

## ***The Impact Of Scanning Technology And Shopping Convenience On Online Purchase Decisions With The Mediation Of Risk Perception***

### **Pengaruh Teknologi Pemindaian Dan Kenyamanan Berbelanja Terhadap Keputusan Pembelian Online Dengan Mediasi Persepsi Risiko**

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#### **ABSTRACT**

*This article explores the dynamic relationship between scanning technology, shopping convenience, risk perception, and online purchase decisions in the evolving landscape of e-commerce. Utilizing a sample of 60 individuals, the study employs Smart PLS analysis to investigate the direct and indirect effects of scanning technology and shopping convenience on consumer behavior, with risk perception acting as a mediator. The results reveal that scanning technology significantly influences risk perception and subsequently shapes online purchase decisions. While shopping convenience alone does not exhibit a statistically significant indirect effect, the study emphasizes the need for a comprehensive understanding of diverse factors impacting consumer choices. These findings provide valuable insights for businesses, such as PT. Dutagaruda Piranti Prima, to refine strategies and navigate the complexities of consumer behavior in the digital marketplace.*

**Keywords:** Scanning Technology, Shopping Convenience, Risk Perception, Online Purchase Decisions

#### **ABSTRAK**

Artikel ini mengeksplorasi hubungan dinamis antara teknologi pemindaian, kenyamanan berbelanja, persepsi risiko, dan keputusan pembelian online dalam lanskap e-commerce yang terus berkembang. Dengan menggunakan sampel sebanyak 60 orang, penelitian ini menggunakan analisis Smart PLS untuk menyelidiki efek langsung dan tidak langsung dari teknologi pemindaian dan kenyamanan berbelanja terhadap perilaku konsumen, dengan persepsi risiko sebagai mediator. Hasilnya mengungkapkan bahwa teknologi pemindaian secara signifikan mempengaruhi persepsi risiko dan kemudian membentuk keputusan pembelian online. Meskipun kenyamanan berbelanja saja tidak menunjukkan efek tidak langsung yang signifikan secara statistik, penelitian ini menekankan perlunya pemahaman yang komprehensif tentang beragam faktor yang memengaruhi pilihan konsumen. Temuan ini memberikan wawasan yang berharga bagi bisnis, seperti PT. Dutagaruda Piranti Prima, untuk menyempurnakan strategi dan menavigasi kompleksitas perilaku konsumen di pasar digital.

**Kata Kunci:** Teknologi Pemindaian, Kenyamanan Berbelanja, Persepsi Risiko, Keputusan Pembelian Online

#### **1. Introduction**

In the dynamic landscape of e-commerce, the intertwining advancements in scanning technology and the ever-evolving convenience of online shopping have significantly altered the way consumers make purchasing decisions. As the digital realm continues to shape the retail experience, understanding the intricate relationship between technological innovations, the ease of shopping, and consumers' perceptions of risk becomes imperative. The fusion of scanning technology with online retail has ushered in a new era of efficiency and accessibility. Barcodes, QR codes, and other scanning mechanisms have revolutionized the way products are identified, compared, and ultimately selected by consumers. This technological leap not only streamlines the shopping process but also enhances the overall consumer experience, offering a seamless transition from product discovery to purchase (Motta Zanin et al., 2020).

Simultaneously, the convenience of online shopping has become a cornerstone of contemporary retail culture. Consumers now have the power to browse an extensive array of products, compare prices, and make purchases from the comfort of their homes or on the go. The shift towards virtual marketplaces has not only expanded the reach of businesses but has also empowered consumers with an unprecedented level of choice and accessibility. However, amid the technological marvels and the convenience of online shopping, the element of risk looms in the minds of consumers. Perceptions of security, product quality, and the reliability of online transactions can influence the decision-making process. It is at this juncture that the mediation of risk perception plays a pivotal role in shaping consumers' choices in the digital marketplace. This article delves into the multifaceted dynamics of how scanning technology and shopping convenience intersect with the decision-making process of online purchases, exploring the nuanced role played by risk perception as a mediator. By examining these interconnections, we aim to unravel the complex web of factors that contribute to the evolving landscape of online consumer behavior and shed light on the implications for businesses operating in the digital realm (Dryhurst et al., 2020).

In the context of PT. Dutagaruda Piranti Prima, the article titled "The Impact of Scanning Technology and Shopping Convenience on Online Purchase Decisions with the Mediation of Risk Perception" holds significant relevance. As a technology-driven company, PT. Dutagaruda Piranti Prima likely leverages scanning technology as part of its operational infrastructure or product offerings. The discussion on scanning technology delves into its transformative role in the consumer experience, which may resonate with the company's commitment to innovation. Furthermore, the exploration of shopping convenience is particularly pertinent, given the increasing reliance on online platforms for business transactions. PT. Dutagaruda Piranti Prima, as a player in the technology sector, may find insights in how convenience factors into the decision-making processes of its B2B or B2C clientele. Additionally, understanding and managing risk perception is crucial for a company dealing with technology solutions, as clients often harbor concerns related to data security and product reliability. By aligning with the themes of the article, PT. Dutagaruda Piranti Prima can glean valuable insights into consumer behavior and market dynamics, informing its strategies for continued success in the competitive technology landscape.

The phenomenon described in the article, "The Impact of Scanning Technology and Shopping Convenience on Online Purchase Decisions with the Mediation of Risk Perception," captures the intricate interplay of technological advancements, consumer behavior, and market dynamics in the digital age. This phenomenon is marked by the transformative influence of scanning technology on the online shopping experience, revolutionizing the way consumers discover, compare, and ultimately decide on purchases. Simultaneously, the convenience offered by online shopping platforms emerges as a defining characteristic, redefining traditional retail paradigms and providing consumers with unparalleled access, flexibility, and personalized experiences. However, amidst the convenience and technological marvels, the phenomenon acknowledges the undercurrent of risk perception that shapes consumer decisions. This dynamic interaction between technological facilitators, shopping convenience, and risk perceptions reflects a contemporary consumer landscape where businesses must navigate and adapt to the evolving expectations and concerns of their digital-savvy clientele. Understanding and navigating this multifaceted phenomenon is crucial for businesses seeking to thrive in the ever-changing landscape of e-commerce.

The overarching goal of the article, "The Impact of Scanning Technology and Shopping Convenience on Online Purchase Decisions with the Mediation of Risk Perception," is to provide a comprehensive understanding of the complex dynamics influencing consumer behavior in the digital marketplace. The article aims to explore the transformative impact of scanning technology and the convenience of online shopping on the decision-making process

of consumers. By delving into how these technological advancements shape the way consumers discover, evaluate, and choose products online, the article seeks to unravel the intricate relationship between technology and consumer preferences. Additionally, the article addresses the crucial role of risk perception as a mediator, acknowledging that despite the advantages, concerns about security, reliability, and product quality still play a significant role in shaping online purchase decisions. Ultimately, the goal is to offer insights that businesses, such as PT. Dutagaruda Piranti Prima, and others operating in the digital realm can leverage to enhance their strategies, improve consumer experiences, and navigate the evolving landscape of e-commerce successfully (Cori et al., 2020).

## 2. Literature Review

Online purchase decisions have become a dynamic and intricate process shaped by a myriad of factors. In the digital age, consumers are presented with an unprecedented array of products and services accessible through virtual marketplaces (Hamdani et al., 2022). The decision-making journey begins with the initial phase of product discovery, where scanning technologies such as barcodes and QR codes play a crucial role in providing detailed information and facilitating efficient comparisons (Waluya et al., 2019). As consumers navigate through online platforms, the convenience of shopping from the comfort of their homes or on-the-go becomes a compelling factor, influencing their choices. However, amidst the convenience and technological advancements, the element of risk perception becomes a significant determinant in the final decision-making process. Consumers weigh factors such as the security of online transactions, the reliability of vendors, and the perceived quality of products, shaping their ultimate choice. Thus, the online purchase decision is a complex interplay of technological facilitators, convenience, and the nuanced perceptions of risk, reflecting the evolving nature of consumer behavior in the digital marketplace (H. E. Et.al, 2021).

Scanning technology has emerged as a transformative force in the realm of online commerce, reshaping the way consumers interact with products and make purchasing decisions. Barcodes, QR codes, and other scanning mechanisms have become ubiquitous tools that empower consumers with instant access to a wealth of information about a product. This technology facilitates a seamless product discovery experience, allowing consumers to quickly compare prices, read reviews, and access relevant details (R. N. N. N. Et. al., 2021). Moreover, scanning technology enhances the efficiency of transactions by expediting the checkout process, reducing the time and effort traditionally associated with shopping. The real-time information provided through scanning contributes to an informed decision-making process, enabling consumers to make well-researched choices (Tran & Le, 2020). As a result, scanning technology not only streamlines the online shopping journey but also plays a pivotal role in shaping consumer preferences and behaviors, illustrating the profound impact of technological innovation on the modern retail landscape ( et al., 2019).

Shopping convenience in the digital era has become a defining feature of the modern consumer experience, revolutionizing traditional retail paradigms. Online shopping platforms offer unparalleled convenience, allowing consumers to explore a vast array of products and services from the comfort of their homes or virtually anywhere with an internet connection (Dapas et al., 2019). The elimination of geographical constraints and the 24/7 accessibility of virtual marketplaces provide consumers with unprecedented flexibility in making purchases. The convenience extends beyond mere accessibility, encompassing features such as personalized recommendations, easy comparison tools, and streamlined checkout processes. With the advent of technologies like one-click purchasing and hassle-free return policies, online shopping has not only simplified the transactional aspect but has also prioritized customer satisfaction (Ossowski et al., 2019). As consumers increasingly prioritize time and

efficiency in their busy lives, shopping convenience emerges as a fundamental factor shaping purchasing decisions and influencing the overall landscape of contemporary consumer behavior (Kantaros et al., 2023).

Risk perception plays a pivotal role in shaping consumer decisions in the context of online shopping. As consumers engage with the convenience of virtual marketplaces and the efficiency of scanning technologies, underlying concerns about security, product quality, and the reliability of online transactions become prominent influencers (Raj et al., 2020). The perceived risk associated with these factors can either motivate or deter consumers from completing a purchase. Issues such as data privacy, the legitimacy of online vendors, and apprehensions about receiving products as expected contribute to the overall perception of risk (Asnawati et al., 2022). Trust-building measures, such as secure payment gateways, transparent communication of product information, and reliable customer reviews, become critical in mitigating perceived risks. Understanding and addressing these risk factors are essential for businesses operating in the digital realm, as consumer confidence is intricately linked to the success of online transactions. Consequently, risk perception serves as a mediating factor that guides and shapes the decision-making process in the dynamic landscape of e-commerce (Nguyen et al., 2023).

### 3. Research Methods

To investigate the impact of scanning technology and shopping convenience on online purchase decisions with the mediation of risk perception at PT. Dutagaruda Piranti Prima, a random sampling technique will be employed to select a representative sample of 60 individuals from the company's B2B and B2C clientele. Participants will be chosen randomly to ensure a diverse and unbiased representation. The research will utilize Smart PLS analysis, a robust structural equation modeling (SEM) approach, to assess the relationships among variables. The data collected from the selected sample will undergo rigorous analysis using Smart PLS to examine the direct and mediated effects of scanning technology and shopping convenience on online purchase decisions, with risk perception as a mediator. This methodological approach aims to provide a comprehensive understanding of the intricate dynamics influencing consumer behavior in the digital marketplace, offering valuable insights for PT. Dutagaruda Piranti Prima's strategies and operations in the competitive technology landscape. (Ozkeser, 2019).

### 4. Results and Discussions

Multiple regression analysis is utilized in this study to predict the value of the dependent variable using the independent variables, as shown in Table 1.

**Table 1. Direct Test Results**

Path	Original Sample	P value	Decision
ST -> RP	0.025	0.013	Significant
SC -> RP	0.112	0.052	Not Significant
ST -> OPD	0.002	0.021	Significant
SC -> OPD	0.087	0.067	Not Significant
CPV -> OPD	0.001	0.000	Significant

The P values indicate the level of significance. A P value less than 0.05 is considered significant, suggesting a meaningful relationship, while a P value greater than 0.05 indicates a lack of statistical significance. The decision column categorizes whether the relationship is considered significant or not based on the P value.

The observed significance level ( $P = 0.025$ ) in the direct relationship between Scanning Technology (ST) and Risk Perception (RP) is below the conventional threshold of 0.05,

signifying statistical significance. This result indicates that there is a meaningful association between the utilization of scanning technology and the perception of risk among consumers. The implication is that as scanning technology advances, consumers' risk perceptions are influenced. This finding aligns with the broader literature emphasizing the transformative impact of technological innovations on consumer behavior. In the context of PT. Dutagaruda Piranti Prima, recognizing the significance of this relationship underscores the importance of implementing strategies that address and manage consumer perceptions of risk associated with scanning technology, ultimately enhancing the effectiveness of the company's technological solutions in the competitive digital landscape.

The result indicating a P value of 0.112 for the direct relationship between Shopping Convenience (SC) and Risk Perception (RP) suggests a lack of statistical significance, as the P value exceeds the commonly accepted threshold of 0.05. This implies that, in the context of PT. Dutagaruda Piranti Prima, the level of shopping convenience experienced by consumers does not significantly influence their perceptions of risk. While this may initially seem counterintuitive, it emphasizes the need for a nuanced understanding of the specific factors contributing to risk perception in the online shopping environment. For PT. Dutagaruda Piranti Prima, this finding suggests that enhancing shopping convenience alone may not be sufficient to mitigate perceived risks, and other factors related to technology and security aspects might play a more critical role. Further exploration of these intricate relationships could provide valuable insights for the company to tailor its strategies effectively, ensuring a holistic approach to address consumer concerns and foster a more favorable perception of risk in the digital marketplace.

The direct relationship between Scanning Technology (ST) and Online Purchase Decisions (OPD) is found to be statistically significant with a P value of 0.002, which is below the conventional threshold of 0.05. This compelling result underscores the transformative impact of scanning technology on consumer behavior in the context of online purchases at PT. Dutagaruda Piranti Prima. The findings suggest that as scanning technology advances, it significantly influences and contributes to the online purchase decisions made by consumers. This aligns with the broader literature emphasizing the pivotal role of technological advancements in shaping and streamlining the consumer journey. For PT. Dutagaruda Piranti Prima, recognizing this significant relationship underscores the importance of continued investment in scanning technology, as it not only enhances operational efficiency but also serves as a key driver in influencing consumer choices, thereby contributing to the company's success in the competitive digital landscape.

The result indicating a P value of 0.087 for the direct relationship between Shopping Convenience (SC) and Online Purchase Decisions (OPD) suggests a lack of statistical significance, as the P value exceeds the commonly accepted threshold of 0.05. While the findings may initially seem unexpected, they prompt a nuanced exploration of the factors influencing online purchase decisions at PT. Dutagaruda Piranti Prima. The non-significant relationship between shopping convenience and online purchase decisions implies that, in this specific context, factors beyond convenience may weigh more heavily in driving consumer choices. This could include considerations related to product quality, trust in online transactions, or other technological aspects. For PT. Dutagaruda Piranti Prima, these results underscore the importance of understanding the diverse and multifaceted drivers of online purchase decisions among their clientele. Strategic efforts may need to focus on a holistic approach that encompasses various aspects beyond shopping convenience to effectively meet the evolving expectations of consumers in the digital marketplace. Further exploration and refinement of these factors could provide valuable insights for optimizing the company's strategies and enhancing the overall online shopping experience for its customers.

The obtained result revealing a highly significant relationship (P value = 0.001) between Consumer Perceived Value (CPV) and Online Purchase Decisions (OPD) underscores a crucial aspect of consumer behavior in the context of PT. Dutagaruda Piranti Prima. The statistically significant association suggests that consumers' perceptions of value play a pivotal role in shaping their decisions to make online purchases. As CPV represents the perceived benefits relative to the cost of products or services, this finding implies that when consumers perceive a higher value proposition, they are more likely to engage in online transactions. For PT. Dutagaruda Piranti Prima, this result highlights the importance of not only delivering high-quality products and services but also effectively communicating their value to consumers. Strategic efforts to enhance perceived value, whether through product features, pricing strategies, or additional services, could serve as a key driver in influencing and optimizing online purchase decisions, contributing to the company's success in the competitive digital marketplace.

After testing the direct influence, the next hypothesis is to look at the indirect influence which is presented in the table below:

**Table 2. Indirect Test Results**

Path	Original Sample	P value	Decision
ST -> RP -> OPD	0.034	0.009	Significant
SC -> RP -> OPD	0.105	0.081	Not Significant

The P values indicate the level of significance for the indirect effects. A P value less than 0.05 is considered significant, suggesting a meaningful indirect relationship, while a P value greater than 0.05 indicates a lack of statistical significance. The decision column categorizes whether the indirect relationship is considered significant or not based on the P value.

The significant indirect effect with a P value of 0.034 in the path from Scanning Technology (ST) to Risk Perception (RP) to Online Purchase Decisions (OPD) underscores the intricate dynamics shaping consumer behavior at PT. Dutagaruda Piranti Prima. This result suggests that the influence of scanning technology on online purchase decisions is partially mediated by the perception of risk. As consumers engage with advanced scanning technology, their perceptions of associated risks play a meaningful role in guiding their online purchase decisions. For PT. Dutagaruda Piranti Prima, understanding this mediated relationship provides valuable insights into the nuanced factors influencing consumer choices. Strategic efforts to mitigate perceived risks related to scanning technology could amplify its positive impact on online purchase decisions, contributing to a more favorable consumer experience and enhancing the company's position in the competitive digital landscape.

The non-significant indirect effect with a P value of 0.105 in the path from Shopping Convenience (SC) to Risk Perception (RP) to Online Purchase Decisions (OPD) suggests that, in the context of PT. Dutagaruda Piranti Prima, the influence of shopping convenience on online purchase decisions is not significantly mediated by the perception of risk. This result implies that, while shopping convenience and risk perception are individually considered, their combined effect on online purchase decisions may not be statistically significant. For the company, this finding underscores the need to explore additional factors or dimensions that may contribute to the overall relationship between shopping convenience, risk perception, and online purchase decisions. Strategic considerations should extend beyond the convenience aspect to address diverse elements that may influence consumer choices and contribute to the optimization of the online shopping experience. Further research and a comprehensive understanding of these complex interactions are essential for PT. Dutagaruda Piranti Prima to refine its strategies and cater effectively to the dynamic preferences of its digital-savvy clientele.

## 5. Conclusion

In conclusion, this article delves into the intricate dynamics of how scanning technology and shopping convenience intersect with online purchase decisions, with a focus on the mediating role of risk perception. The research findings reveal that the utilization of scanning technology significantly influences consumer behavior, directly impacting risk perception and, subsequently, online purchase decisions. Notably, the study underscores the importance of managing consumer perceptions of risk associated with scanning technology to optimize its positive impact on purchasing decisions. While shopping convenience alone may not have a statistically significant indirect effect on online purchase decisions through risk perception, it emphasizes the need for a more nuanced understanding of the multifaceted factors influencing consumer choices. The insights gained from this research provide valuable implications for businesses, such as PT. Dutagaruda Piranti Prima, operating in the technology sector. By aligning strategies with the complexities of consumer behavior, companies can enhance their competitive edge in the ever-evolving landscape of e-commerce.

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