

CHAPTER 2

OVERVIEW OF THE RESEARCH SETTING

2.1 Introduction and Background

Founded on March 16, 1963, Sierra Leone Brewery Limited embarked on a mission to craft organic beverages within Sierra Leone. Over time, it gained widespread acclaim, emerging as one of the country's foremost brands, collaborating with over 5,000 local farmers for fresh ingredients. Its products are distributed through both formal and informal channels, visible at numerous bustling roadways and intersections nationwide. However, the brewery faced challenges during the civil war (1991-2002) when it was plundered and repurposed by the Revolutionary United Front (RUF) rebels for their accommodation. Post-conflict investments and reconstruction efforts rejuvenated the brewery, leading to increased production, a growing market share, and the initiation of a local sorghum sourcing project. The company is owned and controlled by these Prior stakeholders as Heineken with (83.15%) shares, Guinness with (11.59%) shares, Paterson Zochonis with (3.02%) shares, and Sierra Leoneans with (2.24%) shares.

With a commitment to meeting the escalating demand, Sierra Leone Brewery Limited has invested significantly in expanding its processing capacity. With a heritage spanning over six decades, the company has been a stalwart in the production of both alcoholic and non-alcoholic beverages. Through relentless innovation, they have consistently broadened their product portfolio to ensure customer satisfaction across all levels. Their vision extends beyond mere contractual engagements with stakeholders; they aim to foster enduring and

mutually rewarding relationships that contribute to the country's economic growth, bolstering the Gross Domestic Product (GDP). All their products adhere to stringent certifications and conform to approved local and international standards. Among their offerings are renowned brands like Star Beer, Mutzig Premium Beer, Guinness Foreign Extra Stout, Salone Beer, Trenk Energy Drink, and Maltina Non-Alcoholic. They also distribute other well-known beverages such as Heineken Beer, Strong Bow Cider, Fayrouz Malt Non-Alcoholic Drink, Royal Club Soft Drinks, and Climax Energy Drink.

Sierra Leone Brewery Limited, one of the few beverage companies in Sierra Leone and among the country's oldest, has played a pivotal role in the nation's economy. As of January 2022, manufacturing accounted for 15% of Sierra Leone's gross domestic product (GDP), with an increasing contribution from agriculture. The company's journey began in 1961 when it ventured into manufacturing, driven by the discontinuation of beer supply by Heineken and other global beverage giants. However, during the devastating eleven years of civil war from 1991 to 2002, SLBL faced severe challenges. It not only experienced multiple shutdowns but also witnessed the destruction of its assets and market infrastructure across the country, underscoring the tumultuous backdrop of the Sierra Leone Civil War.

Tragically, the war lasted for 11 years and resulted in a death toll exceeding 50,000 individuals. The following were the initial data from the matter.

Table 2. 1 Sierra Leone Brewery Limited Initial Data

Year	Events
1961-1979	<p>On 23 November 1962, the brewing process commenced, and the first batch of beer was mashed in. The inaugural brand to be brewed was Star Lager.</p> <p>The following product was the leading Product at the start of the company:</p> <ul style="list-style-type: none"> • Star Lager - A pale lager introduced in 1962. • Amstel - A brand of beer. • Guinness Foreign Extra Stout - A robust stout with a 7.5% alcohol by volume (ABV), introduced in 1967. • Maltina - A non-alcoholic beverage. <p>The highest selling product was the Star large bear with the leading profit of (73) million Leones per ton.</p>
1980-1996	<p>In 1982, the brewery temporarily closed for six months due to a foreign exchange shortage. It resumed operations after the conclusion of the rainy season. This serves as a factor for the fall in the production of their goods. After the recession, the company had to develop a strategic marketing campaign to capture the attention of the general public to build a strong customer base.</p>
1997 -1998	<p>Following the 1997 Military Coup, the brewery faced another halt in production for six months when it was ransacked. The company started experiencing low product performance in some strategic areas where it used to have a high demand for its product in the country. Further, this was a result of the ongoing civil war challenges that later led to the shutdown of many firms because of the low demand for products.</p>
1999-2002	<p>On 6 January 1999, rebel forces looted the brewery, causing a production hiatus that lasted for a year and a half. The company used to get its production raw materials from the indigenous areas which were the strategic points that the war started.</p>

In the beginning, Sierra Leone Brewery Limited faced challenges selling its products as people were hesitant to try something new. To overcome this, they distributed their products on credit at restaurants, although this led to financial losses due to some customers not paying back. However, this approach helped raise awareness about their brand, and as people began to like their products, retailers

started requesting more. The brand, committed to staying connected with Freetown's vibrant street culture, frequently integrates its identity into the cityscape with colourful murals. Furthermore, when introducing new flavours, the manager and team actively solicit feedback from regular pedestrians to ensure a collective perspective in their product development process.

Sierra Leone Brewery Limited, at present, manufactures a wide range of beverage products and directly employs approximately 1000 staff, while also creating jobs for more than 5000 indirect employees through its production and marketing networks. In the aftermath of the 2015 Ebola outbreak in Sierra Leone, SLBL seized the opportunity presented by additional taxes on imported alcohol products and expanded its production capacity. This expansion involved the installation of a new production facility equipped with state-of-the-art facilities, reflecting the company's commitment to growth and adapting to evolving market conditions.

Sierra Leone Brewery Limited (SLBL) is headquartered in Wellington Estate, Freetown, Sierra Leone, and stands out for its commendable adherence to the nation's Local Content Policy despite its affiliation with the Heineken Foundation and external shareholders. As the leading producer of both alcoholic and non-alcoholic beverages in Sierra Leone, SLBL not only broadens its customer base but also actively engages in significant community development projects, showcasing its impressive achievements. To further reinforce its commitment to the Local Content Policy, SLBL utilizes locally cultivated sorghum in the production of some of its beverages. This initiative has led to a substantial increase in sorghum farmers

and their families, exceeding 25,000 across various districts with favourable conditions. SLBL consistently supports these farmers in various ways to enhance their yields and meet market demands, fostering a mutually beneficial partnership between the brewery and the sorghum growers. This collaboration ensures a steady income stream for the farmers, enabling effective household financial management, while SLBL's distribution network primarily comprises Sierra Leoneans, with only a few foreign entrepreneurs as exceptions.

Sierra Leone Brewery Limited (SLBL) is defined by a core value that deeply resonates with this research on Factors Affecting New Product Development in the Competitive Beverage Market as - 'PASSION for Consumers and customers.' (<https://www.slbrewerylimited.com>) SLBL is not just a significant player in the beverage industry; it is propelled by an unyielding dedication to comprehending and fulfilling the needs and desires of its consumers. The 'PASSION for Consumers & Customers' value embodies the essence of SLBL's approach to brand-building, where the consumer's voice is of paramount importance. It's a philosophy that drives the crafting of the highest quality beers and beverages, designed not only to meet but to surpass customer expectations.

This value reflects an unwavering commitment to consumer satisfaction and serves as a guiding principle in this research. As I navigated the intricacies of new product development, I, 'm perfectly aligned with SLBL's vision of delivering excellence to consumers and achieving mutual success in the fiercely competitive beverage market.

In addition to SLBL's core value, its organizational logo is prominently featured throughout this research. The logo signifies the organization's pledge to deliver top-notch beverages while embracing innovation. It stands as a visual representation of SLBL's values and their distinct position within the industry. As I delve into the factors that influence new product development, I remain mindful of the 'PASSION for Consumers & Customers' that propels SLBL's accomplishments, as well as the courage to dream and pioneer, which is another integral facet of their corporate identity. These values, along with the organizational logo, are thoughtfully interwoven into the fabric of this research, ensuring that the findings are in harmony with SLBL's unwavering commitment to consumer satisfaction, innovation, and sustainable growth.

2.1.1 Organisational Structure

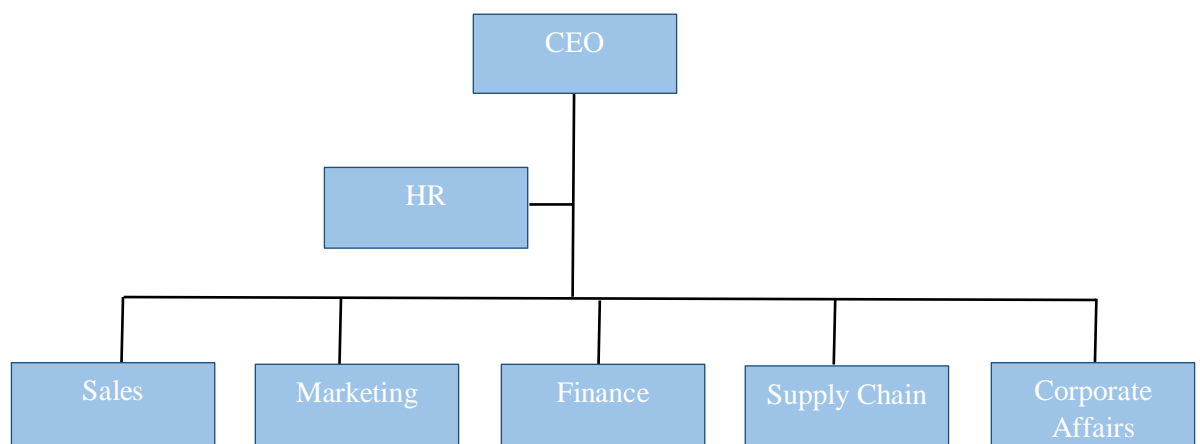


Figure 2.1 Organisational Structure

SOURCE: factors affecting new product development at the Sierra Leone Brewery Limited (Dec 2023).

In the SLBL industry, the organizational structure comprises essential roles, including the CEO, HR, Sales Manager, Marketing, Finance, Supply Chain, and Corporate Affairs. At the apex of this hierarchy, the CEO undertakes the role of ultimate authority, bearing responsibility for the company's holistic performance and strategic decision-making. With an extensive span of influence, the CEO exercises oversight over the entire organization. The HR Manager, entrusted with the management of the workforce encompassing tasks such as recruitment and employee relations, typically reports to the CEO, overseeing a team with a span of control that fluctuates in response to the organization's size. The Sales Manager directs both domestic and international sales endeavours, establishes performance targets, and supervises sales teams, potentially reporting to the CEO or a Vice President of Sales and Export. Similarly, the leaders of the Marketing, Finance, Supply Chain, and Corporate Affairs divisions report to the CEO or senior executives and manage their respective departments, with the scope of their control contingent upon the organization's specific configuration and prerequisites.

The extent of control for each role in this hierarchy differs, with the CEO having the broadest scope, governing the entire company. The HR, Sales Manager, Marketing, Finance, Supply Chain, and Corporate Affairs positions exhibit variances in their scope of control based on the organization's magnitude and intricacy. This range commonly entails the management of teams or divisions, accommodating anywhere from a few employees to several dozen, to align with the organization's distinct demands and framework.

Sierra Leone Brewery Limited (SLBL), the country's leading producer of alcoholic and non-alcoholic beverages, has recently introduced 30cl canned drinks to the market, a move well-received by its numerous customers. SLBL's product portfolio includes popular beverages like Star Lager Beer, Salone Beer, Mutzig Premium Lager Beer, Guinness Foreign Extra Stout, Maltina, and Trenk Dark Malt Energy drinks, among others. The company operates with unwavering dedication, consistently striving to meet the beverage preferences of its valued customers, both domestically and internationally. Notably, SLBL has played a pivotal role in maintaining sanitation standards within its operational sphere and beyond since its inception.

2.2 Overview of the Research

In the highly competitive beverage market, researching the factors influencing new product development is of utmost significance. This industry is marked by its rapid evolution, driven by shifting consumer preferences and intense competition. Therefore, understanding and streamlining the process of introducing new products is crucial for the growth and sustainability of companies operating in this sector. This research focuses primarily on delving into the intricacies of new product development within the beverage market, with a specific lens on Sierra Leone Brewery Limited (SLBL), which uniquely produces both alcoholic and non-alcoholic beverages. This duality presents SLBL with distinct challenges and opportunities in bringing innovative products to market.

The key variables for factors affecting new product development were identified in terms of time, cost, promotion, packaging, competitors, price, product

name, target market, and new product testing. These variables encapsulate critical aspects that significantly influence the outcomes of new product development initiatives. The speed at which a product reaches the market is vital for seizing opportunities and maintaining a competitive edge. Managing costs effectively is essential to ensure that new products contribute positively to a company's bottom line. Crafting compelling promotional and marketing strategies is pivotal for building product awareness and fostering consumer engagement. Packaging not only shapes consumer perceptions but also plays a vital role in the logistics and distribution processes. Thoroughly comprehending and analyzing the competitive landscape is indispensable for effectively positioning new products and discovering unexplored market niches. Pricing strategies must be carefully aligned with production costs, competitive dynamics, and consumer willingness to pay. The choice of a product name has far-reaching consequences for brand identity and recognition. Identifying the target market and tailoring products to meet specific consumer needs are fundamental aspects of successful product development. Finally, rigorous testing of new products is vital to ensure they meet stringent quality and safety standards and perform as intended.

The research problems uncovered in this context are common challenges faced in new product development across various industries. The absence of consumer research can result in products that fail to resonate with the intended audience, leading to market underperformance. Misinterpretation or disregard of government regulations can lead to compliance issues and delays in product launches. Inadequate training programs can hinder employees' effectiveness in contributing

to new product development, potentially stifling innovation and efficiency. Failing to adequately train marketing personnel for new products can undermine the effectiveness of promotional efforts and product positioning in the market.

By investigating these variables and addressing the identified research problems, the research intends to provide practical recommendations and strategies for SLBL and other industry players. These recommendations will assist companies in navigating the challenges and seizing opportunities in the intricate process of new product development, ultimately enhancing their competitiveness and market success.

2.3 Processes (Stages) of New Product Development at Sierra Leone

Brewery Limited

In the earlier sections, the significance of new products in this research and the importance of fostering an environment and mindset conducive to their successful development was discussed. The subsequent portion of this overview focuses on the operational mechanisms of this process. The Sierra Leone Brewery has a clear understanding of the objectives of a specific development initiative and possesses proficiency in all facets of its business operations. Undoubtedly, this awareness stands as a crucial prerequisite for effectively implementing the steps outlined in this section.

Similar to a recipe that adapts to changing tastes and ingredients, Sierra Leone Brewery Limited (SLBL) has finely tuned its New Product Development (NPD) processes to align with dynamic market trends and business needs. This flowchart

delineates the essential phases within Sierra Leone Brewery Limited's (SLBL) New Product Development (NPD) process. It commences with the articulation of goals and progresses through successive stages, including market research, ideation for innovation, development of concepts, feasibility analysis, and allocation of resources, creation of prototypes, testing and validation, refinement, initiation of full-scale production, market launch, and post-launch evaluation.

The Sierra Leone Brewery Industry (SLBL) aims to introduce innovative products, with a focus on using sorghum local raw materials. This strategic approach not only brings freshness and uniqueness to their offerings but also contributes to the local economy.

In the initial stages of Market Research, SLBL dedicates attention to the extraction of this raw materials, particularly sorghum. The choice of these materials is informed by comprehensive market research, considering local preferences and the competitive landscape. This ensures alignment with market demands and potential differentiation for a competitive advantage.

After raw material extraction, SLBL engages in the Innovation Ideation process. This involves creative brainstorming sessions to explore novel ways of utilizing the extracted raw materials, leading to the development of unique and appealing beverage products.

The Concept Development stage corresponds to the physical processing of raw materials at SLBL's factory. This includes the removal of waste and extraction of liquid, marking the formation of the product concept as basic components are identified.

Following extraction, SLBL conducts a Feasibility Analysis to assess the practicality of using the liquid for various products. Factors such as cost, technical feasibility, and market demand are considered to ensure that proposed products are viable and aligned with business objectives.

As the liquid is processed with different ingredients and vitamins, Resource Allocation comes into play. This stage involves strategic decision-making to efficiently utilize available resources, creating a diverse and appealing product range.

Moving into Prototype Development, SLBL introduces various ingredients and vitamins into the processed liquid, experimenting with formulations. This step is crucial in creating unique product prototypes that serve as the basis for further testing and refinement.

The Testing and Validation phase, aligning with stages of heating and packaging, ensures that developed products meet quality standards and are market-ready, guaranteeing both safety and consumer satisfaction.

In case of issues or opportunities for improvement identified during testing, SLBL enters the Refinement stage. Adjustments are made to product formulations or production processes to enhance overall quality and address concerns.

The final stage involves Full-Scale Production, marking the culmination of the New Product Development process. At this point, SLBL is ready to distribute and offer the refined and validated products to consumers at scale.

Processes (Stages) of New Product Development at Sierra Leone Brewery Limited

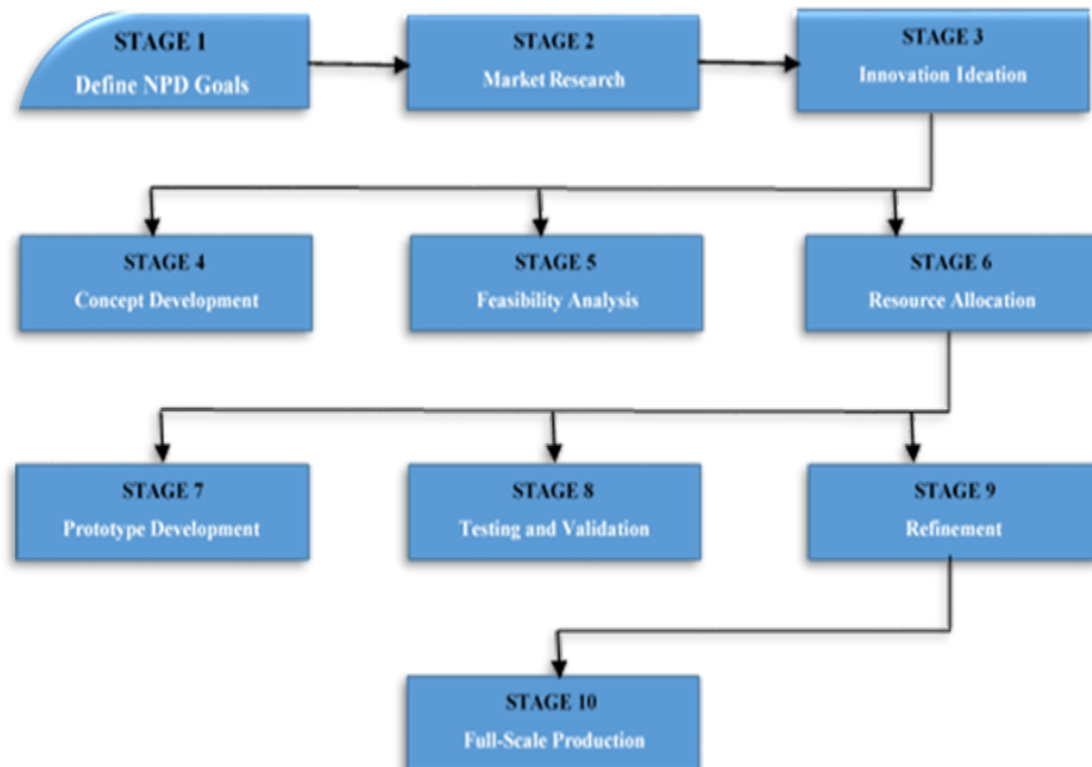


Figure 2.2 Processes (Stages) of New Product Development at Sierra Leone Brewery Limited

2.4 The Consumer and New Product Development

The outcome of successful new product development is the fulfilment of latent or previously unmet needs. While this objective specifically pertains to "new products," there is substantial debate indicating that existing needs can always be addressed more effectively. (Shafiee, 2022) proposes that all markets can be differentiated by the development of superior products, and advises managers against underestimating the benefits of even small differences between products.

From the perspective of a potential buyer, a product represents a multifaceted collection of value that aims to satisfy various needs. The core offering itself serves as the minimum requirement, comparable to table stakes in poker, enabling the producer to participate in the competitive market. However, it is the strategic actions taken in the market that yield results, specifically in terms of acquiring and retaining customers (Crick et al., 2022). Consequently, a logical outcome of this process is the branding of functionally similar products. Therefore, successful product development, particularly in evolutionary contexts, involves more than just the creation of a physical product. Hence, the sector is gaining a greater understanding of its responsibility and commitment to fostering sustainable advancements in new product development for society (Villamil et al., 2023).

There must be an increment in focus on new product development. Understanding consumer needs, desires or preferences has led to an extensive body of literature in two traditionally independent disciplines: business and science. There is an increasing interest by both marketing researchers and consumer scientists to better assess the moderating role of consumer involvement in product choice and purchase and to understand its influence on consumer attitudes. (Park et al., 2007).

A market-oriented approach to new product development (NPD) is seen as a key to success in competitive and ever-evolving consumer markets and is linked to higher profitability and success at developing new products (Bogue & Repar, 2023). Being market-oriented means engaging the consumer and generating consumer insights to drive the New Product development process. This chapter presents three

advanced market-oriented methodologies that integrate consumer insights into the process of developing new functional foods: sensory analysis, conjoint analysis, and new technologies that can be used to support the process of generating market-oriented consumer insights. (Beacom et al., 2022). Understanding consumer pain points remains a critical driver in creating and delivering a compelling customer value proposition that meets their diverse financial service needs. (Iheanachor et al., 2021).

Extensive discussions on the concept of product development can be found in the literature, particularly in the realm of innovation management research. However, upon analyzing the overview of product development practices, it becomes evident that the majority of references and case studies focus on the manufacturing sector, including areas such as telecom, aviation, and transportation. Comparatively, there is a scarcity of studies examining product development practices within the financial service sector, particularly from the perspective of emerging economies.

2.5 The Double Uncertainty of New Product Development

As a result of this double-edged uncertainty, epistemic and ontic, the exclusive use of traditional forecasting techniques for New Product development decision-making is likely to be misleading (Derbyshire & Giovannetti, 2017). However, once a new product's diffusion has reached a certain threshold, its further diffusion may be more amenable to estimation using probabilistic methods, because the disturbance to the strategic landscape resulting from the introduction of the new product has taken effect, with the new strategic environment then fully emergent

and stable at least for a time. Crucial New Product development decisions tend to invoke responses from rivals, which are highly unpredictable, leading to cascading changes that can take a long time to fully play out, and which are subject to high levels of indeterminism. Nevertheless, because of the relative stability that ensues for a time once a new product's diffusion has reached a critical threshold, after which its further diffusion is subject to positive feedback, insights from diffusion forecasting can be useful.

We later discuss how to identify this critical threshold as part of a combined scenario planning and forecasting approach to mitigating the uncertainty of NPD (Derbyshire & Giovannetti, 2017). In light of the double-edged uncertainty of NPD, what is needed is an approach capable of dealing with both probabilistic risk and, before this, the non-probabilistic and more fundamental uncertainty associated with whether the product even reaches this critical threshold in the first place. The adapted IL procedure we subsequently outline is designed to be just such an approach.

The double uncertainty in New Product Development (NPD) refers to the inherent risks and uncertainties that companies in Sierra Leone face during the process of developing and launching new products (Chin et al., 2009).

These uncertainties can be categorized into two main dimensions:

Technical Uncertainty: This dimension of uncertainty arises from the technological challenges and complexities associated with developing new products (Nylén & Holmström, 2015). It involves uncertainties related to the product design, engineering, manufacturing processes, and technical feasibility.

Companies often encounter obstacles and unknowns as they push the boundaries of innovation and attempt to create novel solutions. Technical uncertainty requires company to invest in research and development, prototype testing, and experimentation to mitigate risks and ensure the successful development of new products.

Market Uncertainty: Market uncertainty arises from the unpredictable nature of customer preferences, market dynamics, and competitive forces (Schulze et al., 2022). It involves uncertainties related to customer demand, market acceptance, competition, and pricing. Companies face challenges in accurately forecasting customer needs and preferences, predicting market trends, and identifying the right target segments. Market uncertainty requires company to conduct market research, gather customer insights, and test the market response to reduce risks and align their new products with market demands.

The double uncertainty in New Product development reflects the combined challenges and risks associated with both technical and market aspects (Taghvaei & Talebi, 2023). Companies must navigate through these uncertainties, often simultaneously, to develop innovative products that not only meet technical requirements but also satisfy customer needs and achieve market success. Managing these uncertainties requires a balance of technical expertise, market insights, agile development processes, and effective risk management strategies.

Acknowledging and addressing the double uncertainty in New Product development is crucial for companies to make informed decisions, allocate resources effectively, and increase the chances of successful new product

introductions. It highlights the need for systematic approaches, such as iterative prototyping, market testing, customer feedback integration, and continuous evaluation, to manage and mitigate risks in both technical and market domains throughout the New Product development process.

2.6 Process Activity Flow Performance Dynamics

The successful introduction of new products is crucial for a company's long-term viability. Unfortunately, the failure rate of these products can reach as high as (50) per cent. With such high stakes and a common occurrence of failures, it becomes imperative to analyze the relationship between the various components of effective new product development and their influence on the key success factors that evaluate the effectiveness of the process dynamics (Hsu & Fang, 2009).

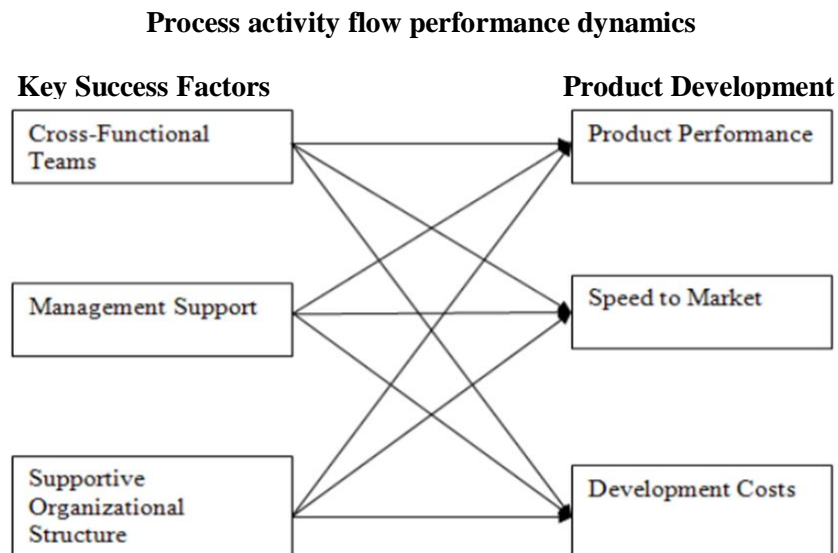


Figure 2.3 Process Activity Flow Performance Dynamics
Source: article Publication (Schimmoeller & Schimmoeller, 2010)

These factors are interrelated and collectively impact the efficiency and success of new product development in organizations. Cross-functional teams, composed of experts from various departments, enhance collaboration and knowledge sharing, facilitating efficient product development. Management support is crucial for securing resources and fostering an innovative culture. A supportive organizational structure streamlines decision-making and responsibilities, reducing obstacles (Sadrzadehrafiei et al., 2013).

Product performance is influenced by effective collaboration, sufficient resources, and streamlined processes (Huang & Newell, 2003). Speed to market, or the rapidity of product development and launch, is accelerated by cross-functional teams, management support, and organizational efficiency. Lastly, development costs are managed effectively through coordinated teams and strategic resource allocation.

The idea explored was that the process of developing a new product can be deconstructed into its distinct components, namely product performance, speed to market, and development cost. Each of these components is influenced by specific key success factors, including cross-functional teams, management support, and a supportive organizational structure. To validate this notion, existing literature on product development was thoroughly examined to identify evidence supporting these relationships.

2.7 The Speed of New Product Development

New product development (NPD) is complex and is becoming more so. New Product development leaders have always had to understand evolving customer needs (Dess & Picken, 2000), carefully exploit the benefits of emerging technologies, and work to align the many stakeholders required for new product success. But the pace of change is accelerating, and the tools that have served New Product development well for decades are beginning to fail. Why is this? Simply put, the tools were designed for a more stable world. New digital technologies are changing the speed of innovation, the design space for physical products, and the business models for delivering them, often all at once (Casciani et al., 2022). As a result, the problems we are dealing with today are in many ways new ones.

The emergence of certain trends provides glimpses into the future landscape (Krotov, 2019). Amazon stands as an example, utilizing a formula based on a steadfast dedication to customers, quick experimentation to identify effective strategies and a mix of action-driven urgency and deliberate learning. Furthermore, Amazon adeptly repurposes its internal assets, transitioning from books and CDs to hosting storefronts for other retailers, evolving into a prominent logistics company, and leveraging its software infrastructure for web services, AI, and education. This transformative trajectory signifies Amazon's ability to blur industry boundaries, exhibiting an unwavering commitment to sustained innovation.

Numerous companies have encountered challenges when grappling with innovation amid profound changes (Chesbrough, 2010). Many have implemented open innovation programs, launched platforms for employee engagement and idea

flow, established incubators and research hubs in innovation hotspots, and sought to streamline internal processes. However, these endeavours prove insufficient. It is imperative to develop additional practices that expedite innovation and navigate the intricacies of an interconnected world (Journal, 2023). This issue offers insights and cues for embracing the future of accelerated innovation.

The world of innovation is changing rapidly. Companies are experimenting with new tools, many of which are adaptations of methodologies that have been used for years (Purnama et al., 2023). These include adaptations to Stage-Gate systems, Lean Startup in the corporate context, the application of next-generation technology to the New Product development itself (Kruachottikul et al., 2023), and experimentation with new structures for innovation. Nowadays, innovation managers and entrepreneurs frequently contend with significant market uncertainty, especially when crafting new products and services to meet swiftly shifting customer requirements and preferences (Mariani & Nambisan, 2021).

2.7.1 Measurements of New Product Development

Development is not consistent throughout the literature but most variations of measurement focus on product performance, development time, and the cost of development. Successful new products in the service industry can be more difficult to measure than manufacturing products but may use the same measurement categories. Product performance may be defined as the product performing to its specification.

Quality may be analyzed as a separate measure but it is common to assume that products meeting specifications are quality products and meet the needs of the customer. Product specifications are typically created by marketing and used by the development team to determine the features of the product being offered. Product specifications usually include the features of a product and its target market and cost. Marketing is tasked with determining the product performance requirements and it is the development team's charter to meet those specifications.

While determining customers' needs is critical to a successful product development, the scope of this review is limited to the product development team and so will consider the process of developing the product after receiving the specification from marketing. Speed of development time is important for company survival. Firms focus on gaining a competitive advantage by developing products in short periods. Rapid product development allows a company to react quickly to changes in the competitive environment and has been identified as an attribute of successful firms. By developing products faster, companies not only bring them to market quicker, but they can launch additional products with the same level of resources.

The cost of project teams to develop new products is mission-critical to the success of a firm. It does more than affect the bottom line; it can be linked to the number of projects a company can develop with limited resources. A company that spends fewer resources than competitors on new product development may choose to do additional development or use the saved money for other competitive advantages. The results of reduced development costs for the firm may only

marginally improve the bottom line; it is the ability to seize market opportunities that present the biggest opportunity.

2.7.2 The Risk and Uncertainty of New Product Development

New product development is a critical process for companies across various industries, including technology, healthcare, automotive, and consumer goods. While launching innovative products can bring significant rewards in terms of market share and profitability (Leyva-de la Hiz & Bolívar-Ramos, 2022), it also involves inherent risks. In this article, we explored the common risks associated with new product development and strategies to mitigate them. While the risks associated with new product development are real and significant (Mousavi et al., 2021), they can be effectively managed and mitigated through careful planning, market research, technical diligence, and adaptability. Successful new product launches often result from a combination of innovation, risk management, and a deep understanding of market dynamics. By addressing these challenges proactively, companies can increase their chances of bringing successful, market-ready products to consumers.

"The Influence of Market Orientation on New Product Success: A Meta-Analysis" by (İpek et al., 2023). This meta-analysis examines the relationship between market orientation and new product success, revealing how customer-centricity enhances New Product development outcomes. These academic works and business articles provide valuable insights into the opportunities associated with adopting new product development strategies. They emphasize the

significance of New Product development for firm performance, customer value, competitive advantage, and long-term success in today's dynamic and innovative business environment.

The process of product development can be likened to an information-generating journey. It commences with the assimilation of data regarding market opportunities and technical potential. Subsequently, this data is transformed into vital informational resources essential for the production and delivery of a product.

Inherent in this process is the challenge of grappling with substantial uncertainty. At the outset, the final product specifications, often referred to as the "recipe," remain elusive and crystallize gradually throughout the development phase. Consequently, decision-makers must navigate their path with incomplete information at hand. As the product evolves, the shroud of uncertainty gradually recedes, though not necessarily in a linear fashion. Various risks accompany product development, encompassing market-related uncertainties such as demand fluctuations, cash flow variations, and resource access issues. Technical and operational challenges pose completion risks, while regulatory complexities, concerns about social acceptance, and sovereign risks add to the institutional risks associated with such endeavours.

Across these risk categories, uncertainty tends to be most pronounced during the initial planning stages and gradually subsides as the project advances. For instance, regulatory risks tend to dissipate once the requisite permits are secured, and technical challenges diminish as engineering experiments are conducted, design elements are defined, and construction reaches completion. Any errors or

challenges that arise can be identified and rectified as the system begins its operational phase.

The information serves as a vital tool in mitigating uncertainty (Shukla et al., 2023). This information is generated through a series of activities, including experimentation, testing, analysis, and implementation. The strategic choice of when and what type of information to create becomes pivotal in enhancing the overall value of the project. It is worth noting that a lack of value often emerges not from conducting superfluous activities but from carrying out essential tasks with inadequate or incorrect information, necessitating costly revisions.