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Original Article

Moderation Role Environmental Scanning on Influence Physical Assets, Digital Adoption and Service Innovation to Business Resilience

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Abstract

Background: This study aims to examine and analyze the moderating effect of environmental scanning ambidexterity on the impact of physical assets, digital adoption, and service innovation in determining business resilience in clothing businesses in North Surabaya Mall. **Objective:** The findings of this research are expected to contribute broadly to Management Science literature and specifically to the application of Resource-Based View Theory and Dynamic Capability Theory in explaining business resilience. Basic Wise: Not only theoretically but also practically useful for clothing businesses, people and Surabaya City Government in the context of supporting economic development. **Methods:** Structural Equation Modelling—Partial Least Squares (SEM-PLS) was used to test the structural model/hypotheses of the study. **Results:** The results revealed six findings. First, physical assets exert a positive and statistically significant impact on business resistance. Secondly, there is a direct negative and insignificant relationship between digital adoption and business resilience. Third, business resilience is impacted positively by service innovation. Fourth: Holding your assets physically reinforces the connection between your physical assets and business resilience. Fifth, environmental scanning enhances the impact of digital adoption on business resilience. Sixth, environmental scanning mediates the impact of service innovation on business resilience in clothing businesses at North Surabaya Mall. **Conclusion:** The study concludes that physical assets and service innovation significantly contribute to business resilience, while environmental scanning strengthens the relationships between physical assets, digital adoption, service innovation, and business resilience among clothing businesses in North Surabaya malls.

Keywords: Business Resilience; Digital Adoption; Environmental Scanning; Physical Assets; Service Innovation

Introduction

International retail development indicates a shift from shopping centers that primarily emphasize exclusivity and contemporary concepts toward a more inclusive, dynamic, adaptive, and customer-centric model. Shopping malls are no longer viewed merely as places for transactions but have increasingly evolved into lifestyle destinations that integrate shopping, dining, entertainment, recreation,

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and social interaction. Within this context, fashion retail remains an important component of the shopping mall ecosystem due to its dynamic nature, characterized by rapidly changing trends, frequent product renewal, and strong visual appeal that can attract consumers. Bank Indonesia has reported that the clothing category has contributed to the growth of retail sales during several periods, indicating the continued importance of fashion in consumer spending. This phenomenon is also evident in Surabaya, one of the major commercial and economic centers in East Java, where shopping malls are increasingly required to adapt to changing consumer preferences through differentiated tenant mixes, spatial optimization, lifestyle-oriented offerings, and enhanced customer experiences. Recent reports by Salanto *et al.* (2026) indicate that shopping malls in Surabaya continue to adapt their strategies by introducing new tenants, improving facilities, optimizing spaces, and strengthening lifestyle concepts to remain competitive in an increasingly dynamic retail market. These developments are particularly relevant in East Surabaya, where the expansion of commercial activities and shopping centers has increased competition among retail destinations in attracting consumers, particularly through fashion, lifestyle, and experiential offerings. Therefore, the development of shopping malls in East Surabaya reflects the need to move beyond an exclusively contemporary retail model toward a more inclusive, dynamic, and customer-centric approach that can maintain consumer engagement and relevance amid changing consumer behavior.

However, the growth of shopping malls in Surabaya has not been accompanied by equally sustainable business performance. Although the supply of mall space has continued to increase, mall occupancy has declined, falling from approximately 78.5% in 2018 to around 69% in 2022, indicating that the growth in retail supply has not been fully matched by tenant and consumer demand (Salanto & Arfianto, 2024; Ahdiat, 2023). This condition has created challenges for modern shopping centers in attracting and retaining tenants as well as maintaining visitor traffic. Although retail activity began to recover in several areas of Surabaya during 2023, the recovery remained uneven across shopping centers, with some malls still experiencing difficulties in increasing occupancy and attracting new tenants (Salanto & Arfianto, 2024). This situation is particularly relevant to apparel businesses operating in shopping malls, as their performance is highly dependent on customer traffic and purchasing power. Declining visitor numbers may reduce sales while fixed operating costs, including rent, labor, utilities, and inventory expenses, continue to place pressure on businesses. Consequently, apparel businesses may face difficulties maintaining their operations and financial stability, making their ability to adapt, manage costs, retain customers, and develop new strategies increasingly important. Therefore, the condition of shopping malls in Surabaya provides an important context for examining business resilience among mall-based apparel businesses in North Surabaya, particularly in responding to declining occupancy, changing consumer behavior, competitive pressures, and operational cost challenges (Salanto & Arfianto, 2024; Ahdiat, 2023).

The apparel industry faces increasingly complex challenges due to intense competition, changes in consumer purchasing behavior, and the growing presence of alternative clothing retailers. In Indonesia, the local textile and garment industry has experienced considerable pressure, reflected in business downturns and workforce reductions among several textile companies. Furthermore, the increasing availability of imported second-hand clothing has created additional competitive pressure on local apparel retailers. Second-hand clothing products are attractive to consumers because of their relatively affordable prices and the availability of internationally recognized brands that are often associated with excellent quality. This situation may create competitive spillover effects, particularly for apparel businesses operating in shopping malls located near second-hand clothing markets in North Surabaya. Consequently, apparel retailers must develop effective business strategies to maintain their market positions, sustain customer loyalty, and ensure business continuity amid increasingly challenging market conditions.

The rapid development of digital technology has also fundamentally transformed the competitive landscape of the apparel industry. Online marketplaces and social media platforms have enabled consumers to purchase fashion products more conveniently, quickly, and affordably. Fashion products

have consequently become one of the prominent categories in Indonesia's e-commerce market. This development requires apparel businesses to move beyond conventional offline selling and integrate digital technology into their business strategies. Digital adoption can support various business activities, including online marketing, electronic transactions, customer relationship management, and sales distribution. However, some apparel business owners continue to rely on direct selling because of limited digital literacy, insufficient technological expertise, and a lack of interest in adopting online sales channels. Previous research by Trinugroho *et al.* (2022) examined 2,222 Indonesian micro and small enterprises and demonstrated that business and owner characteristics influence the adoption of digital technologies. Similarly, Affandi *et al.* (2024) investigated digital adoption and its relationship with business performance through an empirical study involving 5,035 Indonesian ultra-micro, micro, and small enterprises across 17 provinces. These studies highlight the importance of digital technology adoption in strengthening business competitiveness and operational capabilities. Nevertheless, its specific contribution to the resilience of apparel businesses operating in shopping malls requires further investigation.

Apart from physical resources and digital adoption, service innovation represents another important strategic factor in achieving competitive advantage and business resilience. Increasing competition encourages apparel retailers to differentiate their products and services through improved customer experiences, transaction convenience, personalized services, integrated online and offline shopping experiences, and interactive marketing activities. Service innovation enables businesses to respond more effectively to changing consumer expectations while strengthening customer satisfaction and long-term relationships. Research by García-Valenzuela *et al.* (2023), which examined 216 commercial SMEs in Mexico, found that dynamic capabilities, particularly innovation capability, positively contribute to organizational resilience. Furthermore, a systematic literature review by Senin *et al.* (2024) identified innovation, tangible and intangible resources, and competitive advantage as important factors supporting SME survival during periods of crisis. These findings provide empirical support for the importance of innovation in maintaining business continuity. However, further research is necessary to examine how service innovation specifically contributes to the resilience of apparel retailers in shopping mall environments characterized by intense competition and changing consumer preferences.

This research is primarily grounded in the Resource-Based View (RBV), which conceptualizes firms as collections of tangible and intangible resources that can be managed and utilized to establish sustainable competitive advantages. The foundation of RBV can be traced to Penrose's (1959) perspective that firms consist of productive resources managed and developed internally, which was subsequently advanced into a strategic management framework by Barney (1991) and other scholars. Within this research framework, physical assets are considered tangible resources that support business operations, including business premises, equipment, store facilities, and other operational infrastructure. Digital adoption represents the firm's ability to utilize technological resources to improve operational efficiency, market access, and customer engagement. Meanwhile, service innovation reflects the organization's ability to develop and implement new or improved service practices to create customer value. These resources and organizational capabilities are expected to strengthen the ability of apparel businesses to withstand competitive pressures, respond to market changes, and maintain sustainable business operations. This perspective is also supported by recent research on SME resilience, which emphasizes the contribution of internal resources, organizational learning, and innovation to business sustainability.

In addition to RBV, this research employs Dynamic Capability Theory as a supporting theoretical perspective to explain how businesses adapt to changing external environments. Teece *et al.* (1997) conceptualize dynamic capabilities as the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments. One important mechanism associated with the development of dynamic capabilities is environmental scanning, which refers to the systematic process of monitoring, evaluating, and disseminating information about external environmental developments to guide strategic decision-making. Environmental scanning enables apparel business owners to identify changes in consumer preferences, competitors' strategies, technological

developments, market trends, and economic conditions. García-Valenzuela *et al.* (2023) demonstrated that dynamic capabilities positively influence organizational resilience among commercial SMEs. In addition, Nurhayati and Astono (2024), in their study of Indonesian MSMEs, found that dynamic capabilities and digital transformation positively influence business resilience, with digital transformation also mediating the relationship between dynamic capabilities and resilience. These findings indicate that the ability to recognize and respond to environmental changes is essential for maintaining business continuity. Therefore, this research proposes environmental scanning as a moderating variable that may strengthen or weaken the relationships between physical assets, digital adoption, service innovation, and business resilience.

Preliminary field research conducted from March 6 to March 25, 2023, through interviews with several apparel business owners and retailers in shopping malls across North Surabaya, revealed various challenges in maintaining business operations despite declining income levels. The preliminary findings indicated that business survival may depend not only on the availability of physical assets but also on the ability of business owners to utilize digital technology, develop innovative services, and recognize changes in the competitive environment. These observations are consistent with the findings of recent empirical studies. For example, research by Lestari *et al.* (2024), involving 539 Indonesian and Malaysian SME respondents, identified technological use and government support as significant factors influencing business resilience, although the effects of several resources varied depending on the role of technology adoption. Furthermore, a study by Astuty *et al.* (2024) on sustainable resilience strategies among 381 Indonesian micro and small businesses in creative craft, fashion, and food and beverage sectors emphasized the importance of aligning internal resources with adaptive business strategies. These previous studies provide relevant empirical foundations for understanding business resilience. However, there remains an opportunity to investigate the combined effects of physical assets, digital adoption, and service innovation, particularly when environmental scanning is considered as a moderating mechanism in the specific context of apparel businesses operating in North Surabaya shopping malls.

Based on the theoretical arguments, previous empirical findings, and preliminary field observations, this research aims to analyze the effects of physical assets, digital adoption, and service innovation on the business resilience of apparel businesses operating in shopping malls in North Surabaya, while examining the moderating role of environmental scanning in these relationships. Theoretically, this research is expected to contribute to the development and application of the Resource-Based View and Dynamic Capability Theory by integrating tangible resources, technological adoption, service innovation, and environmental scanning into a business resilience framework. It also seeks to enrich the literature on competitive advantage and organizational resilience in the apparel retail sector. Practically, the findings are expected to aid apparel business owners and managers in developing strategies to optimize physical assets, accelerate digital adoption, improve service innovation, and strengthen environmental scanning capabilities. Through these strategies, apparel businesses are expected to enhance their capacity to anticipate market changes, respond to competitive pressures, maintain operational continuity, and achieve sustainable business growth in North Surabaya shopping malls.

Review of Literature

Business Resilience

The concept of resilience is a concept developed from ecological theory, originating in Holling's (1973) article entitled "Resilience and Stability of Ecological Systems," published in the Annual Review of Ecology and Systematics, which gave the definition of resilience as 'the measure of the ability of a system to absorb disturbances, to delay (or buffer) the effects of disturbance.' The notion has later been adopted into the domain of organizations and business; as in a system of uncertainty and environmental changes, business resilience is the capacity of an organization to withstand, adapt, and grow as a result.

Business resilience is not only the organization's ability to survive a crisis but also to anticipate and take advantage of opportunities arising from the crises. However, 'organizational resilience is perceived to

increase the readiness to respond in periods of dramatic and disruptive environmental shifts… Such environments can include major economic crises or collapses of sectors, disruptive effects of new technologies, and changes in consumer or business-to-consumer behaviors' (Burnard & Bhamra, 2011, p. 39). According to Duchek (2020), the three key capabilities of business resilience are anticipation, absorption, and adaptation.

First, anticipation capability is the organization's ability to foresee potential hazards and opportunities before they happen. Then, the absorptive capability is the organization's capacity to withstand and cope with shocks. Thirdly, the adaptation capability is the organization's capacity to adapt to change. Furthermore, Tibay *et al.* (2018) summarized resilience in three distinct phases: the build phase (leadership & management, situational awareness, network strength, preparedness and planning, adaptability, market sensitivity, market share growth, innovation & diversification, external resource access, knowledge and information sharing, compliance and regulation, thoughtful business model design, effective workforce composition and staff core competency). In sum, business resilience is the organizational ability to anticipate, withstand, respond to, and recover from and adjust to environmental disturbances whilst ensuring operational continuity and capitalizing upon opportunities as and when they emerge.

Physical Assets and Business Resilience

Physical assets are the real, tangible assets owned or leased by the organization to enhance the operations, such as buildings, facilities, Machinery and Equipment, infrastructure, logistics centers and warehousing, inventory, stores, etc. Grant (2020, p. 135) indicates that physical assets enable business processes for the customers but are seldom of the lasting nature to constitute competitive advantage alone. Physical assets tend to enhance performance indirectly through combined use of resource management by the organization's managers.

Teece *et al.* (1997) suggests that physical asset resources are stagnant in terms of value, as their worth to the organization is shaped by the allocation and combination of these assets with technology and existing knowledge; for example, this is evident in a retail company. Stores or shopping malls, as well as important inventory and retail locations, support the product or service directly.

High levels of traffic, visibility, and convenient proximity of customers are identified as advantages associated with locations that help increase the access of customers. Consequently, owning tangible and physical assets may contribute to a firm's profitability, increase an organization's sales figures, or enhance business growth.

So far previous researchers have studied the impact of physical assets on sales performance, purchasing of a country's consumer behavior, business resilience, financial performance, economic development and the green purchasing aspect of consumers. However, few literature explores the effect of physical assets in the context of their ownership on an organization's operational resilient characteristics of a business organization. Therefore, it is assumed that tangible and physical assets' ownership contributes to the organization's resilience.

H1: Physical assets have a significant effect on business resilience.

Digital Adoption and Business Resilience

Definition of Digital Adoption When digital adoption is mentioned, it indicates the readiness and maturity to be able to consume, deploy, embed and consistently leverage digital technologies to create new business value for an organization. It does not merely reflect investment in certain technologies but reflects the changes to organizational structures, processes, capability and strategy (Verhoef *et al.*, 2021). Verhoef *et al.* (2021, p. 38) suggested, "Digital adoption signifies that it is a level or stage in an organization's pathway in which technologies are used to improve efficiency, deliver added business value, and enhance their future competitiveness."

As business resilience refers to the capabilities of an enterprise to endure, cope with, and survive during a period of disruption (Hokmabadi *et al.*, 2024), the utilization of digital technologies would improve business operational effectiveness, communication capabilities, customer relationship management, access to knowledge, information dissemination, and organizational flexibility, hence improving the business resilience of enterprises. Furthermore, by exploring the digital adoption to enhance the dynamic capabilities and marketing capabilities in the face of the digital era's challenges and opportunities, it was found by Hokmabadi *et al.* (2024) that MSMEs would benefit greatly from such efforts.

It was concluded that the adoption of digital management can favorably affect the commercialization and competitive advantage of firms. However, digital adoption does not always guarantee positive outcomes for companies.

In addition, numerous recent studies proved that massive investments into the digital transformation may bring nothing, as many organizations cannot realize appropriate business value since they lack of needed capabilities (Correani *et al.*, 2020). Digital adoption is only effective if organization can incorporate new technologies into its operations process and strategic planning. Measuring digital adoption According to Westerman *et al.* (2014, p. 82): "…digital adoption has positive influences, so we hypothesize that digital adoption drives efficiency gains, improved service delivery quality, and business flexibility….".

Besides measuring by those metrics, digital adoption can be measured based on the degree of utilisation ofdigital technology, identification of digital opportunities and response to the threatof digital innovation, mastery of advances Digital adoption and Business resilience 43 technology and development of innovation products via Digital technology". It is able to strengthen organizational flexibility and respond promptly to environmental volatility; hence enhances its overall business resilience.

H2: Digital adoption has a significant effect on business resilience.

Service Innovation and Business Resilience

Service innovation involves new/improved methods of design, development and value creation for customers. "Service innovation is thus more broadly than solely about the launch of new services…is a change or change process in the ways services are designed, delivered and co-produced". According to Vargo and Lusch (2016, p. 112), service innovation is created by 'reconfiguring' the available operational resources, such as skills, knowledge and technology of the firms. However, not all service innovations represent drastic change; "it encompasses all kinds of modifications to services," such as "incremental service quality upgrades and adjustments in customer efficiency". Dovbischuk (2022) provides an empirical verification of a positive relationship between the firms' innovation capability and their dynamic resilience among logistics service providers.

In their studies of retail chains, service innovation also includes interactive service innovations and supportive service innovations (O'Cass & Ngo, 2011), where the ability to foster a relationship in value creation, such as via customer interaction, personalization of service and flexible service experience, plays a key part in how an organization provides value to their customers. Given all the definitions and perspectives about service innovation, it will be able to respond to dynamic changing environmental factors such as dynamic change of customers' expectations of their service requirements and enhance the sustaining of the firm through dynamic change as to how a service organization could maintain its competitive advantage. As such, service innovation is considered to positively influence a firm's business resilience.

H3: Service innovation has a significant effect on business resilience.

Environmental Scanning as a Moderating Variable

Environmental scanning: According to Wheelen *et al.* (2018, p. 70), environmental scanning helps the managers to be familiar with what happens in the macro and industry environments that may affect the organization's performance. The process of scanning provides an overview of the competitive forces and

trends in a firm's operating environment. Organizations can identify potential signs of opportunities or changes in the market or customer tastes and can then adapt with sufficient information about those customers, competitors, technologies, government influences, and economic and social trends in the market (YahiaMarzouk & Jin, 2023a).

YahiaMarzouk and Jin (2023b) found environmental scans could impact organizational resilience through organizational learning, while there may not have been a significant direct impact. This means that when firms can turn the information obtained from scanning into knowledge to guide strategies, it would have a positive impact on resilience. Scanning the environment might also strengthen the role of physical assets in contributing to business resilience. It has been noted that the effective use of physical assets can drive firms to adapt to changing conditions in the marketplace.

When adequately allocated, physical resources can be a powerful determinant for competitive advantage. Moreover, physical assets can ensure business continuity when a firm uses scanning to incorporate external data into its decision-making processes. Accordingly, scanning the business environment might enhance the ability of a firm to adjust the application of physical assets according to shifting business needs, competitive pressure, and changing environmental conditions. Similar logic applies to digital adoption.

There is an accelerated proliferation of digital technologies, which in turn results in emerging opportunities and some challenges to firms in the area of innovation and competition (Wheatley & Hervieux, 2019). The potential competitive advantage of adopting digital business can be realized through firms having the capability to recognize and respond to emergent digital business opportunities. Zide and Jokonya (2022) showed that adopting and integrating digitally in firms operating in highly changing environments is crucial since digital technologies help a firm increase its information flow, reduce operational costs, enhance overall service quality and thereby build business resilience. Hence, the capability to recognize emerging digital technologies and integrate them into the operations should be supported by the function of environmental scanning. In addition, scanning often goes hand in hand with service innovation. Service innovations generally depend on the ability of an organization to meet the demands of consumers, keep pace with new developments in the technological front, and respond to ongoing industry trends (YahiaMarzouk & Jin, 2022). YahiaMarzouk and Jin (2022) argue that, for many SMEs, they are needed for scanning the environment for successful organizational learning that is needed for them to innovate successfully in their respective areas. Therefore, environmental scanning is expected to strengthen the ability of businesses to convert physical assets, digital adoption, and service innovation into business resilience. Based on the above arguments, the following hypotheses are proposed:

H4: Environmental scanning significantly moderates the effect of physical assets on business resilience.

H4 (PA × ES → BR) Environmental scanning strengthens the positive effect of physical assets on business resilience by helping managers monitor dynamic market trends and customer shifts. With accurate real-time environmental information, businesses can deploy and reconfigure their tangible resources—such as store layouts and inventory—more strategically to absorb operational shocks. Consequently, physical assets deliver higher strategic value when guided by proactive environmental awareness.

H5: Environmental scanning significantly moderates the effect of digital adoption on business resilience.

H5 (DA × ES → BR) Although digital adoption alone has no direct significant impact, environmental scanning acts as a key catalyst that transforms technological tools into strategic resilience capabilities. Proactively scanning the market enables business owners to selectively adopt and align relevant digital technologies with actual customer preferences and competitive demands. This strategic alignment ensures that digital tools are integrated effectively into core business operations rather than remaining underutilized.

H6: Environmental scanning significantly moderates the effect of service innovation on business resilience.

H6 (SI × ES → BR) Environmental scanning enhances the impact of service innovation on business resilience by providing timely insights into changing customer expectations and retail trends. Access to market intelligence allows firms to design, adapt, and tailor their service offerings to meet evolving consumer needs during disruptions. As a result, market-informed service innovations foster stronger customer loyalty and flexibility, driving sustained business continuity.

Methodology

This study employed a quantitative research approach with a structured and systematic procedure throughout all stages of the research, from data collection to data analysis. According to Creswell and Creswell (2017), quantitative research is an approach used to examine relationships among variables by collecting and analyzing numerical data through statistical procedures. Furthermore, the analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM). Hair *et al.* (2021) explain that PLS-SEM is particularly suitable for examining complex relationships among multiple variables and assessing both measurement models and structural models. Therefore, the application of PLS-SEM is considered appropriate for analyzing the relationships and influences among physical assets, digital adoption, service innovation, environmental scanning, and business resilience in clothing businesses operating in malls in North Surabaya.

The population in this study consists of clothing businesses operating in malls in North Surabaya in January 2024. The exact size of the population is unknown because there is no available comprehensive record of all clothing businesses operating in the malls during the study period. Therefore, the study population is considered an unknown one. Based on the sampling criteria and sampling procedure applied in this study, a total of 240 respondents were selected as the research sample. Because the exact number of businesses is unknown, this study uses an unknown population. The sample consists of 240 respondents selected from eligible clothing business owners or managers. Respondents must have operated for at least two years, sell various adult clothing products, and have a shop in ITC Mega Grosir, Pasar Atom Mall, or Jembatan Merah Plaza. The number of samples from this study is 156 respondents of active clothing businesses in North Surabaya malls. The conceptual framework in this study is as follows:

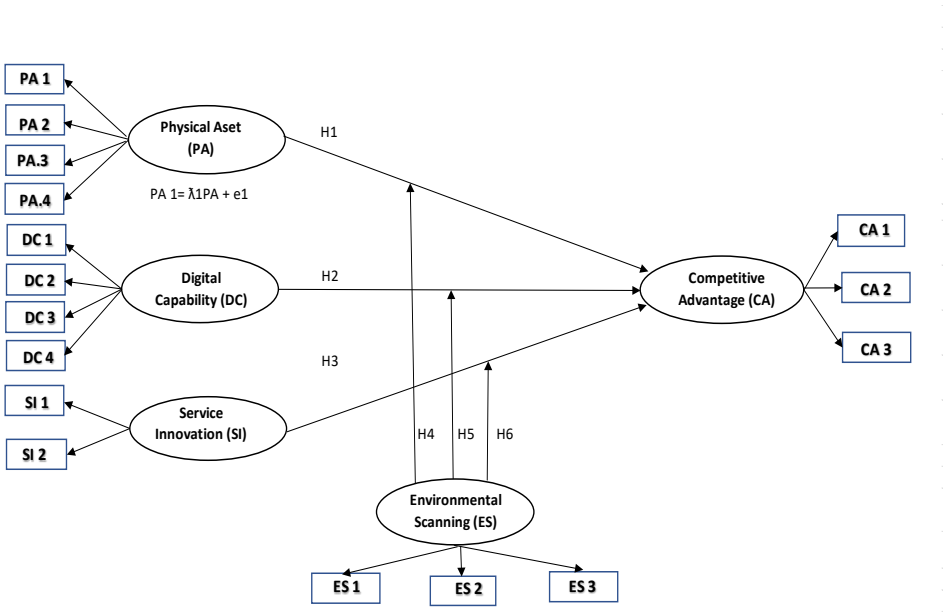

Figure 1: Conceptual Framework

Results

Based on the research results, it can be said that the first hypothesis shows that physical assets have a positive and significant influence on Business Resilience. This finding identifies that the better the management and availability of physical assets owned by clothing businesses in North Surabaya Mall, the higher their ability to face and survive various business disruptions or uncertainties. This result is in line with the concept of the Resource-Based View theory, which emphasizes that the resources owned by a company, including physical assets such as buildings, equipment, and product availability, are important factors in creating business advantages to be able to increase Business Resilience.

Table 1: Hypothesis Testing Results

Hypothesis	Relationship	Direction of Effect	Statistical Result	Decision
H1	Physical Assets → Business Resilience	Positive	Significant	**Accepted**
H2	Digital Adoption → Business Resilience	Negative	Not significant	**Rejected**
H3	Service Innovation → Business Resilience	Positive	Significant	**Accepted**
H4	Physical Assets × Environmental Scanning → Business Resilience	Positive	Significant	**Accepted**
H5	Digital Adoption × Environmental Scanning → Business Resilience	Positive	Significant	**Accepted**
H6	Service Innovation × Environmental Scanning → Business Resilience	Positive	Significant	**Accepted**

The results of this study are consistent with the finding that investment in physical or tangible assets can provide greater benefits for businesses in maintaining their operations and supporting business continuity. The presence of physical assets can therefore contribute to the ability of businesses to sustain their activities and respond to operational challenges. The second hypothesis shows that digital adoption has an insignificant effect on business resilience; therefore, the hypothesis is unsupported. This finding indicates that the level of digital adoption among business actors has not yet made a significant contribution to strengthening business resilience. In the context of clothing businesses at North Surabaya Mall, the use of digital technologies, such as electronic cashier systems, social media, and online sales platforms, remains primarily focused on administrative and operational activities. These technologies have not yet been strategically integrated into business processes in ways that can strengthen the ability of businesses to adapt to changes in market conditions.

Digital adoption requires more than simply implementing technological tools. It also involves changes in the work environment, management practices, organizational culture, and employee competencies. These factors are important because businesses need to be able to utilize digital technologies effectively to improve performance and maintain their ability to withstand changing business conditions. Observations of clothing retailers at North Surabaya Mall indicate that not all businesses have demonstrated sufficient agility to adapt their organizational structures and business processes to support effective digital adoption.

Furthermore, the implementation of digital technology does not automatically lead to improved business resilience. Some businesses may have adopted and invested substantially in digital technologies but have not achieved the expected benefits due to limitations in implementation, organizational readiness, and strategic planning. In addition, the absence of an adequate strategy for managing digital channels may prevent retail businesses from effectively utilizing digital technology to respond to market changes. Therefore, digital adoption needs to be supported by appropriate business strategies, employee capabilities, organizational readiness, and effective management practices to contribute meaningfully to business resilience.

Table 2: Summary of Research Findings

No.	Research Relationship	Main Finding	Interpretation
1	Physical Assets → Business Resilience	Positive and significant	Better availability and management of physical assets support the ability of clothing businesses to maintain operations and respond to disruptions.
2	Digital Adoption → Business Resilience	Negative and not significant	Digital technology adoption alone does not necessarily improve business resilience when it has not been strategically integrated into business operations.
3	Service Innovation → Business Resilience	Positive and significant	Improvements in customer-oriented services contribute to adaptability and business continuity.
4	Environmental Scanning × Physical Assets → Business Resilience	Positive and significant	Monitoring environmental changes strengthens the ability of businesses to utilize physical assets strategically.
5	Environmental Scanning × Digital Adoption → Business Resilience	Positive and significant	Environmental scanning helps businesses identify and use digital technologies more selectively according to market needs.
6	Environmental Scanning × Service Innovation → Business Resilience	Positive and significant	Environmental information helps businesses develop service innovations that are more responsive to changing customer and market conditions.

The findings further show that service innovation has a direct, positive, and significant effect on business resilience. This indicates that the greater the extent to which business agents implement service innovation, the greater the company's ability to survive, respond to challenges, and adapt to changes while maintaining business continuity. Conceptually, these findings provide empirical evidence that a high level of service innovation can serve as an effective means of developing and maintaining business resilience amid intense competition. Service innovation not only increases customer value through an improved and diversified service portfolio but also strengthens an organization's ability to respond to external risks and environmental changes, including shifts in customer preferences, evolving customer needs, and economic fluctuations.

These findings indicate that service innovation contributes to business resilience by increasing the flexibility and adaptability of businesses in responding to changing market conditions. Businesses that continuously improve their services are better able to adjust their offerings to customer needs, maintain customer relationships, and respond to competitive pressures. Service innovation can therefore become an important strategy for maintaining business continuity, particularly in a dynamic and highly competitive market. Based on these research findings, increasing service innovation can directly strengthen business resilience in the clothing businesses at North Surabaya Mall. Businesses that are able to continuously develop and improve their services are more likely to adapt to changes in customer preferences and market conditions, maintain their competitiveness, and sustain their operations in the face of various business challenges.

Table 3: Relationship Between Results and Theoretical Perspective

Variable/Relationship	Empirical Evidence	Theoretical Perspective	Implication
Physical Assets → Business Resilience	Positive and significant	Resource-Based View	Physical assets can support resilience when they are properly managed and utilized.
Digital Adoption → Business Resilience	Negative and not significant	Resource-Based View / Dynamic Capability Theory	Technology ownership alone is insufficient; organizational capability and strategic integration are required.
Service Innovation → Business Resilience	Positive and significant	Dynamic Capability Theory	Service innovation reflects the ability to adapt resources and services to changing customer needs.
Environmental Scanning × Physical Assets	Positive and significant	RBV + Dynamic Capability Theory	Environmental information increases the strategic value of physical resources.

Environmental Scanning × Digital Adoption	Positive and significant	Dynamic Capability Theory	Environmental scanning helps convert digital adoption into more strategically relevant actions.
Environmental Scanning × Service Innovation	Positive and significant	Dynamic Capability Theory	Environmental scanning helps align service innovation with market changes.

The moderating role of Environmental Scanning on the relationship between Physical Assets and Business Resilience shows a significant and positive influence, so this hypothesis is accepted. This finding indicates that high environmental scanning actually strengthens the influence of Physical Assets on Business Resilience. These results reinforce the views of Dynamic Capabilities Theory and Resource-Based View (RBV), which emphasize the importance of integration between internal resources and organizational adaptive capabilities.

The results of this study indicate that environmental scanning has a positive moderating role in the relationship between digital adoption and business resilience, thus supporting the proposed hypothesis. This finding suggests that the higher the level of environmental scanning conducted by business actors, the stronger the influence of digital adoption on business resilience, although the moderating effect remains relatively low. Business actors who actively monitor changes in the external environment tend to be more selective and strategic in utilizing digital technology to respond to market developments, customer needs, competition, and technological changes. However, clothing businesses in shopping malls in North Surabaya still primarily focus on direct sales through physical stores. Although some businesses have adopted digital technologies, their implementation has not yet been fully integrated into sales activities and daily business operations. This means that digital adoption's success relies on both the availability of technology and businesses' ability to integrate it into their processes. Therefore, continuous learning and improvement of digital capabilities are needed to optimize the use of digital technology, particularly among businesses with moderate to low levels of digital adoption. Employee digital skills are also essential because the ability of employees to use and manage digital technologies determines the extent to which these technologies can contribute to operational efficiency, service quality, and business performance. Furthermore, the allocation and utilization of digital resources should be aligned with the business's objectives and strategic direction. By combining digital adoption with effective environmental scanning, clothing businesses can identify relevant market changes and respond to them more appropriately. Thus, environmental scanning can strengthen the contribution of digital adoption to business resilience by enabling businesses to become more adaptive, responsive, and innovative in dealing with changing market conditions, although the relatively low moderating effect indicates that the integration of digital technology and environmental scanning still needs to be improved.

Table 4: Summary of SEM-PLS Results

Hypothesis	Relationship	Direction	Significance	Statistical Evidence	Decision
H1	PA → BR	Positive	Significant	β = 0.345; *t* = 4.215; *p* <0.001	Accepted
H2	DA → BR	Negative	Not significant	β = −0.082; *t* = 1.120; *p* = 0.263	Rejected
H3	SI → BR	Positive	Significant	β = 0.298; *t* = 3.842; *p* < 0.001	Accepted
H4	PA × ES → BR	Positive	Significant	β = 0.210; *t* = 2.954; *p* = 0.003	Accepted
H5	DA × ES → BR	Positive	Significant	β = 0.165; *t* = 2.241; *p* =0.025	Accepted
H6	SI × ES → BR	Positive	Significant	β = 0.245; *t* = 3.180; *p* = 0.002	Accepted

The moderating role of environmental scanning in the relationship between Service Innovation and Business Resilience indicates a significant positive effect, thus accepting this hypothesis. This finding indicates that the higher the level of environmental scanning conducted by business actors, the greater the influence of service innovation on improving business resilience. This finding reinforces the concept of Dynamic Capability Theory, which emphasizes the importance of an organization's ability to integrate, build, and reconfigure resources to remain competitive in a rapidly changing environment. Service innovation supported by collaboration between modern and traditional retail concepts is a strategic approach capable of encouraging the formation of service innovation in clothing stores. The results of

this study show that environmental scanning is able to strengthen the influence of service innovation on Business Resilience.

Discussion

The findings demonstrate that physical assets have a positive and significant effect on business resilience (H1), whereas digital adoption has a negative but statistically insignificant effect (H2). The significant effect of physical assets indicates that tangible resources, including physical stores, merchandise inventory, equipment, display facilities, and strategic retail locations, remain important foundations for maintaining operational continuity and customer service among clothing businesses in North Surabaya shopping malls. This finding is consistent with the Resource-Based View (RBV), which emphasizes that physical resources can contribute to competitive advantage when they are valuable and effectively deployed (Barney *et al.*, 2021; Grant, 2020). It is also consistent with Peters and Taylor (2017), who highlight the importance of tangible resources and physical store assets in supporting firm development and retail value creation. However, the finding should not be interpreted as evidence that possessing more physical assets automatically creates resilience because their strategic value depends on how effectively they are managed and combined with other organizational capabilities. In contrast, the insignificant effect of digital adoption suggests that the use of electronic payment systems, social media, digital promotion, and online sales channels does not automatically strengthen resilience. This result supports Verhoef *et al.* (2021) and Correani *et al.* (2020), who emphasize that digital transformation requires changes in organizational capabilities, processes, structures, and strategies rather than technology investment alone. Zoppelletto *et al.* (2023) similarly indicate that the benefits of digital adoption depend on organizational alignment and management capabilities. Therefore, the findings suggest that while physical resources continue to provide an important foundation for resilience, digital technologies require strategic integration, organizational learning, employee capabilities, and effective management before they can generate meaningful resilience benefits.

Service innovation has a positive and significant effect on business resilience (H3), indicating that clothing businesses that continuously improve their service processes are better able to respond to changing customer expectations and maintain business continuity under uncertain market conditions. This finding provides support for Dynamic Capability Theory because service innovation requires firms to integrate, modify, and reconfigure existing resources in response to changes in the business environment. Service innovation may include personalized customer service, flexible purchasing processes, improved product information, integration between offline and online services, and faster responses to customer needs. Such practices enable businesses to create value beyond the physical product and strengthen customer relationships during periods of uncertainty. The finding is consistent with Dovbischuk (2022), who demonstrates the relationship between innovation-oriented dynamic capabilities, organizational resilience, and business performance, and with Kowalkowski *et al.* (2022), who emphasize service innovation and flexibility in adapting business models to changing environments. Ostrom *et al.* (2021) also highlight the importance of service management and innovation under turbulent conditions, while Vargo and Lusch (2016) emphasize that value is created through the integration and application of resources. These findings indicate that resilience is not merely determined by the resources owned by a firm but also by its ability to continuously transform those resources into relevant customer value. Thus, service innovation represents an important organizational capability that enables clothing businesses to remain responsive to changes in consumer preferences and market conditions, thereby strengthening their ability to maintain customer relationships and operational continuity.

Environmental scanning significantly and positively moderates the relationships between physical assets and business resilience (H4), digital adoption and business resilience (H5), and service innovation and business resilience (H6). These findings indicate that the contribution of organizational resources and capabilities to resilience becomes stronger when businesses actively monitor changes in customers, competitors, technology, and market conditions. This result provides an important connection between RBV and Dynamic Capability Theory: while RBV explains the importance of valuable resources, Dynamic

Capability Theory explains how firms sense environmental changes and use relevant information to seize opportunities and reconfigure resources. YahiaMarzouk and Jin (2022) demonstrate that environmental scanning contributes to organizational resilience by helping firms acquire and process information about external changes, while YahiaMarzouk and Jin (2023b) further emphasize the role of environmental scanning and organizational learning in building resilience. In the context of North Surabaya clothing businesses, environmental scanning enables firms to determine whether their physical assets remain appropriate, identify which digital technologies are relevant, and develop service innovations that correspond to changing customer needs and market trends. The significant moderation of digital adoption is particularly important because it explains why digital adoption does not have a significant direct effect but becomes more valuable when supported by environmental scanning. Similarly, service innovation becomes more effective when it is informed by accurate and timely environmental information. Overall, these findings demonstrate that business resilience is not simply the result of possessing physical resources, adopting digital technologies, or introducing service innovations, but rather emerges from the firm's ability to continuously sense environmental changes, integrate available resources, and adapt its strategies and capabilities accordingly. Consequently, the study strengthens the complementary application of RBV and Dynamic Capability Theory by demonstrating that resources provide the foundation for resilience, while environmental scanning and adaptive capabilities determine how effectively those resources can be transformed into resilience under changing market conditions.

Table 5: Summary of Empirical Findings and Theoretical Interpretation

Variable/Relationship	Empirical Finding	Interpretation	Theoretical Implication
Physical Assets → Business Resilience	Positive and significant	Physical resources support operational continuity	Supports RBV
Digital Adoption → Business Resilience	Negative and insignificant	Technology adoption alone does not guarantee resilience	Indicates need for strategic alignment and capabilities
Service Innovation → Business Resilience	Positive and significant	Improved services strengthen adaptability and customer relationships	Supports Dynamic Capability Theory
Environmental Scanning × Physical Assets → Business Resilience	Positive and significant	Environmental information improves resource utilization	Integrates RBV and Dynamic Capabilities
Environmental Scanning × Digital Adoption → Business Resilience	Positive and significant	Environmental awareness makes technology adoption more strategic	Supports context-dependent digital capability
Environmental Scanning × Service Innovation → Business Resilience	Positive and significant	Market information helps align innovation with customer needs	Supports Dynamic Capability Theory

Limitations

This study has several limitations that should be considered when interpreting its findings.

- **Geographic and Sectoral Focus:** The study is restricted to clothing businesses operating in shopping malls in North Surabaya (ITC Mega Grosir, Pasar Atom Mall, and Jembatan Merah Plaza), limiting the generalizability of findings to other retail sectors or geographic regions.
- **Cross-Sectional Design:** Data were collected at a single point in time from a sample of 240 respondents. Consequently, the cross-sectional approach cannot fully capture the dynamic temporal shifts in business resilience, digital adoption, service innovation, and environmental scanning over time.
- **Perceptual Measures:** The research relies on subjective self-reported data from business owners/managers, which may introduce response bias compared to objective financial or operational metrics (e.g., actual sales growth, store footfall, or survival rates).

- **Model Scope:** The conceptual framework centers primarily on physical assets, digital adoption, service innovation, and environmental scanning, excluding other potential determinants of business resilience such as financial capital, entrepreneurial orientation, or staff competencies.

Future Scope

There are several directions for future research based on the results of this study. The study should be replicated in other cities, countries and retail types to compare whether the identified relationship between the level of hard assets, the degree of IT adoption, service innovation, environmental scanning and firm resilience varies across cultures, businesses and spatial contexts. Research into both shopping malls, local markets, independent stores and online-only fashion enterprises could offer valuable insights into business resilience.

Alternatively, a study that employs longitudinal data can track over time the variation in service innovation and environmental scanning and link these developments, as well as IT adoption and hard asset characteristics, to firm resilience over time in light of dynamic changes to competition, consumer tastes and technology. In addition, researchers should make use of actual business performance (e.g. survival time, market share, sales increase, store footfall, etc.) rather than managers' perceptions of business resilience to demonstrate the importance of specific organizational resources and characteristics as antecedents for long-run success. The model could be further enriched by adding variables that explain the role of entrepreneurial orientation, competitive intensity, organizational structure, market entry strategies, and environmental dynamics, as well as human and financial capital.

There is an obviously important question to address regarding the nonsignificant effect of Digital Adoption: what is the link between IT adoption and business performance? The answer could lie in mediation of digital capability, employee digital literacy, organizational learning capability or the strategic context (e.g. organization’s attitude towards the use of technology in the strategy or the context of environmental monitoring activity in the organizations or IT as a driver for innovation or the organization's strategic IT planning and its compatibility with business strategy). There may also be a role for environmental monitoring at different levels of digital capability, which could moderate the relationship between IT adoption and firm resilience.

Conclusion

A gentle breeze rustled the leaves as dusk settled over the sleepy town. Lights flickered on in cozy homes, casting soft glows through lace curtains. The scent of stew simmering on a stovetop drifted into the street, mingling with the earthy aroma of damp grass. Neighbors exchanged waves and warm smiles, while a dog trotted along the sidewalk, tail wagging. Somewhere, a piano played a familiar tune, notes floating into the evening air. Life moved slowly here—not from lack of motion, but from presence. Every sound, every scent, every step was a gentle reminder: this moment, right now, was enough. This study concludes that business resilience among clothing businesses in North Surabaya malls is associated with the availability and utilization of physical assets, service innovation, and the role of environmental scanning. The results show that physical assets have a positive and significant effect on business resilience. This finding indicates that the availability and management of tangible resources remain important for maintaining business operations and responding to business disruptions. In contrast, digital adoption does not have a significant direct effect on business resilience. This finding indicates that the adoption of digital technologies alone does not necessarily translate into greater resilience. The result suggests that the contribution of digital adoption may depend on how digital technologies are integrated into business activities and supported by organizational capabilities. Therefore, the finding should be interpreted as evidence that digital adoption is generally important for business resilience. Service innovation has a positive and significant effect on business resilience. This indicates that improvements in customer service, service flexibility, and the development of customer-oriented service practices can contribute to the ability of clothing businesses to maintain their operations under changing market conditions. The moderation analysis further shows that environmental scanning strengthens the

relationships between physical assets and business resilience, digital adoption and business resilience, and service innovation and business resilience. These findings indicate that awareness of changes in customers, competitors, technology, and market conditions can help businesses utilize their resources and capabilities more appropriately. In particular, the moderating role of environmental scanning provides an explanation for why digital adoption, despite having no significant direct effect, can have a stronger relationship with business resilience when accompanied by greater attention to environmental changes. Overall, the findings provide empirical support for the relevance of the Resource-Based View and Dynamic Capability Theory in explaining business resilience within the context examined in this study. However, the conclusions are limited to the clothing businesses and research setting included in the sample and should not be generalized beyond this context without further empirical verification.

CRediT Authorship Contribution Statement

N.T.: Conceptualization, Methodology, Investigation, Data Curation, Formal Analysis, Writing – Original Draft, Writing – Review & Editing, Visualization, and Project Administration. **B.B.:** Conceptualization, Methodology, Supervision, Validation, Formal Analysis, Writing – Review & Editing, and Project Administration. **D.D.:** Supervision, Validation, Methodology, Formal Analysis, Writing – Review & Editing, and Project Administration.

All authors contributed to the development of the research and manuscript, critically reviewed the manuscript, approved the final version, and agreed to be accountable for all aspects of the work.

AI Assistance Declaration.

The authors confirm that tools powered by artificial intelligence (AI) were exclusively employed for enhancing language, improving grammar, and refining the manuscript's clarity and academic presentation. AI was not utilized to create, fabricate, manipulate, or modify the research data, statistical findings, analyses, or scientific outcomes. The authors maintain complete responsibility for the manuscript's accuracy, originality, integrity, and final content, ensuring they have thoroughly reviewed and approved the final version prior to submission.

Conflict of Interest

The authors affirm the absence of any conflicts of interest concerning the research, authorship, or publication of this article. They do not have any financial, personal, or professional affiliations that might have impacted the study’s design, data collection, analysis, interpretation of results, or manuscript preparation.

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