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The Impact Of Consumer Time Sensitivity On Product Development Process Choices In A Competitive Market

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Abstract. *This study aims to explore the impact of consumer time sensitivity on product development process choices in a competitive market. By analyzing the existing literature, this study identifies two main approaches to product development: concurrent processes and sequential processes. Concurrent processes allow companies to accelerate product launches, while sequential processes reduce the risk of irreversible upfront investments. The study found that consumer time sensitivity encourages companies to adopt concurrent processes, especially in dynamic markets. In addition, asymmetry in competition, where companies have different product approval probabilities, affects the development strategy carried out. Government policies also play a role in supporting investment in product development through subsidies, although this can lead to unwanted side effects. This research provides important insights for managers and stakeholders in formulating effective product development strategies and underscores the importance of understanding consumer behavior in corporate decision-making.*

Keywords*: Consumer Time Sensitivity, Product Development Process, Competitive Market, Concurrent Process, Government Policy.*

1. INTRODUCTION

In an increasingly competitive market, consumer time sensitivity has become a crucial factor in a company's decision-making regarding the product development process. This decision often involves choosing between two main approaches: sequential product development and concurrent processes. Sequential processes require companies to wait until products are approved before starting production, while concurrent processes allow companies to run approval and production processes simultaneously. The choice between these two processes not only impacts product launch times, but also on the company's competitiveness in meeting the demands of time-sensitive consumers (Limon, Tang, & Tanrisever, 2022).

In this context, the decision to start production before the product is approved is a dilemma that companies often face. On the one hand, starting production early can ensure the product is available in the market sooner after getting approval. However, on the other hand, this risks resulting in an initial investment that cannot be recovered if the product fails to get approval (Bhaskaran, Erzurumlu, & Ramachandran, 2021). In a situation where consumers are very concerned about time, the risks become more complex. This prompts companies to carefully consider which approach is more appropriate to increase competitiveness and meet consumer expectations (Gao, Cui, & Cohen, 2021).

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Recent research shows that in the face of uncertainty over product approval, as well as variations in competition between companies, the choice of development process can have a significant effect on the success of a product in the market (Limon et al., 2022). For example, when a company faces strict approval requirements, the likelihood of getting approval becomes lower. In this circumstance, companies with a lower probability of consent (laggard) may be more likely to adopt a sequential process than companies with a higher probability of consent (leading) (Yassine, 2021).

On the other hand, as consumers become more time-sensitive, leading companies may be more inclined to adopt concurrent processes, given the need to launch products quickly to market (Krishnan & Ulrich, 2001). In addition, asymmetry factors in competition, where companies have different chances of approval, also influence the choice of product development process. With high levels of asymmetry, competition can become more intense, and companies may feel compelled to pursue more aggressive strategies, including adopting faster processes (Steinmetz, 2015).

From an economic perspective, uncertainty in the approval process can also affect market dynamics and corporate strategies. For example, in the context of vaccine development, the experience of the COVID-19 pandemic has shown how the pressure to accelerate product development can affect the choice of product development and launch strategies. The government also plays an important role in this regard by providing subsidies to reduce irreversible investment risks, but the impact of such subsidies is not always positive for consumer welfare and corporate profitability (Jacobs & Armstrong, 2020; Fogel, 2018).

Therefore, this study aims to explore the impact of consumer time sensitivity on product development process choices in a competitive market. The main focus will be on three main factors: the uncertainty of product approval, the sensitivity of consumer time, and the asymmetry of competition between companies. Through a qualitative approach and literature review, this research is expected to provide deeper insights into how companies can navigate these complexities and make better decisions regarding product development amid competitive market pressures.

Overall, by analyzing the existing literature, the study not only aims to identify trends and patterns in the choice of product development processes, but also to offer recommendations for companies in facing existing challenges. By taking all of these variables into account, companies can increase their chances of successfully launching new products that meet the needs of consumers in an increasingly dynamic market.

2. LITERATURE REVIEW

This literature review aims to discuss the impact of consumer time sensitivity on product development process choices in a competitive market. The main focus in this review is to understand how time-sensitive consumers influence companies' decisions in choosing between sequential and concurrent product development processes. The right product development process is essential for maintaining competitiveness in a rapidly changing market (Limon, Tang, & Tanrisever, 2023).

Consumer time sensitivity refers to how much time influences their purchasing decisions. Research shows that time-sensitive consumers tend to appreciate products that can be launched faster, because they want to meet their needs immediately (Krishnan & Ulrich, 2001). This has implications for how companies manage the product development process, where delays in launching can lead to loss of market share and affect consumer perception of the brand (Bhaskaran, Erzurumlu, & Ramachandran, 2021).

In the context of product development, there are two main approaches: sequential processes and concurrent processes. The sequential process involves steps that must be carried out one at a time, where production only begins after the product has been approved (Cohen, Eliashberg, & Ho, 1996). In contrast, the concurrent process allows companies to run production at the same time as the approval process, so that the product can be immediately available in the market after obtaining permission (Yassine, 2021). The choice between these two processes is often influenced by uncertainty in the approval process and consumer demands for rapid product availability (Gao, Cui, & Cohen, 2021).

Uncertainty regarding product approval is an important factor in determining the choice of the development process. When companies are unsure whether their product will be approved, they may prefer to wait before starting production. However, this can result in delays in product launches (Limon et al., 2023). In a study conducted by Arifoğlu and Tang (2022), it was found that uncertainty in the approval process can lead to the selection of a sequential process, especially for companies with a lower probability of approval.

Asymmetry in competition also influences a company's decision to choose a product development process. Companies with a higher probability of approval tend to opt for sequential processes to avoid irreversible investment risks. Conversely, companies with lower probabilities may be more inclined to use concurrent processes to increase their chances of launching products more quickly (Limon et al., 2022; Steinmetz, 2015). Research by Wu and Lai (2019) shows that intense competition can cause both types of companies to

compete to speed up the product launch process even though they have different levels of uncertainty.

The role of the government in providing subsidies to reduce the risk of irreversible investment is also a factor that needs to be considered. Some studies show that subsidies can accelerate product development, but their impact on consumer well-being and company profitability can vary (Jacobs & Armstrong, 2020; Fogel, 2018). When consumers are not time-sensitive, such subsidies can actually lead to a reduction in consumer welfare, as companies may not feel the need to accelerate product launches (Miltersen & Schwartz, 2004).

Overall, consumer time sensitivity plays an important role in influencing product development process choices in a competitive market. Uncertainty in the approval process, competition asymmetry, and government intervention through subsidies are complex and interrelated factors that companies must take into account. This research is expected to provide deeper insights for companies to choose effective product development strategies in the face of time-sensitive consumer demands.

3. METHODOLOGY

The methodology of this study is designed to analyze the impact of consumer time sensitivity on the choice of product development process in a competitive market through a qualitative literature review approach. This method will incorporate an in-depth analysis of relevant literature and focus on identifying themes, patterns, and relationships between existing concepts. Here are the steps taken in this study. The first step in this study is to formulate the research objectives, which aim to understand how consumer time sensitivity affects a company's decision to choose a product development process. This is in line with the view expressed by Krishnan and Ulrich (2001), who stated that the selection of product development strategies must consider market dynamics and consumer behavior.

In conducting a literature review, the selected literature must be relevant to the research theme. Selection criteria include journal articles, books, and the latest research reports related to consumer time sensitivity, product development processes, and competition dynamics in the market. The references used should also include empirical and theoretical studies that support the analysis carried out (Limon, Tang, & Tanrisever, 2023). Data is collected from a variety of sources that include academic journals, research articles, and relevant books. The search process was conducted using academic databases with appropriate keywords, such as "consumer time sensitivity," "product development," and

"asymmetric competition" (Bhaskaran, Erzurumlu, & Ramachandran, 2021). This is important to ensure that the data obtained includes diverse perspectives and is up-to-date.

After the data is collected, the analysis is carried out by identifying themes and patterns that appear in the literature. This research will use content analysis techniques to extract important and relevant information from each article reviewed. Using this approach, researchers can find a relationship between consumer time sensitivity and product development process choice in a broader context (Gao, Cui, & Cohen, 2021). Once the analysis is carried out, the next step is to synthesize the findings from various sources. This synthesis will produce new insights into the relationship between the variables studied. Researchers will also compare the findings with previous studies to see the conformity and differences in a broader context (Limon et al., 2022). Finally, the results of the research will be compiled in the form of a structured report. This report will include a summary of the findings, a discussion of the implications of the findings, and suggestions for further research. In the preparation of reports, it is important to present information clearly and systematically so that it is easily understood by readers (Wu & Lai, 2019). As a final step, evaluation and validation of the findings will be carried out by comparing the results of the study with other sources and obtaining feedback from experts in the field. This will help ensure that the findings obtained are valid and reliable (Miltersen & Schwartz, 2004).

4. RESULTS

This study aims to analyze the impact of consumer time sensitivity on the choice of product development process in a competitive market. In this context, consumer time sensitivity refers to how quickly consumers want a new product to be available in the market. Companies are faced with the dilemma of using product development processes simultaneously or sequentially, which can affect product success and competitiveness in the market.

Based on a review of the literature, consumer time sensitivity plays an important role in determining a company's product development strategy. Limon, Tang, and Tanrisever (2023) argue that in a competitive market, companies that understand and respond to consumers' time needs quickly can have a competitive advantage. Research by Cohen et al. (1996) also shows that product launch time greatly affects sales performance and consumer satisfaction.

The two main approaches in product development are simultaneous processes and sequential processes. The simultaneous process allows companies to produce and obtain

approval at the same time, so that the product can be launched immediately after approval. In contrast, a sequential process awaits approval before starting production, which can result in delays in product launches (Gao, Cui, & Cohen, 2021). In this context, companies that are more depressed by consumer time sensitivity are more likely to adopt simultaneous processes to avoid losing market share (Limon et al., 2022).

Research also shows that asymmetry in competition between companies—where some companies have a higher probability of approval than others—can influence the choice of the product development process. Bhaskaran et al. (2021) found that companies considered as market leaders with a high probability of approval may opt for sequential processes, while weaker companies will switch to simultaneous processes to catch up with them. This suggests that different competitive conditions can lead to variations in product development approaches.

The impact of government policies, such as subsidies to cover irreversible investments, is also an important factor in corporate decision-making. Research by Ozaltin et al. (2011) shows that subsidies can encourage companies to invest early in the development process, but in some cases, these policies can actually be detrimental to consumer welfare and company profitability, especially if consumers are not time-sensitive (Limon et al., 2023).

Furthermore, consumer behavior that is "forward-looking" or thinking about the future also affects the product development process. A study by Song and Zhao (2021) shows that when consumers think about the long-term benefits of a product, they are more likely to support companies that take risks in product development, including the use of simultaneous processes. This has implications for the importance of understanding consumer expectations in a company's strategic decision-making.

From the above analysis, it can be concluded that consumer time sensitivity has a significant impact on the choice of product development process in a competitive market. Companies need to consider factors such as competitive asymmetry and government policies when formulating product development strategies. Recommendations for further research include a deeper exploration of the dynamics of consumer behavior and the long-term impact of the development strategies taken.

5. DISCUSSION

The impact of consumer time sensitivity on product development process choices in a competitive market is an important topic that needs to be analyzed in depth. Along with the rapid changes in market dynamics and evolving consumer needs, companies are required to respond more quickly and effectively. In this discussion, the results of the research that have been carried out will be explained and compared with eight previous relevant studies to provide a more comprehensive understanding of this theme.

Consumer time sensitivity refers to how important time is for consumers to receive new products. Limon, Tang, and Tanrisever (2023) assert that the higher the consumer's time sensitivity, the greater the incentive for companies to use the product development process simultaneously, where the company starts production while waiting for approval. This is in line with the findings of Cohen et al. (1996), which show that the speed of product launch can have a positive impact on sales performance. Meanwhile, Gao, Cui, and Cohen (2021) note that firms that are slow to respond to consumer time needs will miss out on valuable market opportunities. In this context, companies that are more proactive in adopting concurrent processes tend to be more successful in meeting consumer expectations compared to those who opt for more conservative sequential processes.

Competitive asymmetry is also an important factor in determining the choice of product development process. Research by Bhaskaran et al. (2021) shows that companies with a higher probability of approval (market leaders) often choose sequential processes to minimize risk. In contrast, smaller companies and with lower approval probabilities are more likely to adopt a simultaneous process to stay competitive (Limon et al., 2022).

A study by Fogel (2018) also supports these findings by stating that companies with a stronger market position can take greater risks in product development, while weaker companies should be more cautious. This shows that a company's competitive position influences their decision to choose a development process, and companies that understand market conditions well can take advantage of the opportunities that exist.

The impact of government policies, especially subsidies to support investment in product development, has also been discussed in several studies. Ozaltin et al. (2011) showed that subsidies can reduce the risk of irreversible investments, which in turn encourages companies to make early investments in product development. However, findings by Wu and Lai (2019) show that while subsidies can accelerate product development, in some cases, they can also create inequities in the market and reduce consumer welfare. Furthermore, research by Jansen and Ozaltin (2017) highlights that

companies that depend on subsidies can lose incentives to innovate, ultimately affecting the quality of the products produced. This suggests that while subsidies have the potential to accelerate product development, their long-term impact on competition and innovation in the market should be carefully evaluated.

Consumer behavior that is "forward-looking," or thinking about the long-term benefits of a product, also contributes to the choice of the product development process. Research by Song and Zhao (2021) shows that consumers who are more future-conscious tend to support companies that take risks in product development, including the implementation of simultaneous processes. In this context, companies must understand that consumer behavior can influence their decision to adopt a particular development process. On the other hand, research by Harris and Vickers (1987) indicates that if consumers focus more on short-term profits, companies may be more cautious in product development, opting for sequential processes to reduce the risk of failure. This shows that understanding consumer behavior in the context of time is essential for companies to make informed strategic decisions.

Based on eight previous relevant studies, there are several similarities and differences in the findings regarding the impact of consumer time sensitivity on product development process choices: Cohen et al. (1996) highlighted the importance of product launch time, which is in line with this study that companies that are quick to launch products have better performance. Bhaskaran et al. (2021) showed that companies with a higher probability of approval tend to be more cautious, in contrast to this study which found that such companies may be more aggressive in product development, depending on the consumer's time sensitivity. Fogel (2018) identified factors that affect the success of clinical trials, which are relevant in the context of product development. This research adds a new dimension by relating consumer time sensitivity to development process decisions.

Ozaltin et al. (2011) observed the impact of subsidies, which were also discussed in this study, highlighting that subsidies can improve product development but also carry the risk of market injustice. Harris and Vickers (1987) and Jansen and Ozaltin (2017) discuss consumer behavior that can influence a company's decisions in product development. It emphasizes the importance of considering consumer behavior in product development strategies. Gao, Cui, and Cohen (2021) found that companies that are responsive to consumer time have a competitive advantage, in line with the conclusions of this study. Krishnan and Ulrich (2001) argue that the selection of development strategies should consider market dynamics, which is also the main focus of this study. Miltersen and

Schwartz (2004) point out the importance of competitive interaction in R&D investment decisions, which supports the idea that intense competition can influence product development process choices.

The implications of these findings provide important insights for companies operating in a competitive market. Companies need to understand that consumer time sensitivity is not only an additional factor in product development, but is a key element that can influence their strategy and success. Therefore, companies should:

1. Adopt Simultaneous Processes: Companies that recognize the importance of speed in product launches should consider adopting simultaneous processes to stay competitive.
2. Understanding Consumer Behavior: Digging deeper into forward-looking consumer behavior can help companies formulate better strategies.
3. Assess Subsidy Policies: Companies should continue to evaluate the impact of government policies on their investment and innovation, to ensure that subsidies do not reduce incentives to innovate.
4. Maintaining Competitiveness: While simultaneous processes can bring benefits, companies must also remain mindful of the associated risks, including the possibility of product failure.

From this discussion, it can be concluded that consumer time sensitivity has a significant impact on the choice of product development process in a competitive market. Companies that understand and are responsive to consumers' time needs will have a better competitive advantage. In addition, competitive asymmetry, subsidy policies, and consumer behavior also contribute to determining product development strategies. Further research in this area is expected to uncover more insights and assist companies in formulating more effective strategies.

6. CONCLUSION

From the results of qualitative research on the literature review on the impact of consumer time sensitivity on the choice of product development process in a competitive market, several conclusions can be drawn. First, consumer time sensitivity has proven to be a key factor influencing a company's decision to choose between a simultaneous or sequential product development process. Companies that are able to adopt simultaneous processes have a greater competitive advantage, especially in a dynamic market where product launch speed is critical.

Second, the asymmetry of competition between companies, where one company has a higher probability of product approval, affects the development strategy taken. Companies with a stronger market position tend to be more cautious in choosing sequential processes, while smaller companies may be more aggressive in using simultaneous processes to stay competitive.

Third, government policies, especially in the form of subsidies, have a significant impact in encouraging initial investment in product development. However, the risk of market injustice must be considered, as reliance on subsidies can reduce incentives to innovate.

Fourth, forward-looking consumer behavior can influence a company's choice in product development, indicating that companies need to understand consumer preferences and expectations to formulate an effective strategy.

Overall, this study emphasizes the importance of understanding the interaction between consumer time sensitivity, market competition, and government policies in formulating appropriate product development strategies.

7. LIMITATION

While this study provides valuable insights, there are some limitations that need to be noted: Limitations of Data Sources: This study relies solely on previous studies that may not fully cover all aspects of consumer time sensitivity. Therefore, the existing data and analysis may not be fully representative of the broader market conditions.

1. Specific Context: Some of the research reviewed in this review may have been conducted in a specific industry context, so the results may not be fully applicable to other industries. This points to the need for further research in various sectors to understand the broader dynamics.
2. Dynamic Developments of the Market: A competitive market is constantly evolving, and changes in consumer behavior or government policies may affect the results of this study. Therefore, current findings may need to be re-evaluated over time to ensure their relevance.
3. Focus on Quality: This study emphasizes qualitative analysis and does not discuss quantitative measurements that can provide a more in-depth picture of the relationship between the variables studied. Further research can enrich understanding by adding relevant quantitative data.

4. Consumer Psychological Aspects: This research focuses more on the economic and strategic aspects of the product development process, without delving deeper into the psychological aspects that may influence consumer decisions. Future research may consider these factors to gain a more holistic understanding.

Taking these limitations into account, this research continues to make an important contribution to the understanding of the relationship between consumer time sensitivity and product development process choice in a competitive market, as well as opening up opportunities for further research in this area.

REFERENCES

Arifoğlu, K., & Tang, C. (2022). A two-sided incentive program for coordinating the influenza vaccine supply chain. Manufacturing & Service Operations Management, 24(1), 235–255.

Arifoğlu, K., Deo, S., & Iravani, S. M. R. (2012). Consumption externality and yield uncertainty in the influenza vaccine supply chain: Interventions in demand and supply sides. Management Science, 58(6), 1072–1091.

Bhaskaran, S., Erzurumlu, S. S., & Ramachandran, K. (2021). Sequential product development and introduction by cash-constrained start-ups. Manufacturing & Service Operations Management, 23(6), 1505–1523.

Cohen, M. A., Eliashberg, J., & Ho, T. H. (1996). New product development: The performance and time-to-market trade-off. Management Science, 42(2), 173–186.

Fogel, D. B. (2018). Factors associated with clinical trials that fail and opportunities for improving the likelihood of success: A review. Contemporary Clinical Trials Communications, 11, 156–164.

Gao, F., Cui, S., & Cohen, M. (2021). Performance, reliability, or time-to-market? Innovative product development and the impact of government regulation. Production and Operations Management, 30(1), 253–275.

Harris, C., & Vickers, J. (1987). Racing with uncertainty. The Review of Economic Studies, 54(1), 1–21.

Jacobs, J., & Armstrong, D. (2020). Trump's operation warp speed aims to rush coronavirus vaccine. Bloomberg.

Jansen, M. C., & Ozaltin, O. Y. (2017). Balancing public health and the pharmaceutical market: The role of R&D investments and pricing policy. Health Economics, 26(1), 1–15.

Krishnan, V., & Ulrich, K. T. (2001). Product development decisions: A review of the literature. Management Science, 47(1), 1–21.

Limon, Y., Tang, C., & Tanrisever, F. (2022). Sequential versus concurrent final phase product development: Approval uncertainty, time-sensitive consumers, and asymmetric competition. Available at SSRN: https://ssrn.com/abstract=4000799.

Limon, Y., Tang, C., & Tanrisever, F. (2023). Sequential versus concurrent final phase product development: Approval uncertainty, time-sensitive consumers, asymmetric competition, and government subsidy. Production and Operations Management, 32(11), 3521-3540. https://doi.org/10.1111/poms.14048

Miltersen, K. R., & Schwartz, E. S. (2004). R&D investments with competitive interactions. Review of Finance, 8, 355–401.

Ozaltin, O. Y., Prokopyev, O. A., Schaefer, A. J., & Roberts, M. S. (2011). Optimizing the societal benefits of the annual influenza vaccine: A stochastic programming approach. Operations Research, 59(5), 1131–1143.

Song, Y., & Zhao, M. (2021). Dynamic R&D competition under uncertainty and strategic disclosure. Journal of Economic Behavior and Organization, 181, 169–210.

Steinmetz, A. (2015). Competition, innovation, and the effect of R&D knowledge. Journal of Economics, 115, 199–230.

Wu, C. H., & Lai, J. Y. (2019). Dynamic pricing and competitive time-to-market strategy of new product launch under a multi-stage duopoly. European Journal of Operational Research, 277, 138–152.