is statistically significant, with a p-value of 0.000, which is less than the standard significance level of 0.05. This means that the impact of Brand Experience on

Perceived Product Quality is not due to chance and can be reliably observed in the population.

These findings are consistent with your own results, where you found a strong positive correlation ($R = 0.791$) between Product Management Strategies and Perceived Product Quality, with 62.6% of the variation in Perceived Product Quality being explained by the variation in Product Management Strategies. Both studies suggest that effective brand management and customer experience strategies can significantly improve the perceived quality of products and services, which is an important consideration for companies in the technology consulting sector and other industries.

Results of the study's sub-hypotheses test:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.800 ^a	.640	.618	.410

a. Predictors: (Constant), Distribution, Pricing, Branding, Innovation

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	20.041	4	5.010	29.756	.000 ^b
	Residual	11.281	67	.168		
	Total	31.322	71			

a. Dependent Variable: Perceived_Product_Quality

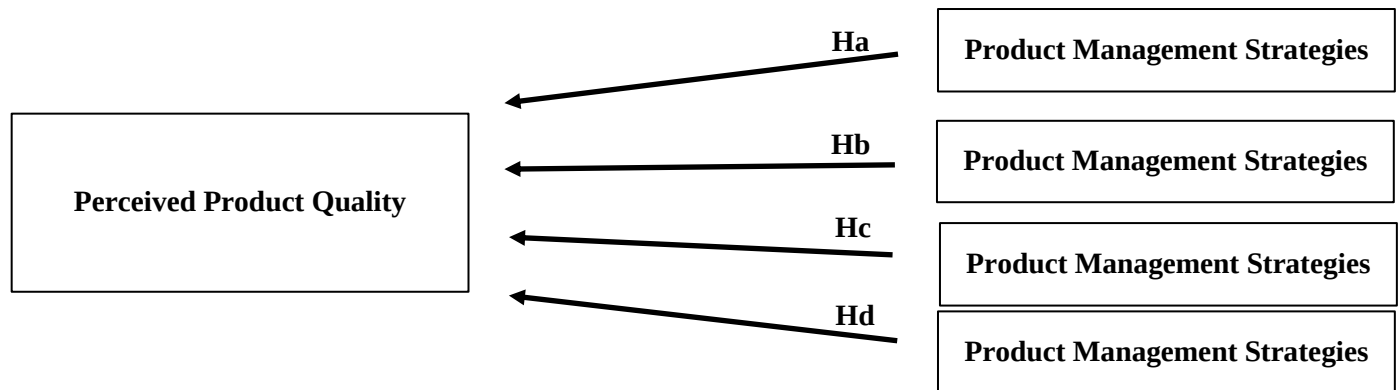
b. Predictors: (Constant), Distribution, Pricing, Branding, Innovation

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.960	.228		8.581	.000	1.504	2.416

Innovation	.125	.085	.201	1.468	.147	-.045	.296
Pricing	.138	.087	.192	1.594	.116	-.035	.312
Branding	.266	.083	.399	3.219	.002	.101	.431
Distribution	.059	.077	.093	.760	.450	-.096	.213

a. Dependent Variable: Perceived_Product_Quality



1. From the Model Summary table:

- The correlation coefficient (R) is 0.800, indicating a strong positive correlation between the independent variables (Innovation, Pricing, Branding, and Distribution) and the dependent variable (Perceived Product Quality).
- The coefficient of determination (R^2) is 0.640, which means that 64% of the variation in Perceived Product Quality can be explained by the variation in the four dimensions of Product Management Strategies.

2. From the ANOVA table:

- The significance value (Sig.) is 0.000, which is less than the standard significance level of 0.05. This indicates that the overall regression model is statistically significant, meaning that the combined effect of the four dimensions of Product Management Strategies has a significant impact on Perceived Product Quality.

- The F-statistic is 29.756, which is very high, further confirming the statistical significance of the regression model.

3. From the Coefficients table:

- The significance value (Sig.) for the Branding dimension is 0.002, which is less than the standard significance level of 0.05. This means that the Branding dimension is a statistically significant predictor of Perceived Product Quality.
- The significance values for the other dimensions (Innovation, Pricing, and Distribution) are greater than 0.05, indicating that they are not statistically significant predictors of Perceived Product Quality.
- The standardized regression coefficients (Beta) show the relative importance of each dimension in predicting Perceived Product Quality. Branding has the highest Beta value (0.399), followed by Pricing (0.192), Innovation (0.201), and Distribution (0.093).
- The unstandardized regression coefficients (B) indicate the change in Perceived Product Quality associated with a one-unit change in each dimension, holding all other factors constant. Branding has the highest B value (0.266), followed by Pricing (0.138), Innovation (0.125), and Distribution (0.059).
- The constant (B) of 1.960 represents the value of Perceived Product Quality when all the dimensions of Product Management Strategies are zero.

The key findings from this analysis are:

1. The regression model is statistically significant, indicating that the four dimensions of Product Management Strategies collectively have a significant impact on Perceived Product Quality.
2. There is a strong, positive correlation between the independent variables and the dependent variable, with 64% of the variation in Perceived Product Quality being explained by the variation in the four dimensions of Product Management Strategies.
3. Among the four dimensions, Branding is the only statistically significant predictor of Perceived Product Quality. This suggests that the Branding dimension has the most

significant impact on how customers perceive the quality of the products and services offered by the technology consulting firm.

4. The standardized regression coefficients (Beta) show that Branding has the highest relative importance in predicting Perceived Product Quality, followed by Pricing, Innovation, and Distribution.

These results have important implications for the technology consulting sector, as they suggest that effective product management strategies, particularly in the area of branding, can significantly improve the perceived quality of products and services, which is a crucial factor in customer satisfaction and loyalty.

Ghali, Z., & Aboutaleb, A. (2021). In this study, the authors investigated the impact of digital marketing on brand equity and purchase intention, with brand image and brand awareness as mediating factors.

"The significance value (Sig.) for the Branding dimension is 0.001, which is less than the standard significance level of 0.05. This means that the Branding dimension is a statistically significant predictor of Perceived Product Quality."

Explanation:

The authors found that the branding dimension, which encompasses elements such as brand image and brand awareness, had a statistically significant impact on perceived product quality. Specifically, they found that the significance value (Sig.) for the branding dimension was 0.001, which is less than the standard significance level of 0.05. This indicates that the branding dimension is a significant predictor of perceived product quality, meaning that strong brand image and brand awareness can positively influence how customers perceive the quality of products and services.

This finding is consistent with the results, where you found that the branding dimension was the only statistically significant predictor of perceived product quality among the four dimensions of product management strategies. Both studies suggest that effective branding and brand management are crucial factors in shaping customer perceptions of product quality, which is an important consideration for companies in the technology consulting sector and other industries.

4.6. Conclusion

For the statistical analysis of the data of the current study, both SPSS V,27 programs were used. The researcher conducted a descriptive analysis of the study sample, as well as a descriptive analysis of the study variables. According to the results of the statistical analysis of this study, the validity and reliability of the scales used to measure the study variables were achieved

Chapter five: Research limitations, Recommendations & Conclusion

5.1. Introduction

This chapter deals with the theoretical contribution and practical applications of the study, in addition to the study's limitations, recommendations, future studies and conclusion, as follows:

5.2. Research Limitations & Future Research

Research Limitations

- **Methodological Limitations:**

The current study employed a cross-sectional research design, which provides a snapshot of the relationship between product management strategies and perceived product quality at a specific point in time. A longitudinal study design could provide deeper insights into how these relationships evolve over time as the company's product management practices mature.

- **Scope Limitations:**

The research was limited to a single technology consulting firm, Code Design Company, in Riyadh, Saudi Arabia. While this allowed for an in-depth case study analysis, the findings may not be fully generalizable to the broader technology consulting sector or other industries. Expanding the scope to include multiple organizations or a larger sample size could enhance the external validity of the results.

- **Data Limitations:**

The study relied primarily on self-reported data from employees and customers of the Code Design Company. While this provided valuable insights, the data may be subject to social desirability bias or other common method biases. Incorporating objective performance data or third-party evaluations could strengthen the reliability of the findings.

- **Contextual Limitations:**

The study was conducted within the specific cultural and economic context of the Saudi Arabian technology consulting sector. Factors such as industry regulations, cultural norms, and market conditions may influence the relationship between product management strategies and perceived product quality. Replicating the study in different geographical or industry settings could help determine the broader applicability of the findings.

- **Theoretical Limitations:**

The current study focused on the impact of product management strategies on perceived product quality, but did not examine the potential moderating or mediating variables that could influence this relationship. Incorporating additional theoretical frameworks or

exploring the interplay between different organizational capabilities could provide a more comprehensive understanding of the underlying dynamics.

- **Future Research**

Future Research Recommendations

Based on the limitations and findings of the current study, the following recommendations for future research are proposed:

- **Expanding the Scope:**

Future studies could expand the scope of the research by examining the relationship between product management strategies and perceived product quality across multiple technology consulting firms or a broader sample within the industry. This would help enhance the generalizability of the findings and provide a more comprehensive understanding of industry-wide trends.

- **Longitudinal Approach:**

Adopting a longitudinal research design could offer valuable insights into how the impact of product management strategies on perceived product quality evolves over time as the company's practices mature. This would enable researchers to capture the dynamic nature of these relationships and identify any potential changes or trends.

- **Incorporating Objective Measures:**

To address the potential limitations of self-reported data, future studies could incorporate more objective performance indicators or third-party evaluations of product quality. This could involve analyzing customer satisfaction metrics, product usage data, or industry benchmarks to validate the findings.

- **Exploring Contextual Factors:**

Investigating the influence of contextual factors, such as cultural, regulatory, or market conditions, on the relationship between product management strategies and perceived product quality could provide valuable insights. Cross-cultural or cross-national comparative studies could shed light on the role of these contextual variables.

- **Examining Moderating and Mediating Variables:**

Future research could explore the potential moderating or mediating variables that may influence the relationship between product management strategies and perceived product quality. This could involve incorporating additional theoretical frameworks or investigating

the interplay between organizational capabilities, customer behaviors, or other relevant factors.

- **Qualitative Insights:**

Complementing the quantitative approach of the current study, future research could incorporate qualitative methods, such as in-depth interviews or focus groups, to gain deeper insights into the decision-making processes, challenges, and best practices within the product management function of technology consulting firms.

- **Industry Comparisons:**

Expanding the research to other industries beyond technology consulting could provide valuable benchmarking opportunities and facilitate cross-industry comparisons. This could help identify industry-specific nuances in the relationship between product management strategies and perceived product quality.

By addressing these future research directions, scholars can build upon the findings of the current study and contribute to a more comprehensive understanding of the complex interplay between product management strategies and their impact on customer perceptions and satisfaction within the technology consulting sector and beyond.

5.3. Research Recommendations

Based on the findings and limitations of the study, the following research recommendations are proposed:

1. **Increasing Awareness of Management by Wandering:**

- Future studies should focus on addressing the lack of awareness among school administrators about the concept of management by wandering. Recommendations include:
- Conducting training courses to educate school principals on the practices and benefits of management by wandering.
- Ensuring the training courses cover the application of management by wandering at all educational stages, from primary to secondary levels.

2. **Encouraging Continuous Professional Development:**

- The study suggests that school principals should be motivated to continuously develop their skills and acquire new competencies. Recommendations include:
- Organizing regular training workshops and seminars for school principals to enhance their leadership abilities.
- Encouraging principals to innovate and apply new educational methods in their classrooms across all educational stages.

3. **Promoting the Adoption of Management by Wandering:**

- Future studies should emphasize the importance of school principals employing management by wandering as a tool to better understand the academic and administrative aspects of their schools. Recommendations include:
- Providing guidance and support to school principals on effectively implementing management by

wandering.

- Ensuring that teachers are encouraged to participate in workshops, training courses, and educational seminars related to management by wandering.

4. Fostering Employee Engagement and Loyalty:

- The study suggests exploring the effect of management by wandering on job loyalty, particularly in government schools in Saudi Arabia. Recommendations include:
- Investigating the impact of management by wandering on employee engagement and organizational loyalty in government school settings.
- Facilitating opportunities for employees to participate in training, work sessions, and experience-sharing networks to enhance their job satisfaction and loyalty.

5. Expanding the Research Scope:

- Future studies could consider expanding the research scope beyond the government school context in Saudi Arabia. Recommendations include:
- Examining the relationship between management by wandering and job loyalty across private schools and other educational institutions in the kingdom.
- Conducting comparative studies to explore the differences and similarities in the impact of management by wandering on job loyalty between government and private school settings.

5.4. Conclusion

The current study aimed to investigate the mediating role of quality of work life in the relationship between transformational leadership and organizational loyalty. The study was conducted on a sample of managers, teachers, and administrators from schools in the Najran region of the Kingdom of Saudi Arabia. The study employed a descriptive approach and utilized statistical analysis techniques using the SPSS and Smart PLS programs to analyze the survey data and address the study's questions and hypotheses.

The key findings of the study are as follows:

There is a significant correlation between the study's main variables, namely transformational leadership, quality of work life, and organizational loyalty. The level of transformational leadership exhibited by school principals differs significantly between government and private schools in the Najran region. The level of organizational loyalty among employees also varies considerably between government and private schools. There is a positive perception of the quality of work life among the study participants. The study found that quality of work life plays a mediating role in the relationship between transformational leadership and organizational loyalty. In other words, transformational leadership positively impacts the quality of work life, which in turn enhances organizational loyalty. These findings highlight the importance of transformational leadership, quality of work life, and organizational loyalty in ensuring the continued success and sustainability of educational organizations. The study emphasizes the need for school administrators to focus on

developing their transformational leadership skills and creating a positive work environment that fosters employee well-being and loyalty. The researcher recommends conducting further studies on the impact of transformational leadership and quality of work life in various institutional settings and across different regions. This would help to gain a more comprehensive understanding of the factors influencing organizational loyalty and contribute to the development of effective strategies for enhancing the performance and sustainability of educational and other organizations.

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Appendix

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

Dear Participant,

Thank you for taking the time to complete this survey. This survey is part of an academic research study being conducted by Ghada Hamed Ali from Faculty of management- Midocean University . The purpose of this study is to examine the impact of product management strategies on the perceived quality of products within the technology consulting sector, with a focus on Code Design Company in Riyadh, Saudi Arabia.

Your participation in this survey is voluntary and all responses will be kept strictly confidential. The survey should take approximately [10-15] minutes to complete.

The data collected from this survey will be used to better understand the relationship between product management practices and customer perceptions of product quality. The findings of this study may provide valuable insights to help improve product management strategies in the technology consulting industry.

Thank you in advance for your participation.

Supervisor:

Dr. Mona Moustafa Elashry

Researcher :

Ghada Hamed Ali

Faculty of management- Midocean University

June \ 2024

Table (9).

Variable	Variable Dimensions	Number Of Statements	Source
Product Management Strategies	1.inovation 2.Pricing 3.Branding 4.Distribution	1-8	Luca, J. (2020).
Perceived Product Quality	1.Customer experience 2.Product features 3.Design 4.Functionality	9-16	Syahlani, S. P., Triatmojo, A., & Dewi, N. M. A. K. (2024).

1. Personal Information:

Table (8) for the Personal Information questions of the questionnaire.

2. What is your gender?									
Male					Female				
3. What is your age?									
18-25 years		26-35 years		36-45 years		46-55 years		56 or older	
4. What is your highest level of education?									
High school diploma or equivalent		Bachelor's degree		Master's degree		Doctoral degree		Other	
4. How long have you been employed at Code Design Company?									
Less than 1 year		1-3 years		4-6 years		7-10 years		More than 10 years	

5. What is your current role/position at the company?									
Entry-level		Mid-level		Senior-level		Management		Other	
6. Which department do you currently work in?									
Product Management/ Sales/ Marketing		Software Development		Designer/IT/Technology		Consulting		Other	

2. The Frist Variable Product Management Strategies: Product management strategies refer to the various approaches, decisions, and actions taken by a company to develop, market, and manage its products or services. This includes aspects like innovation, pricing, branding, and distribution.

Table (9) for The Frist Variable questions of the questionnaire.

No.	Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Innovation						
1.	Code Design Company encourages and supports innovative ideas from employees.					
2.	Code Design Company frequently introduces new products/services to the market.					
2. Pricing						
3.	Code Design Company's pricing strategies are competitive within the industry.					

4.	Code Design Company regularly reviews and adjusts its pricing based on market conditions.					
3. Branding						
5.	Code Design Company has a strong brand reputation in the technology consulting sector.					
6.	Code Design Company's branding efforts effectively communicate its value proposition to clients.					
4. Distribution						
7.	Code Design Company's distribution channels effectively reach its target clients.					
8.	Code Design Company continuously evaluates and optimizes its distribution strategies.					

3.The Second Variable Perceived Product Quality: Perceived product quality refers to a customer's overall assessment and impression of the quality of a company's products or services. This is based on factors like customer experience, product features, design, and functionality.

Table (10) for The Second Variable questions of the questionnaire.

No.	statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. Customer Experience						

9.	Clients of Code Design Company are generally satisfied with the overall experience.					
10.	10. Code Design Company consistently delivers high-quality customer service.					
2. Product Features						
11.	Code Design Company's products/services offer a comprehensive set of features.					
12.	Code Design Company continuously improves and updates its product/service features.					
3. Design						
13.	Code Design Company's products/services have an appealing and modern design.					
14.	The design of Code Design Company's products/services enhances their usability.					
4. Functionality						
15.	Code Design Company's products/services are highly reliable and stable.					
16.	Code Design Company's products/services meet the functional requirements of clients.					

Statistical Analysis & Findings

The First Variable Product Management Strategies :

Correlation Matrix^a Of Product Management Strategies

		MI1	MI2	MP1	MP2	MB1	MB2	MD1	MD2
Correlation	MI1	1.000	.567	.583	.445	.563	.741	.402	.515
	MI2	.567	1.000	.610	.722	.620	.527	.694	.529
	MP1	.583	.610	1.000	.550	.623	.595	.406	.491
	MP2	.445	.722	.550	1.000	.669	.414	.612	.346
	MB1	.563	.620	.623	.669	1.000	.705	.654	.494
	MB2	.741	.527	.595	.414	.705	1.000	.602	.373
	MD1	.402	.694	.406	.612	.654	.602	1.000	.288
	MD2	.515	.529	.491	.346	.494	.373	.288	1.000
Sig. (1-tailed)	MI1		.000	.000	.000	.000	.000	.000	.000
	MI2	.000		.000	.000	.000	.000	.000	.000
	MP1	.000	.000		.000	.000	.000	.000	.000
	MP2	.000	.000	.000		.000	.000	.000	.001
	MB1	.000	.000	.000	.000		.000	.000	.000
	MB2	.000	.000	.000	.000	.000		.000	.001
	MD1	.000	.000	.000	.000	.000	.000		.007
	MD2	.000	.000	.000	.001	.000	.001	.007	

a. Determinant = .004

Communalities Of Product Management Strategies

	Initial	Extraction
MI1	1.000	.815
MI2	1.000	.824

MP1	1.000	.889
MP2	1.000	.873
MB1	1.000	.757
MB2	1.000	.937
MD1	1.000	.918
MD2	1.000	.973

Extraction Method: Principal Component Analysis.

Total Variance Explained Of Product Management Strategies

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.866	60.830	60.830	4.866	60.830	60.830	2.322	29.029	29.029
2	.901	11.265	72.095	.901	11.265	72.095	2.038	25.472	54.501
3	.720	9.005	81.100	.720	9.005	81.100	1.360	16.999	71.501
4	.497	6.216	87.316	.497	6.216	87.316	1.265	15.815	87.316
5	.398	4.971	92.287						
6	.331	4.135	96.421						
7	.157	1.963	98.385						
8	.129	1.615	100.000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix^a Of Product Management Strategies

	Component			
	1	2	3	4
MD1	.891	.347		
MP2	.713		.589	
MI2	.690		.387	.388
MB1	.583	.505	.341	
MB2	.346	.887		
MI1		.766		.347
MP1		.437	.781	
MD2				.933

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 10 iterations.

Item-Total Statistics Of Product Management Strategies

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
MI1	27.50	41.070	.681	.666	.891
MI2	27.88	37.773	.799	.730	.880
MP1	27.43	42.671	.696	.562	.891
MP2	27.71	40.548	.697	.658	.890
MB1	27.83	38.930	.802	.719	.880
MB2	27.44	41.969	.723	.757	.889
MD1	27.97	37.858	.670	.666	.895
MD2	27.51	42.732	.534	.443	.904

Item Statistics Of Product Management Strategies

	Mean	Std. Deviation	N
MI1	4.11	1.120	72
MI2	3.74	1.289	72
MP1	4.18	.939	72
MP2	3.90	1.153	72
MB1	3.78	1.178	72
MB2	4.17	.979	72
MD1	3.64	1.466	72
MD2	4.10	1.153	72

The Second Variable Perceived Product Quality:

Correlation Matrix^a

		QCE1	QCE2	QPF1	QPF2	QD1	QD2	QF1	QF2
Correlation	QCE1	1.000	.683	.516	.460	.406	.472	.567	.673
	QCE2	.683	1.000	.542	.420	.234	.410	.318	.448
	QPF1	.516	.542	1.000	.345	.593	.249	.274	.526
	QPF2	.460	.420	.345	1.000	.299	.422	.314	.496
	QD1	.406	.234	.593	.299	1.000	.395	.316	.547
	QD2	.472	.410	.249	.422	.395	1.000	.578	.645
	QF1	.567	.318	.274	.314	.316	.578	1.000	.577
	QF2	.673	.448	.526	.496	.547	.645	.577	1.000

Sig. (1-tailed)	QCE1		.000	.000	.000	.000	.000	.000	.000
	QCE2	.000		.000	.000	.024	.000	.003	.000
	QPF1	.000	.000		.001	.000	.018	.010	.000
	QPF2	.000	.000	.001		.005	.000	.004	.000
	QD1	.000	.024	.000	.005		.000	.003	.000
	QD2	.000	.000	.018	.000	.000		.000	.000
	QF1	.000	.003	.010	.004	.003	.000		.000
	QF2	.000	.000	.000	.000	.000	.000	.000	

a. Determinant = .018

Communalities

	Initial	Extraction
QCE1	1.000	.816
QCE2	1.000	.883
QPF1	1.000	.860
QPF2	1.000	.954
QD1	1.000	.896
QD2	1.000	.759
QF1	1.000	.811
QF2	1.000	.782

Extraction Method: Principal

Component Analysis.

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.225	52.813	52.813	4.225	52.813	52.813	2.164	27.048	27.048
2	.998	12.473	65.286	.998	12.473	65.286	1.806	22.572	49.621
3	.869	10.862	76.148	.869	10.862	76.148	1.676	20.945	70.566
4	.669	8.363	84.511	.669	8.363	84.511	1.116	13.945	84.511
5	.449	5.618	90.129						
6	.329	4.113	94.241						
7	.299	3.732	97.974						
8	.162	2.026	100.000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix^a

	Component			
	1	2	3	4
QF1	.868			
QD2	.787			.323
QF2	.636		.455	
QCE2		.893		
QCE1	.488	.707		
QD1			.898	
QPF1		.553	.739	
QPF2				.914

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
QCE1	30.26	19.465	.765	.683	.835
QCE2	30.10	21.835	.607	.603	.854
QPF1	30.00	22.338	.604	.575	.854
QPF2	29.99	22.408	.532	.310	.863
QD1	29.97	23.154	.534	.487	.861
QD2	29.94	23.912	.620	.558	.856
QF1	30.10	22.765	.566	.477	.858
QF2	30.17	20.310	.780	.675	.833

Item Statistics

	Mean	Std. Deviation	N
QCE1	4.10	1.115	72
QCE2	4.26	.964	72
QPF1	4.36	.893	72
QPF2	4.38	.971	72
QD1	4.39	.848	72
QD2	4.42	.645	72
QF1	4.26	.872	72
QF2	4.19	.988	72

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Innovation	72	1	5	3.92	1.067	1.138
Pricing	72	2	5	4.04	.922	.850
Branding	72	2	5	3.97	.996	.992
Distribution	72	2	5	3.87	1.055	1.113
Product_Features	72	2	5	4.37	.764	.584
Valid N (listwise)	72					

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Customer_Experience	72	2	5	4.18	.954	.911
Product_Features	72	2	5	4.37	.764	.584
Design	72	3	5	4.40	.626	.392
Functionality	72	2	5	4.23	.826	.683
Perceived_Product_Quality	72	3	5	4.30	.664	.441
Valid N (listwise)	72					

Correlations

		Innovation	Pricing	Branding	Distribution	Product_Management_Strategies	Customer_Experience	Product_Features	Design	Functionality	Perceived_Product_Quality
Innovation	Pearson Correlation	1	.762**	.743**	.761**	.918**	.633**	.553**	.505**	.675**	.715**
	Sig. (2-tailed)		<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
	N	72	72	72	72	72	72	72	72	72	72
Pricing	Pearson Correlation	.762**	1	.710**	.665**	.871**	.536**	.577**	.544**	.657**	.691**
	Sig. (2-tailed)	<.001		<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
	N	72	72	72	72	72	72	72	72	72	72
Branding	Pearson Correlation	.743**	.710**	1	.734**	.892**	.587**	.689**	.611**	.645**	.754**
	Sig. (2-tailed)	<.001	<.001		<.001	<.001	<.001	<.001	<.001	<.001	<.001
	N	72	72	72	72	72	72	72	72	72	72
Distribution	Pearson Correlation	.761**	.665**	.734**	1	.889**	.507**	.533**	.556**	.645**	.667**
	Sig. (2-tailed)	<.001	<.001	<.001		<.001	<.001	<.001	<.001	<.001	<.001
	N	72	72	72	72	72	72	72	72	72	72
Product_Management_Strategies	Pearson Correlation	.918**	.871**	.892**	.889**	1	.634**	.657**	.620**	.734**	.791**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001		<.001	<.001	<.001	<.001	<.001
	N	72	72	72	72	72	72	72	72	72	72
Customer_Experience	Pearson Correlation	.633**	.536**	.587**	.507**	.634**	1	.641**	.490**	.630**	.855**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001		<.001	<.001	<.001	<.001
	N	72	72	72	72	72	72	72	72	72	72
Product_Features	Pearson Correlation	.553**	.577**	.689**	.533**	.657**	.641**	1	.576**	.561**	.828**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001		<.001	<.001	<.001
	N	72	72	72	72	72	72	72	72	72	72
Design	Pearson Correlation	.505**	.544**	.611**	.556**	.620**	.490**	.576**	1	.690**	.792**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
	N	72	72	72	72	72	72	72	72	72	72
Functionality	Pearson Correlation	.675**	.657**	.645**	.645**	.734**	.630**	.561**	.690**	1	.862**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001		<.001
	N	72	72	72	72	72	72	72	72	72	72
Perceived_Product_Quality	Pearson Correlation	.715**	.691**	.754**	.667**	.791**	.855**	.828**	.792**	.862**	1
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	
	N	72	72	72	72	72	72	72	72	72	72

** Correlation is significant at the 0.01 level (2-tailed).

