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Is Adaptive Capability Sufficient for Business Sustainability? The Contingent Role of Innovation in Silk Weaving SMEs

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ABSTRACT

This study investigates the relationship between adaptive capability and company sustainability, while also analysing the impact of innovation contingencies on silk weaving micro, small, and medium enterprises (MSMEs). A qualitative case study methodology was employed to gather data by observation, comprehensive interviews, and documentation from chosen MSMEs in Wajo Regency, South Sulawesi, Indonesia. The results demonstrate that adaptive aptitude alone cannot maintain a business unless it is converted into tangible innovations. These innovations encompass product diversification from conventional fabrics to apparel, bags, and wallets; process enhancement via the implementation of non-mechanical looms (ATBM); workforce adaptation to the incorporation of male weavers; and digital innovation through the utilisation of social media platforms such as Instagram, Facebook, and WhatsApp for marketing silk weaving enterprises. The research illustrates that innovation serves as a vital contingent mechanism that converts adaptive capabilities into enduring economic results. This research theoretically enhances the literature on dynamic capabilities by highlighting the facilitative function of innovation in conventional SMEs. It underscores the significance of incorporating flexibility and innovation tactics to attain long-term sustainability. Future investigations are recommended to examine these links employing quantitative or mixed-method approaches in various circumstances.

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1. INTRODUCTION (10 PT)

The traditional silk weaving craft is vital in bolstering the local economy and safeguarding cultural heritage. Micro, Small, and Medium Enterprises (MSMEs) in this sector not only offer a means of living for the community but also act as custodians of cultural identity [1]. These businesses encounter increasingly intricate issues stemming from market dynamics, evolving consumer tastes, and the escalating impact of globalisation. Wajo Regency, South Sulawesi, serves as a prominent hub for silk weaving enterprises, recognised for its production of traditional silk with significant historical and economic importance. Nonetheless, enterprises in this region have numerous challenges, including variable demand, restricted market access, and the necessity to adjust to contemporary customer requirements. These conditions render business sustainability an essential factor in preserving the continuity and competitiveness of silk weaving MSMEs [2], [3].

Adaptive capability is seen as a vital element that allows firms to respond efficiently to many forms of environmental change. From a dynamic capabilities standpoint, this competence signifies a business's ability to recognise opportunities, modify strategy, and allocate resources with agility. In the realm of silk weaving

MSMEs, adaptability is evidenced by modifications in product design, alterations in manufacturing techniques, management of the workforce, and marketing tactics [4], [5]. Nonetheless, a pivotal inquiry emerges: is adaptability alone adequate to guarantee business viability, especially in traditional enterprises with constrained resources? Prior studies have demonstrated that adaptation enhances corporate performance and resilience. Adaptive entrepreneurs demonstrate superior capacity to manage uncertainty and environmental fluctuations. Nonetheless, numerous studies indicate that adaptability may not exert a substantial influence unless bolstered by additional processes that might convert adaptive reactions into concrete business value. This indicates the necessity to further investigate elements that can enhance the correlation between flexibility and company sustainability, especially within silk weaving enterprises [6], [7].

Innovation is a critical factor. Innovation pertains not solely to new product development but also includes enhancements in production processes, organisational administration, and marketing techniques. In the silk weaving industry, innovation can be achieved through diversification, the use of more efficient looms, modifications to workforce arrangements, and the integration of digital technology in corporate operations [8], [9]. Consequently, innovation is an essential mechanism that facilitates flexibility, significantly influencing corporate sustainability. Nonetheless, adaptability and innovation are still inadequately researched, especially for small-scale traditional enterprises. Prior study predominantly concentrated on major businesses or the contemporary industrial sector, resulting in a deficiency in comprehension regarding the dynamics present in culture-oriented MSMEs such as silk weaving. Moreover, the distinctive attributes of these enterprises necessitate a more contextual and comprehensive approach. Consequently, a qualitative method is considered suitable for a more thorough exploration of adaptation and innovation [10]–[13].

This research enhances the dynamic capabilities literature by illustrating that adaptation alone is inadequate; it must be executed through several types of innovation. This research empirically enhances the examination of silk weaving MSMEs, specifically in Wajo Regency, South Sulawesi. The research findings are anticipated to provide a reference for business stakeholders and policymakers in formulating strategies that incorporate adaptation and innovation to attain company sustainability.

2. METHOD

2.1. This research is a qualitative case study approach.

The qualitative approach to answer this question is based on this background [14]. This study aims to examine whether adaptability alone is sufficient to ensure business sustainability and to explore the role of innovation in this relationship. Specifically, this study answers the following questions: (1) How is adaptability manifested through product innovation, particularly in product diversification from traditional fabrics to clothing, bags, and wallets? (2) How does process innovation, including the use of handloom looms, support production efficiency and business sustainability? (3) How do changes in workforce composition, including the involvement of male workers, reflect adaptation strategies in silk weaving businesses? (4) How does the use of digital platforms such as Instagram, Facebook, and WhatsApp contribute to innovation and market expansion? (5) To what extent is adaptability sufficient to maintain business sustainability, or does innovation play a determining role?

2.2. Research Informants

In the qualitative phase, interviews will be conducted with five artisans and informants: female artisans of silk SMEs and informants from agencies related to MSMEs in South Sulawesi Province. Data collection will be conducted systematically through note-taking and recording using open-ended and in-depth interview guidelines.

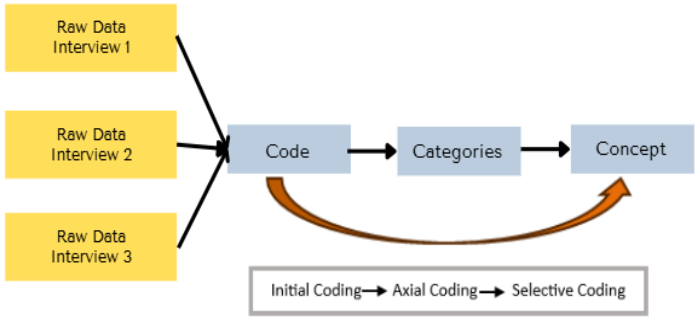
2.3. Data Collection Techniques

Data collection techniques in this research include: Direct observation of silk weaving SMEs, documentation, and in-depth interviews with silk weaving businesses in Wajo Regency, South Sulawesi. Data were collected through observation, in-depth semi-structured interviews, and documentation to ensure the richness and validity of the data through triangulation of sources and methods. Interviews served as the primary data collection method to explore participants' experiences, strategies, and perspectives, while observations provided insights into actual business practices, and documentation supported the data with relevant written notes.

2.4. Data Analysis Techniques

Data analysis was conducted using an interactive model proposed by Matthew B. Miles and A. Michael Huberman [15], which consists of three main stages: data reduction, data display, and conclusion

drawing/verification. The analysis was conducted iteratively to ensure that the findings accurately reflect empirical reality and effectively answer the research questions regarding the role of adaptive capacity and innovation in achieving business sustainability in silk weaving SMEs.



Picture 1. *Case Study Theory Process*

3. RESULTS AND DISCUSSION

3.1. Results

This research revealed that adaptability in silk weaving MSMEs is demonstrated through diverse kinds of innovation, including product features, manufacturing methodologies, workforce dynamics, and the integration of digital technologies.

3.1.1. Product Innovation as a Means of Adaption

Research findings indicate that silk weaving MSMEs have experienced substantial changes in their product offerings. Once mostly characterised by fabric or sarongs, the product range has since diversified to include apparel, luggage, and wallets. This alteration signifies a reaction to market conditions that progressively necessitate more diverse and functional products. One source remarked, "*Previously, we exclusively produced sarongs; however, we are now endeavouring to create garments and bags to generate greater interest."*

This product diversification is motivated by the necessity to enhance sales and as a tactic to broaden market segments. Contemporary products enable firms to access a broader consumer demographic, especially the younger generation, which possesses distinct preferences compared to previous markets. This signifies that enterprises are beginning to embrace a more robust market orientation. Moreover, product innovation signifies the capacity of enterprises to discern trends and modify designs in accordance with consumer demand. Businesses preserve traditional motifs while integrating them with contemporary designs to augment product attractiveness. This exemplifies an equilibrium between cultural conservation and innovation. Product innovation is a concrete representation of corporate adaptability. This skill enables them to maintain relevance in swiftly evolving and competitive marketplaces.

3.1.2. Process Innovation and Production Innovation

Research findings indicate that innovation also transpires inside the production process, specifically with the use of looms. While conventional looms (gedogan) remain in use, enterprises are increasingly adopting Non-Machine Looms (ATBM) to enhance production efficiency. One informant asserted, "*Utilising ATBM enables us to produce more rapidly and in greater quantities, thereby enhancing efficiency and effectiveness." Prior to the implementation of ATBM, the weaving process typically required around one month; however, we can now manufacture several meters within a single day*".

The implementation of ATBM provides benefits for enhanced production capacity and time efficiency. This tool enables firms to fulfil demand in greater volumes than conventional approaches. This is essential in addressing escalating market demand. Nevertheless, enterprises have not entirely forsaken conventional instruments. The utilisation of gedogan is preserved to uphold the originality and quality of specific items. This illustrates that process innovation is implemented carefully and does not eradicate the cultural identity intrinsic to the product. Consequently, process innovation embodies a strategic adaptation that integrates contemporary efficiency with the maintenance of tradition. This is a vital element in promoting corporate sustainability.

3.1.3. Workface Social Adaptation

The research findings reveal a transformation in the workforce composition of silk weaving micro, small, and medium enterprises (MSMEs). Historically, weaving was predominantly performed by women; however, male workers are now participating in the production process. One informant remarked, "*Currently, some men are engaged in weaving, particularly for labour-intensive tasks*."

The participation of male workers is especially prominent in occupations necessitating physical strength and technical expertise, such as handloom operation. This signifies a modification in the allocation of labour to enhance operational efficiency and production. Moreover, business proprietors are exhibiting adaptability in labour management by modifying the workforce size in accordance with production requirements. This method enables greater responsiveness to variations in market demand. This alteration in labour composition signifies a societal adjustment within the silk weaving sector. This adaptation enhances operational efficiency and fortifies long-term business resilience.

3.1.4. Digital Innovation as a Strengthening Factor

The research findings demonstrate that silk weaving MSMEs are commencing the adoption of digital technologies for marketing and communication purposes. Platforms like Instagram, Facebook, and WhatsApp facilitate product promotion and client engagement. An insider indicated, "*We now utilise Instagram and WhatsApp to streamline the sales process, as our clientele extends beyond Wajo Regency and South Sulawesi to regions such as Java, Sumatra, and Aceh."*

Employing social media enables firms to extend their market reach beyond their local area. This illustrates a transition from conventional marketing to more adaptable and extensive digital marketing. Moreover, social media enhances communication between enterprises and consumers, ultimately augmenting customer trust and loyalty. Accelerated and more direct encounters constitute a competitive advantage in the marketplace. Consequently, digital innovation is an essential mode of adaptation to technological advancements. The application of this technology offers substantial prospects for MSMEs to enhance their competitiveness and business sustainability.

3.1.5. Business Sustainability as a Result of the Interaction of Adaptation and Innovation

Business Sustainability Arising from the Convergence of Adaptation and Innovation
The research findings suggest that the sustainability of silk weaving MSMEs is influenced by multiple factors, arising from a confluence of diverse adaptation and innovation techniques employed concurrently. Business stakeholders acknowledge that the commercial landscape is ever evolving, necessitating an ongoing adaptation to ensure organisational viability. The informant's statement, "*If we do not keep pace with developments, our business may fail due to the current diversity in demands and tastes, necessitating our adaptation," underscores a shared recognition of the significance of aligning with market dynamics*.

company sustainability is demonstrated by the capacity of company entities to include diverse forms of innovation, encompassing products, processes, and marketing. Product diversification, the utilisation of artisanal materials (ATBM), and the employment of social media constitute complementary techniques for ensuring business continuity. This illustrates that business entities are adapting comprehensively across multiple facets of their operations. Moreover, the research findings indicate that company sustainability is perceived as a protracted process necessitating continual innovation. Business entities are not merely implementing transient modifications but are consistently assessing and adjusting their strategic approaches. An informant asserted, "We must persist in innovating to sustain the business, as this is our primary source of income," underscoring that innovation is a crucial component of sustainability measures. Business sustainability is further enhanced by entrepreneurs' capacity to reconcile traditional values with the imperatives of modernisation. Notwithstanding numerous advancements, entrepreneurs preserve the cultural uniqueness of their products. This illustrates that business sustainability in silk weaving encompasses not just economic factors but also the preservation of the cultural values inherent to the product.

3.2. Discussion

3.2.1. Product Innovation as a Means of Adaption

Research findings demonstrate that product innovation is a significant determinant of the adaptability of silk weaving MSMEs. The transition from traditional products like sarongs to apparel, bags, and wallets illustrates that firms are not merely adhering to outdated production methods but are proactively addressing evolving market demands and adjusting to consumer preferences. This shift demonstrates organisations' capacity to comprehend the complexities of a progressively competitive and consumer-centric market environment [16], [17].

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This product innovation transcends simple modifications in form and signifies a paradigm shift in corporate processes. Businesses are transitioning from a production-centric model to a market-centric one. Their endeavours to modify the design, functionality, and aesthetics of various items to align with consumer preferences, especially those of the younger generation, a prospective market sector, are clearly apparent. This has resulted in heightened demand for silk products. Historically, silk was exclusively donned for significant events, including weddings, funerals, and official ceremonies. It is now suitable for workplace attire and many products, enabling more versatile applications such as bags and wallets [18].

Moreover, product innovation enhances the added value of silk woven goods. Products that once have restricted functionalities have now transformed into multifunctional items with enhanced economic value. This not only enhances competitiveness but also creates new market opportunities previously inaccessible to traditional products, thus affecting the income of silk entrepreneurs [19], [20].

From a corporate sustainability standpoint, product innovation is an essential strategy for preserving product relevance in the face of swiftly evolving market trends. In the absence of innovation, conventional products may face diminishing demand owing to a misalignment with consumer preferences. Consequently, product innovation functions as an adaptive process that guarantees long-term business viability. These findings indicate that the adaptability of business actors will only exert a substantial influence when manifested through product innovation. Consequently, product innovation is not solely a consequence of adaptation but also a crucial catalyst for establishing business sustainability [21].

3.2.2. Process Innovation and Production Innovation

Process innovation is exemplified by the utilisation of Non-Machine Looms (ATBM), which formerly employed conventional gedogan looms. This demonstrates the proprietor's endeavours to enhance operational efficiency and efficacy. The employment of contemporary looms employing these machines facilitates enhanced production capacity and diminished manufacturing time, so helping the business owner to satisfy heightened market demand. This illustrates that adaptability manifests at both the strategic and operational levels [22], [23].

The implementation of ATBM illustrates the business owner's capacity to incorporate new technologies into current production methods. The integration occurs gradually and deliberately to maintain the equilibrium between efficiency and product quality. Nonetheless, the classic gedogan loom remains in use for specific designs and silk textiles. This demonstrates a contextual and needs-oriented methodology for adaptation. Moreover, the implementation of ATBM influences labour productivity. Utilising more efficient tools, weavers can achieve more productivity in a reduced timeframe. This enhances efficiency and simultaneously boosts business revenue [24], [25].

Conversely, business stakeholders uphold the utilisation of traditional instruments (gedogan) as an integral aspect of their cultural identity. This decision illustrates that process innovation does not inherently entail the substitution of antiquated methods, but may instead involve a synthesis of conventional and contemporary techniques. This methodology is essential for preserving product distinctiveness while enhancing manufacturing efficiency. Consequently, process innovation in this setting functions as both a mechanism for enhancing efficiency and an adaptation approach that concurrently addresses economic and cultural dimensions. This underscores the significance of innovation as an essential element in promoting company sustainability [26], [27].

3.2.3. Workface Social Adaptation

Alterations in the workforce composition of silk weaving MSMEs indicate that flexibility transcends mere technical and economic factors, incorporating intricate social dimensions as well. The participation of male labourers in the silk weaving production process signifies a cultural transition that was formerly led by women. This alteration did not transpire abruptly, but rather as a reaction to escalating production demands and the intricacy of commercial processes. Consequently, social adaptation is essential for sustaining silk weaving enterprises in the face of environmental transformations induced by modernisation [1], [28].

The participation of male workers illustrates adaptability in the hitherto inflexible division of labour. Occupations necessitating increased physical exertion or specialised technical abilities, such as operating handlooms, are now primarily undertaken by males. This illustrates that firm proprietors may discern operational requirements and judiciously modify their personnel configuration. This flexibility is a crucial indicator of effective adaptability in human resource management, especially for silk weavers [29].

The adaptability of the workforce also enhances overall production efficiency. By implementing a division of labour that corresponds more effectively with individual capacities and skills, the production process can operate more efficiently and productively. This circumstance enables enterprises to enhance

weaving production without substantially escalating expenses. Consequently, social adaptation influences both the labour composition and the operational efficacy of the enterprise [30].

This alteration in labour composition also mirrors wider societal factors. The evolution of gender roles in production activities indicates a transformation of conventional norms in response to economic needs and societal changes. This signifies that the silk weaving industry is experiencing both economic and significant social development. Consequently, social adaptation constitutes a component of a more extensive transformation within the local context. From a managerial standpoint, adaptability in workforce management enables enterprises to react more swiftly to variations in market demand. As demand escalates, silk entrepreneurs might modify the quantity and classification of required labourers. This enhances corporate resilience to unforeseen external fluctuations. Consequently, worker adaptation is an essential element in the expansion of the silk weaving business. Workforce social adaptation also enhances long-term business viability. By engaging a more diverse workforce, businesses may establish a more inclusive and sustainable work environment, thereby creating chances for those wishing to enhance their wages, irrespective of gender. This situation enhances productivity and fortifies social bonds inside the workplace. This is essential for sustaining long-term business stability [31], [32].

These findings indicate that adaptation in silk weaving MSMEs should be seen as a multifaceted concept, incorporating technical, economic, and social dimensions. Workforce adaptation exemplifies the comprehensive manner in which corporate entities navigate change. Consequently, corporate sustainability is influenced not solely by technological or product innovation, but also by the capacity to navigate the social dynamics present within the business environment [33].

3.2.4. Digital Innovation as a Strengthening Factor

The utilisation of digital technology by silk weaving businesses exemplifies a prominent response to the increasingly dynamic business landscape. Platforms such as Instagram, Facebook, and WhatsApp have transcended their roles as mere communication tools and have become principal avenues for product promotion. These platforms enable companies to graphically present items, cultivate brand identity, and access previously elusive consumers. This illustrates that digitalisation is not merely a trend but has evolved into a strategic imperative for corporate advancement. By employing this technology, entrepreneurs can broaden their market reach without depending on physical stores or conventional intermediaries. This creates fresh and expansive chances for corporate expansion. Digital innovation serves as a conduit for MSMEs to enhance their competitive standing in the market [34], [35].

The use of social media enables silk weaving enterprises to engage directly with consumers in a more expansive and adaptable way. In contrast to traditional marketing, which is predominantly unidirectional, social media fosters a more dynamic bidirectional communication environment. Customers may effortlessly submit enquiries, offer feedback, and express criticism directly, allowing entrepreneurs to respond swiftly. This encounter fosters an emotional connection between vendor and consumer, hence enhancing customer trust and loyalty. In this instance, digital innovation functions both as a marketing instrument and as a method for establishing enduring relationships with an expansive consumer demographic. This enhanced relationship is an essential advantage for sustaining silk weaving enterprises. Consequently, digitalisation enhances the relationship dimension of the enterprise. Moreover, digital innovation enhances the dissemination of information and the marketing of products [25], [36]. Silk weaving enterprises can promptly notify consumers with new items, promotions, or pricing alterations within a brief period. This facilitates a swifter market response in contrast to conventional marketing techniques. This adaptability is essential for responding to swiftly evolving trends, particularly among younger consumers. By leveraging the functionalities of social media, firms can adeptly modify their marketing tactics. This illustrates that digital innovation provides benefits regarding speed and adaptability. Digital technology enhances firms' adaptability and responsiveness to market fluctuations [37].

The utilisation of digital technology enables firms to broaden their market reach, including remote regions and worldwide markets. Silk woven products, once only sold locally, can now access consumers from diverse places and have effectively entered national and worldwide markets. This creates unprecedented opportunity for conventional enterprises. Utilising digital networks renders geographical barriers progressively insignificant in marketing endeavours. This illustrates the strategic significance of digital innovation in business expansion. A wider market reach enhances the potential for revenue growth and business sustainability. Consequently, digitalisation is an essential element in the growth of MSMEs, indirectly fostering culture through textile products [38].

Nonetheless, the implementation of digital technology necessitates the proficiency and preparedness of business proprietors. Variations in digital literacy among business owners pose hurdles to technology adoption. Certain business proprietors may continue to have difficulties in managing digital platforms or comprehending

efficient internet marketing techniques. This illustrates that digital innovation relies not alone on technological availability but also on human proficiency in its utilisation. Consequently, mentoring and training are essential to enhance the digital proficiency of business proprietors. In this manner, all MSMEs can maximally capitalise on digitalisation [39].

From a strategic standpoint, digital innovation can be perceived as a reinforcing element that enhances the efficacy of flexibility. Adaptability, in the absence of digital technology, is generally confined to a local context and exerts a diminished influence. In contrast, when adaptation is facilitated by digitalisation, the effects are more extensive and profound. This indicates that digital technology facilitates the adaption process and enhances outcomes, especially income. Digital innovation enhances the correlation between adaptability and corporate sustainability. Consequently, enterprises that adeptly leverage digital technology will own a more formidable competitive advantage [40], [41].

These findings affirm that digital innovation is not just an adjunct, but a fundamental component of business sustainability initiatives. Digitalisation empowers enterprises to enhance their flexibility, responsiveness, and competitiveness amid fluctuations in the commercial landscape. In the realm of silk weaving MSMEs, digital innovation acts as a conduit linking tradition with contemporary, hence creating new avenues for economic advancement. Consequently, corporate sustainability is dictated not only by the capacity to adapt but also by the proficiency in leveraging technology. Consequently, digital innovation serves as a fundamental component in establishing sustainable and adaptable enterprises in the contemporary landscape.

3.2.5. Business Sustainability Arising from the Interaction of Adaptation and Innovation

The results of business sustainability bolster the primary assertion of this study that adaptation alone is inadequate for ensuring corporate sustainability. Although flexibility allows organisations to react to environmental changes, the results suggest that without innovation, these reactions will lack substantial influence on business sustainability [42], [43]. Consequently, innovation serves as a tool that transforms flexibility into concrete outcomes. The study's results reveal that company sustainability arises from a dynamic interplay among many forms of innovation, including product, process, workforce, and digital innovation. This connection establishes a business structure that is more adaptable and responsive to environmental fluctuations. In this setting, innovation serves not just as a supplement but as a crucial determinant of adaptability's efficiency in attaining corporate sustainability [44].

These findings enhance the concept of dynamic capacities by underscoring that adaptability must be realised through innovation. In the absence of innovation, adaptation becomes inert and fails to establish a durable competitive advantage [45], [46]. This study identifies innovation as a contingent factor that connects flexibility and company sustainability. These findings suggest that business stakeholders and policymakers should promote innovation as an integral component of a company sustainability strategy. In the realm of silk weaving MSMEs, company success is contingent not solely upon survival but also upon the capacity for continual adaptation to evolving circumstances. Consequently, company sustainability can be defined as an ongoing, innovation-driven process of adaptation [47], [48].

3. CONCLUSION

This study seeks to investigate if adaptive aptitude alone suffices for company sustainability and to analyse the influence of innovation contingencies on this relationship among silk weaving MSMEs. The results confirm a robust correspondence between the basic conceptual framework and the empirical data, as anticipated in the introduction. Adaptability allows businesses to react to environmental changes; yet, it does not inherently ensure corporate survival without tangible innovation. This affirms the coherent connection among the research questions, findings, and the aforementioned debate.

The findings demonstrate that adaptability is expressed through multiple forms of innovation, encompassing product innovation (diversification into apparel, bags, and wallets), process innovation (utilisation of handlooms), workforce adaptation (engagement of male workers), and digital innovation via social media platforms such as Instagram, Facebook, and WhatsApp. These findings reinforce the assertion that innovation serves as a contingent factor linking adaptation and corporate sustainability. In the absence of innovation, flexibility becomes inert and fails to generate sustainable added value.

This research theoretically enhances comprehension of the dynamic capacities perspective by identifying innovation as a crucial process that facilitates adaptability in traditional MSMEs. This research underscores the need of a contextual perspective in comprehending business sustainability, especially in culture-centric enterprises like silk weaving, which encounter resource limitations and the pressures of modernisation. The findings of this study suggest that business stakeholders and policymakers should promote the incorporation of adaptability and innovation into corporate development strategies. Enhancing

sustainability requires not just improving adaptation but also augmenting innovative potential across product, process, and digitalisation dimensions.

This research also offers avenues for future advancement. Subsequent study may employ a quantitative or mixed methodologies approach to investigate the relationships among variables more comprehensively. Additionally, subsequent study could integrate other variables as contingency factors, such market orientation, entrepreneurial orientation, or institutional support. Longitudinal studies are advisable to investigate the dynamics of adaptability and innovation across time, thereby offering a more thorough comprehension of corporate sustainability.

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