
MANAGEMENT STRATEGY FOR NEW PRODUCT DEVELOPMENT IN ENHANCING COMPANY COMPETITIVENESS IN THE DIGITAL ERA

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Abstract

Management strategy for new product development is a crucial factor in enhancing company competitiveness, particularly in the rapidly evolving digital era. Amidst increasing global competition, companies are required to continuously innovate and adapt relevant strategies to survive and thrive. New product development involves not only technical aspects but also the consideration of market demands, shifting consumer preferences, and the application of digital technologies that accelerate the innovation process. In this context, management strategy plays a vital role in formulating effective approaches, including market research, technology-based product development, and digital marketing that can increase customer engagement. This paper discusses how management strategy can be applied in new product development to strengthen a company's competitiveness in a global market increasingly influenced by digital transformation. With the right approach, companies can respond to rapid changes and optimize existing market opportunities while mitigating potential risks. This research highlights the importance of integrating product development with management strategies based on digital technologies to achieve long-term success in an increasingly competitive business world.

Keywords: Management Strategy, New Product Development, Company Competitiveness

INTRODUCTION

In the contemporary business landscape, the rapid advancement of digital technologies and the increased interconnectedness of markets have transformed the way companies approach competitiveness. The digital era, characterized by innovations in artificial intelligence, big data, cloud computing, and the Internet of Things, has revolutionized business operations across industries (Porter & Heppelmann, 2014). Companies today face a dynamic and highly competitive environment, where staying ahead in the market requires constant adaptation, particularly through innovation in product development. Product innovation is a key strategy that allows firms to differentiate themselves from competitors, meet evolving consumer demands, and ensure long-term sustainability. This paper focuses on the role of management strategy in new product development (NPD) as a means of enhancing company competitiveness in the digital era.

The concept of product development has undergone a significant transformation in recent years. Traditionally, new product development was centered on the creation of tangible goods or services that met the needs of consumers. However, with the advent of digital technologies, product development has expanded to encompass digital products, services, and experiences (Cooper, 2019). In today's digital era, NPD is no longer confined to just the physical product; it also involves creating digital

interfaces, platforms, and integrated systems that provide value to customers. The strategic management of this process has become a critical factor in determining whether a company can maintain a competitive edge in an ever-evolving market (Ulrich & Eppinger, 2015). Thus, the management of NPD in the digital era is a complex process that requires an understanding of both technological trends and market dynamics.

In the past, the focus of NPD was on improving the existing products, often with incremental innovation. However, today's fast-paced market conditions require more radical approaches, with firms being pushed to develop entirely new products or services that can disrupt existing market structures (Christensen, 1997). Digital technologies offer companies the ability to quickly prototype, test, and refine new ideas, thus facilitating faster innovation cycles. At the same time, the integration of digital technologies into products or services has led to new challenges related to intellectual property, data security, and customer privacy (Westerman, 2014). As a result, companies must not only focus on technological innovation but also on creating sustainable strategies that integrate market needs, customer expectations, and technological feasibility.

An effective management strategy for NPD in the digital era requires careful consideration of several factors. First, companies need to focus on market research to identify emerging trends, customer preferences, and potential gaps in the market. The ability to understand customer needs and anticipate future demand is crucial to the success of NPD (Kotler & Keller, 2016). Digital technologies, such as big data analytics and machine learning, can provide valuable insights into customer behavior and market trends, enabling companies to make data-driven decisions. Furthermore, businesses need to develop robust product development processes that allow for flexibility and agility. Traditional, linear product development models are often too slow to respond to the fast-paced digital market; therefore, agile methodologies have gained popularity as a way to accelerate product development (Rigby, Sutherland, & Takeuchi, 2016). Agile practices allow teams to quickly iterate and adapt to changing requirements, ensuring that products remain relevant and competitive.

Moreover, the integration of digital technologies into products and services demands that companies focus on digital capabilities and the skill sets of their teams. Effective management of digital transformation in NPD requires that companies invest in the right technologies and build a workforce capable of leveraging those technologies. This includes providing employees with the necessary training in digital tools, as well as fostering a culture of innovation and experimentation (Brynjolfsson & McAfee, 2014). Leadership plays a pivotal role in shaping the strategic direction of NPD, ensuring that digital transformation aligns with the overall business objectives and market demands. Companies that successfully align their product development efforts with a digital-first mindset are more likely to enhance their competitive advantage and achieve sustainable growth.

In addition to these internal capabilities, companies must also consider external factors when developing new products. In particular, strategic partnerships and collaborations with other firms, technology providers, and even customers can play an essential role in driving innovation. Co-creation and open innovation have become increasingly important in the digital era, where companies collaborate with external partners to generate new ideas, share knowledge, and jointly develop products

(Chesbrough, 2003). These collaborations can take many forms, including joint ventures, strategic alliances, and crowdsourcing initiatives. By leveraging the expertise and resources of external partners, companies can accelerate the development process and create products that are more likely to succeed in the market.

Another important consideration for companies in the digital era is the role of digital marketing in the NPD process. Digital marketing tools, such as social media, search engine optimization (SEO), and content marketing, are essential for building brand awareness, engaging customers, and promoting new products (Kotler et al., 2019). Digital marketing has evolved to become more interactive and personalized, enabling companies to create targeted campaigns that resonate with specific customer segments. Additionally, digital platforms provide opportunities for real-time feedback from customers, allowing companies to refine and optimize their products based on consumer input. This customer-centric approach to product development ensures that companies can create products that meet the demands of an increasingly informed and connected consumer base.

The importance of a well-executed NPD strategy is evident in the success stories of companies that have embraced digital transformation. For instance, Apple's ability to continually innovate its product lineup, from the iPhone to the Apple Watch, has allowed the company to maintain its position as a market leader (Linzmayr, 2004). Similarly, Amazon's focus on customer-centric product development, combined with its vast technological infrastructure, has enabled the company to dominate the e-commerce and cloud computing markets (Stone, 2013). These companies have successfully integrated digital technologies into their product development strategies, creating products that not only meet customer needs but also anticipate future trends.

However, despite the potential benefits, many companies face significant challenges in managing NPD in the digital era. One of the key obstacles is the difficulty in balancing innovation with risk management. The fast pace of technological change creates uncertainty, and companies often struggle to decide which technologies to invest in or how to prioritize their development efforts. Furthermore, companies must be prepared for the possibility of failure, as not all product innovations succeed in the market. Therefore, companies must adopt strategies that allow them to manage risk effectively while remaining agile enough to capitalize on new opportunities (Teece, 2010). This involves fostering a culture of experimentation, where failure is viewed as an opportunity for learning and improvement.

In conclusion, management strategy for new product development is a crucial element in enhancing a company's competitiveness in the digital era. The increasing pace of technological advancements, shifting customer expectations, and changing market dynamics require businesses to continuously innovate and adapt. By implementing effective management strategies that incorporate market research, agile methodologies, digital capabilities, and customer-centric approaches, companies can enhance their ability to create innovative products that meet the needs of today's digital consumers. Moreover, companies that effectively integrate digital technologies into their product development processes are better positioned to maintain a competitive edge and achieve long-term success in an increasingly digital and globalized marketplace.

METHOD

This study adopts a qualitative research approach to explore the strategic management practices employed in new product development (NPD) to enhance company competitiveness in the digital era. The research focuses on understanding how organizations strategically manage the NPD process, particularly in leveraging digital technologies to foster innovation, differentiate their products, and gain a competitive edge. The choice of a qualitative approach allows for an in-depth analysis of managerial perspectives, decision-making processes, and the integration of digital tools into product development practices, providing a comprehensive understanding of the phenomenon in its natural business context.

The data collection process primarily involves semi-structured interviews with managers and executives involved in product development and strategic management within various industries, particularly those embracing digital transformation. This method enables a flexible approach where participants can express their views freely, allowing the researcher to probe deeper into specific areas of interest related to digital NPD strategies. Interviews are chosen as the primary method of data collection due to their ability to generate rich, detailed responses that capture the complexity of managerial decision-making and the nuances of digital technology adoption in product development (Yin, 2018).

The participants are selected based on their expertise in new product development and strategic management within companies that have successfully integrated digital technologies into their NPD processes. By interviewing individuals with direct experience, the study seeks to gather first-hand insights into the strategies, challenges, and outcomes associated with digital-driven product innovation. Data analysis involves thematic coding, where common patterns, themes, and trends related to strategic practices in NPD are identified and interpreted. Thematic analysis is appropriate for this study as it allows for the identification of overarching themes that illustrate the relationship between management strategies and digital transformation in the product development process (Braun & Clarke, 2006).

The findings from these interviews will be analyzed and compared to existing literature on the subject to draw conclusions about best practices in managing NPD in the digital age. This approach provides a nuanced understanding of the ways in which digital tools and strategies contribute to enhancing company competitiveness.

RESEARCH RESULT

The research aimed to explore how management strategies in new product development (NPD) enhance company competitiveness in the digital era, particularly focusing on the integration of digital technologies in the NPD process. This section presents the results obtained from interviews with managers and executives who are directly involved in the NPD process within companies that embrace digital transformation. The findings highlight the significant role of strategic management practices in facilitating the development of innovative products, the use of digital technologies in improving the speed and quality of NPD, and the creation of competitive advantages in the market.

Through thematic analysis, several key themes emerged from the data regarding how digital technologies and strategic management practices in NPD impact company competitiveness. These themes include the role of market research, the adoption of digital tools, the importance of agility in development processes, and the integration of customer feedback in product development. The following section provides a detailed

explanation of each theme, supported by interview data and insights.

1. Role of Market Research in New Product Development

A significant finding from the interviews was the emphasis placed on market research as a critical component of strategic management in NPD. Respondents noted that digital tools, such as big data analytics and AI-driven market research platforms, provide valuable insights into customer preferences and emerging trends. One participant, a senior product manager at a technology company, stated:

"In the digital era, understanding customer needs is more critical than ever. We use advanced analytics tools to identify shifts in consumer behavior, which informs our product development strategies. This helps us stay ahead of competitors by aligning new products with market demand" (Interview, 2025).

The ability to access real-time data and predict future trends has allowed companies to make data-driven decisions, ensuring that new products meet consumer expectations and fill market gaps. This insight-driven approach enables companies to be proactive rather than reactive in their product development efforts.

2. Adoption of Digital Tools in NPD

Another significant theme that emerged was the integration of digital tools in the NPD process. Companies are increasingly adopting digital technologies, including cloud computing, 3D printing, and AI, to accelerate product development and improve product quality. Digital tools have enabled faster prototyping, real-time collaboration, and the automation of repetitive tasks, allowing product teams to focus on innovation and creativity.

One of the participants, a product development director at a manufacturing firm, highlighted the benefits of using digital tools:

"We've integrated cloud-based collaboration tools to allow teams across different locations to work together seamlessly. This, along with the use of AI for rapid prototyping, has drastically reduced our time to market" (Interview, 2025).

The use of AI and machine learning has also facilitated more accurate forecasting of consumer demand, enabling companies to optimize inventory and production processes. This not only improves the efficiency of NPD but also ensures that companies can deliver products that meet market demands without overproduction.

3. Agility and Flexibility in Product Development

The adoption of agile methodologies was another key theme identified during the research. The fast-paced nature of the digital era requires companies to develop new products quickly and efficiently to maintain competitiveness. Traditional, linear NPD processes are often too slow to respond to rapid changes in consumer preferences and technological advancements. As a result, many companies are shifting towards agile approaches, which allow for faster iteration, flexibility, and collaboration.

One participant from a software company emphasized the importance of agility:

"Agility is essential in our development process. With the rapid advancements in technology and changing consumer preferences, we need to be able to iterate quickly and adapt to market demands. Our agile teams work in short sprints, delivering product updates faster and more efficiently" (Interview, 2025).

Agile methods, such as Scrum and Kanban, have allowed companies to break

down large, complex development projects into smaller, manageable tasks, increasing the speed and flexibility of the development process. This has enabled companies to quickly pivot or adapt their products based on real-time market feedback and technological advancements.

4. Customer-Centric Product Development

Another significant finding was the emphasis on customer-centric product development. The research revealed that companies are increasingly engaging with customers throughout the NPD process, using digital platforms to gather feedback, run focus groups, and conduct surveys. Social media platforms, online reviews, and direct customer interactions provide valuable insights into customer preferences and pain points. By integrating customer feedback into the development process, companies can ensure that their products meet or exceed consumer expectations.

A participant from a consumer electronics company explained:

"Customer feedback has become an integral part of our development cycle. We use social media, customer forums, and online surveys to understand consumer preferences. This helps us fine-tune our product designs and ensures we're creating products that our customers truly want" (Interview, 2025).

By incorporating customer feedback, companies not only create more relevant products but also foster stronger customer loyalty and engagement. Digital technologies allow companies to maintain an ongoing dialogue with their customers, ensuring that products remain aligned with consumer needs throughout the development process.

5. Collaboration and Co-Creation with External Partners

Strategic partnerships and collaborations were also identified as crucial components of successful NPD strategies in the digital era. Many companies are collaborating with external partners, including technology providers, universities, and even customers, to co-create new products. These collaborations enable firms to access new technologies, share resources, and accelerate innovation.

One interviewee from an automotive company shared:

"Collaborating with tech firms has been key to our innovation strategy. By co-developing new features with external partners, we've been able to integrate cutting-edge technologies into our products faster and more effectively" (Interview, 2025).

Co-creation allows companies to tap into the expertise and resources of external partners, facilitating the development of new, innovative products. It also enables firms to share the risks and costs associated with product development, making it a more cost-effective strategy.

The table below summarizes the key themes and corresponding findings from the research:

Theme	Key Findings
Market Research	Use of big data and AI tools to identify market trends and consumer preferences, facilitating data-driven decisions.
Adoption of Digital Tools	Integration of cloud-based tools, 3D printing, and AI for faster prototyping, collaboration, and product optimization.
Agility in NPD	Adoption of agile methodologies (Scrum, Kanban) for faster iteration and response to changing market demands.

Customer-Centric Development	Engagement with customers through digital platforms to collect feedback and refine products based on customer needs.
Collaboration & Co-Creation	Strategic partnerships with external tech firms and other stakeholders to co-create innovative products.

The findings of this research indicate that companies leveraging digital tools and adopting strategic management practices in their NPD processes are better positioned to enhance their competitiveness in the digital era. By embracing agile methodologies, integrating digital tools, and engaging with customers throughout the development process, firms can accelerate innovation, reduce time to market, and deliver products that align with evolving consumer demands. These strategies enable companies to stay ahead of the competition, create sustainable advantages, and drive long-term business success.

DISCUSSION

The findings of this study emphasize the critical role of strategic management in new product development (NPD) and its influence on enhancing company competitiveness in the digital era. As companies face increasing pressure to innovate and adapt in a rapidly changing business environment, leveraging digital tools and adopting effective management strategies in the NPD process has become crucial. This discussion delves into how the results of the research align with existing literature, providing insights into the key aspects of NPD that enhance competitiveness in the context of digital transformation.

One of the primary insights from the research is the centrality of market research in guiding NPD strategies. Companies today operate in an environment where consumer preferences and market dynamics evolve rapidly, and traditional market research methods can no longer keep pace with the speed of change. The findings highlight the importance of big data analytics and artificial intelligence (AI) in enhancing the market research process. Digital technologies allow firms to gather, analyze, and interpret vast amounts of consumer data in real-time, providing a more accurate understanding of emerging trends and customer preferences. This ability to obtain actionable insights quickly not only allows companies to make informed decisions about product development but also helps them stay ahead of competitors. As noted by Kotler and Keller (2016), effective market research is vital in identifying market gaps and consumer needs, allowing businesses to tailor their products accordingly. In the digital age, where information is abundant and market conditions fluctuate rapidly, the use of digital tools in market research helps businesses maintain agility and responsiveness.

Another significant finding is the widespread adoption of digital tools in the NPD process. The integration of technologies such as cloud computing, 3D printing, and AI-driven prototyping has accelerated the development of new products. This is in line with the observations of Porter and Heppelmann (2014), who argue that digital technologies enable firms to improve product design, reduce time to market, and optimize production processes. For instance, 3D printing facilitates rapid prototyping, allowing companies to test product designs quickly and make adjustments before committing to mass production. This reduces the risk of failure and allows for cost-effective iterations. Cloud computing, on the other hand, has improved collaboration among global teams, enabling real-time information sharing and communication,

which accelerates the decision-making process. Furthermore, the integration of AI in product design and testing has revolutionized how companies predict consumer demand, optimize features, and identify potential issues in the product lifecycle.

The research also revealed the importance of agility in the NPD process. The adoption of agile methodologies, such as Scrum and Kanban, has enabled companies to be more flexible and responsive to changes in consumer preferences, technological advancements, and market trends. This shift towards agile practices is supported by Rigby, Sutherland, and Takeuchi (2016), who assert that traditional NPD methods are often too rigid to cope with the fast-paced nature of modern markets. Agile approaches break down large projects into smaller, manageable tasks, allowing for faster iteration and more frequent releases of product updates. This not only speeds up the development process but also allows companies to incorporate feedback more efficiently and refine their products based on real-time market conditions. The findings suggest that agile methodologies enable companies to improve collaboration across departments, foster innovation, and quickly respond to emerging opportunities or challenges in the market.

Customer-centricity emerged as another key theme in the research, with companies placing a strong emphasis on engaging customers throughout the NPD process. Digital technologies, such as social media platforms and online surveys, have made it easier for companies to collect customer feedback and integrate it into the product development process. This aligns with Kotler et al. (2019), who argue that understanding and responding to customer needs is crucial for business success. By involving customers early in the development process, companies can create products that are more aligned with market demand, which increases the likelihood of product success. Additionally, customer feedback helps companies anticipate potential issues and make adjustments before the product reaches the market. The integration of customer feedback into the NPD process also fosters stronger customer loyalty, as consumers feel that their opinions are valued and reflected in the products they purchase.

The study also highlights the growing importance of strategic collaborations and co-creation in the NPD process. In the digital era, companies are increasingly working with external partners, including technology providers, universities, and even customers, to co-create new products. These collaborations allow companies to access external knowledge, resources, and technologies, which can help accelerate the innovation process. The concept of open innovation, as proposed by Chesbrough (2003), is particularly relevant in this context, as companies recognize the value of tapping into external expertise and co-developing products with external stakeholders. Collaborations not only provide access to new technologies but also help companies share risks and costs, making the NPD process more efficient and cost-effective. By partnering with other organizations, companies can reduce the uncertainty associated with product development and increase the chances of market success.

The research also underscores the challenges that companies face in balancing innovation with risk management. The digital era has introduced a host of new risks, including cybersecurity threats, intellectual property concerns, and the rapid pace of technological change. As noted by Teece (2010), managing these risks is a critical aspect of strategic management in NPD. While digital tools offer numerous benefits, they also require careful management to ensure that they are used effectively and securely. For

instance, companies must invest in robust cybersecurity measures to protect sensitive customer data and intellectual property. Additionally, the fast pace of technological change creates uncertainty, making it difficult for companies to predict which innovations will succeed in the market. As a result, companies must adopt strategies that allow them to manage risks while remaining agile and adaptable in the face of new opportunities.

Overall, the findings of this study align with existing literature on the role of digital technologies and strategic management in NPD. The use of digital tools, agile methodologies, customer engagement, and external collaborations are all integral components of a successful NPD strategy in the digital era. Companies that effectively integrate these elements into their product development processes are better positioned to stay competitive in a rapidly changing market. The research also highlights the need for companies to carefully manage the risks associated with digital transformation while maintaining flexibility and responsiveness. By adopting a comprehensive approach to NPD that incorporates both digital tools and strategic management practices, companies can enhance their ability to innovate and maintain a competitive edge in the marketplace.

CONCLUSION

In conclusion, the management strategy for new product development (NPD) is an essential component of fostering a company's competitiveness, particularly in the digital era. The rapid advancement of technology has significantly altered the landscape of business operations, making innovation not just an advantage but a necessity for survival and growth. Companies today must adapt to these changes by strategically managing NPD processes to ensure that they remain competitive in an increasingly globalized and technology-driven market.

The integration of digital tools such as big data analytics, artificial intelligence (AI), and cloud computing into the NPD process allows businesses to gather valuable insights into market trends and consumer preferences. This data-driven approach enhances the ability to make informed decisions, leading to products that are more likely to meet customer demands and succeed in the market. Moreover, the adoption of agile methodologies has proven crucial for companies seeking to innovate quickly and efficiently. Agile practices enable firms to respond rapidly to changes in the market, improving both the speed and quality of product development.

Customer engagement is another key factor highlighted in the research. Involving customers throughout the development process helps businesses create products that truly resonate with their target audience. Digital marketing and feedback platforms allow companies to capture real-time data, ensuring that the products they develop are tailored to the evolving needs of consumers. Additionally, strategic partnerships and collaborations have emerged as essential strategies, offering businesses access to external resources, expertise, and technologies that can accelerate innovation and reduce the risks associated with product development.

However, despite the opportunities provided by digital transformation, challenges remain. Companies must navigate the complexities of balancing innovation with risk management, particularly when dealing with issues such as data security, intellectual property concerns, and the rapid pace of technological change. Successful

companies will be those that can leverage digital tools effectively, maintain agility, and manage risks while continuously innovating to meet market demands.

In the digital era, the ability to manage NPD effectively is a critical determinant of competitive advantage. By incorporating strategic management practices that embrace digital technologies, agility, customer focus, and collaboration, companies can position themselves for long-term success in a rapidly evolving marketplace.

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