



Socio-Technical Pathways To Resilience: Indigenous Women Entrepreneurs In Papua Mountains

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Abstract

This study examines the entrepreneurial resiliency of indigenous Dani women entrepreneurs in Papua Pegunungan by analyzing the roles of digital literacy, dynamic capabilities, and adversity quotient through a mixed-methods design. Quantitative data from 181 respondents were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM), while qualitative insights were obtained through a Delphi process. Results confirmed that digital literacy has both a strong direct effect on resiliency and an indirect effect mediated by dynamic capabilities, supporting all hypotheses. Qualitative findings revealed that digital literacy is practiced collectively, often through shared devices and platforms such as WhatsApp, serving as connective infrastructure rather than individual proficiency. Dynamic capabilities were expressed through communal improvisation, ecological awareness, and tacit knowledge, while resilience was sustained through solidarity and cooperation. Adversity quotient further enabled entrepreneurs to reframe limitations as shared challenges. The study advances a socio-technical understanding of resiliency and offers guidance for inclusive entrepreneurship policies tailored to indigenous contexts.

INTRODUCTION

Entrepreneurship is increasingly recognized as a multidimensional construct that encompasses resilience, adaptability, and cultural continuity rather than being confined to economic exchange (Shepherd et al., 2016; Williams & Shepherd, 2016). Within indigenous communities, entrepreneurial activity is deeply embedded in socio-cultural traditions, ecological rhythms, and communal governance, which together shape distinctive logics of adaptation and survival (Braune & Dana, 2022; Dana, 2015; Ratten & Dana, 2017). For women entrepreneurs, particularly those situated in patriarchal societies, entrepreneurship becomes a form of agency enacted under conditions of exclusion, digital asymmetry, and institutional neglect (Azam Roomi & Harrison, 2010; Morris et al., 2024).

In Papua Pegunungan, Dani women entrepreneurs sustain livelihoods through agribusiness, creative industries, and small-scale trade. These ventures illustrate ecological embeddedness and cultural continuity, while simultaneously serving as mechanisms for household survival and community resilience (Savira et al., 2025). Entrepreneurial success in this context is interpreted through both economic and social dimensions, encompassing family welfare, cultural preservation, and communal empowerment (Gunawan et al., 2024). Such interpretations challenge mainstream paradigms that privilege urban and market-integrated models, thereby restoring dignity to indigenous entrepreneurial knowledge (C. S. Henry et al., 2015; E. Y. Henry et al., 2018; Jennings & Brush, 2013).

Digital literacy has emerged as a transformative capability that enables indigenous women to access markets, mobilize networks, and translate knowledge into entrepreneurial value (Ng, 2012; Singh et al., 2023; van Laar et al., 2020). In digitally underserved regions such as Papua Pegunungan, platforms like WhatsApp and Facebook function as connective infrastructure, allowing women to transcend geographic isolation and institutional neglect (Nur & Muafi, 2025; Park et al., 2021). However, empirical evidence demonstrates that digital literacy does not directly enhance entrepreneurial resilience. Its influence is mediated by dynamic capabilities, which involve sensing opportunities, seizing resources, and reconfiguring routines in volatile environments (Mele et al., 2024; Teece, 2018; Zahra et al., 2014).

Dynamic capabilities among Dani women entrepreneurs are enacted through improvisation, tacit knowledge, and communal networks rather than codified managerial routines. Ecological awareness and collective adaptation provide the foundation for resilience, highlighting the importance of context-specific practices in resource-constrained environments (Davis et al., 2016; Eisenhardt & Martin, 2000; Helfat & Peteraf, 2009). Resilience thus emerges as a relational and adaptive process shaped by the integration of digital literacy and dynamic capability, reflecting a generative orientation toward uncertainty (Korber & McNaughton, 2018; Lengnick-Hall et al., 2011).

The adversity quotient adds another dimension to this construct. Dani women with high AQ scores demonstrate persistence, control, and ownership in navigating entrepreneurial challenges, while simultaneously bridging tradition and modernity (Gunawan et al., 2024; Williams & Shepherd, 2016). AQ profiles reveal that resilience is not only psychological but also socio-cultural, as women prioritize family obligations, spiritual values, and communal solidarity in sustaining their ventures.

Despite these insights, existing scholarship remains fragmented. Quantitative studies have clarified statistical relationships among digital literacy, dynamic capability, and entrepreneurial outcomes (Hair et al., 2019; Nakpodia et al., 2024). Qualitative investigations have illuminated perceptions of success and adversity among Dani women (Gunawan et al., 2024), yet resilience has rarely been examined through an integrated indigenous lens that foregrounds lived experiences, ecological knowledge, and cultural agency. This gap underscores the urgency of adopting a mixed-method approach that combines variance-based modeling with interpretive inquiry, thereby capturing both the measurable effects and the experiential processes of resilience.

Addressing this gap provides a foundation for applied research aimed at designing educational models and inclusive policy interventions. Such interventions must prioritize operational digital training, community-based capability development, and infrastructure tailored to ecological and cultural realities (Colbourne et al., 2024; Peredo & Chrisman, 2006). By situating resilience within the lived practices of Dani women entrepreneurs, this study contributes to the development of context-sensitive frameworks that support gender mobility and social transformation in Papua Pegunungan.

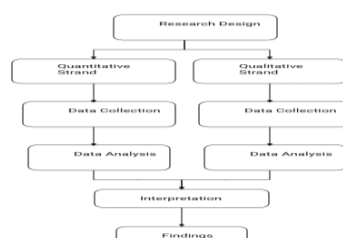
LITERATURE REVIEW

Entrepreneurial resilience has been increasingly conceptualized as a dynamic and generative process rather than a fixed personal trait. Williams & Shepherd (2016) and (Shepherd et al., 2016) emphasize that resilience is enacted through adaptation, improvisation, and innovation in contexts of uncertainty. This perspective is reinforced by Dana (2015) and Ratten & Dana (2017), who argue that indigenous entrepreneurship cannot be separated from socio-cultural traditions, ecological rhythms, and communal governance. Braune & Dana (2022) extend this argument by positioning indigenous entrepreneurs as epistemic agents whose practices challenge deficit-based narratives that dominate mainstream scholarship. The gendered dimension of resilience is highlighted by Azam Roomi & Harrison (2010) and Morris et al. (2024), who describe the “double burden” faced by women entrepreneurs in patriarchal societies. Their findings resonate with the experiences of Dani women in Papua Pegunungan, who balance household responsibilities with entrepreneurial activities. Gunawan et al. (2024) provide qualitative evidence that entrepreneurial success among Dani women is perceived through both economic and social dimensions, including family welfare, cultural preservation, and communal solidarity. This convergence of global theory and local evidence underscores the need to situate resilience within indigenous epistemologies. The debate on dynamic capabilities has evolved significantly. Eisenhardt & Martin (2000) and Helfat & Peteraf (2009) argue that in volatile environments, dynamic capabilities often take simple, experiential forms rather than codified managerial routines. (Davis et al., 2016) illustrate how indigenous entrepreneurs enact adaptive routines through improvisation and ecological awareness. Korber & McNaughton (2018) and Lengnick-Hall et al. (2011) contend that resilience is strengthened when dynamic capabilities are embedded within socio-cultural contexts. Mele et al. (2024) add that knowledge-based dynamic capabilities are critical for digital transformation, while Nur & Muafi (2025) highlight the mediating role of digital networking in sustainable entrepreneurship. These insights converge with findings from Papua Pegunungan, where Dani women rely on communal networks and ecological adaptation to sustain their ventures.

The adversity quotient (AQ) provides an additional lens for understanding resilience. Stoltz (2014) introduces AQ as a measure of control, endurance, reach, and ownership in facing adversity. Shepherd & Williams (2020) emphasize its role in enabling entrepreneurs to recover from setbacks. Gunawan et al. (2024) provide empirical evidence that Dani women with high AQ scores demonstrate persistence, prioritize family obligations, and act as bridges between tradition and modernity. Their study situates AQ as both a psychological and socio-cultural determinant of resilience, reinforcing the multidimensionality of the construct. The challenge for future research lies in integrating quantitative modeling with qualitative interpretation to capture both measurable effects and lived experiences. Such integration is essential for designing applied models of entrepreneurship education and inclusive policy interventions that support gender mobility and social transformation in Papua Pegunungan (Colbourne et al., 2024; Peredo & Chrisman, 2006).

METHODS

Figure 1. Mix Method Concurrent Embedded Design

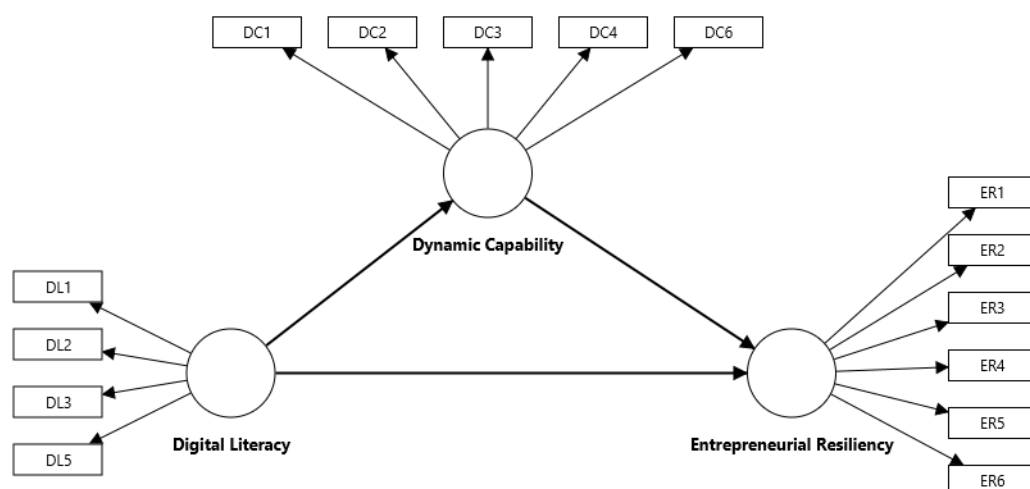


The study employed a concurrent embedded mixed-methods design (Quan-Qual) to capture statistical relationships and contextual insights. The quantitative strand was prioritized to test hypothesized links among digital literacy, dynamic capability, and entrepreneurial resilience, while the qualitative strand enriched interpretation with lived experiences of Dani women. This design was chosen because resilience in indigenous contexts requires integration of empirical measurement with socio-cultural narratives (Hair et al., 2019; Nakpodia et al., 2024).

For the quantitative phase, data were collected from 180 Dani women entrepreneurs in Papua Pegunungan operating micro or small businesses for at least two years. Respondents aged 17–61 reflected intergenerational participation. Purposive sampling ensured participants were indigenous and active in business. Constructs measured included digital literacy (Ng, 2012; van Laar et al., 2020), dynamic capability (Teece, 2018; Zahra et al., 2014), and resilience (Lengnick-Hall et al., 2011; Taneja et al., 2024), using a seven-point Likert scale translated into Bahasa Indonesia and validated through expert review. Data were analyzed with PLS-SEM via SmartPLS, assessing measurement and structural models, with bootstrapping (5,000 resamples) to test significance (Chin, 2010; Hair et al., 2019).

The qualitative strand complemented these findings by exploring strategies from Dani women's perspectives. Four informants representing diverse backgrounds were interviewed in Wamena and nearby districts, facilitated by local enumerators. A Delphi-style approach enabled iterative refinement and consensus, foregrounding indigenous epistemologies (Gunawan et al., 2024). Data were thematically analyzed using NVivo, following Gioia methodology (Gioia et al., 2013). Triangulation compared qualitative insights with quantitative results to enhance rigor. Ethical approval and informed consent were secured, ensuring confidentiality and voluntary participation. The research model was designed to integrate quantitative and qualitative approaches in order to capture both the measurable effects of digital literacy, dynamic capabilities, and adversity quotient on entrepreneurial resilience, and the contextual nuances of how these constructs are perceived and enacted by Dani women entrepreneurs in Papua Pegunungan. This integration reflects the methodological pluralism increasingly recommended in entrepreneurship research, where statistical modeling alone cannot fully explain phenomena embedded in socio-cultural realities (Hair et al., 2019; Nakpodia et al., 2024).

Figure 2. Conceptual Model



The quantitative strand employed Partial Least Squares Structural Equation Modeling (PLS-SEM) to test the hypothesized relationships among constructs. PLS-SEM was chosen because it is robust for small to medium sample sizes and complex models, and it allows simultaneous assessment of measurement and structural models (Chin, 2010; Hair et al., 2019).

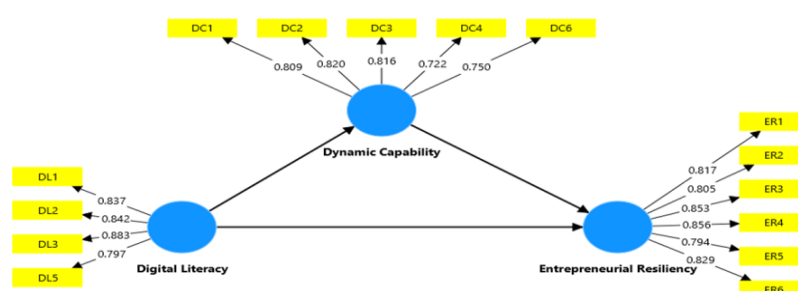
Digital literacy was modeled as an exogenous construct influencing dynamic capabilities and entrepreneurial resilience, while dynamic capabilities were modeled as both an endogenous construct (influenced by digital literacy) and a mediator (influencing resilience). Entrepreneurial resilience was positioned as the ultimate endogenous construct, reflecting the capacity of Dani women to sustain ventures amidst adversity. The adversity quotient was theorized as a moderating variable, strengthening the link between dynamic capabilities and resilience. This quantitative model provided empirical clarity on the structural pathways and explanatory power of the constructs. The qualitative strand complemented the statistical analysis through the Delphi method, which was employed to refine and validate the conceptual framework from the perspective of indigenous women themselves. The Delphi approach involved iterative rounds of in-depth interviews and consensus-building among key informants, ensuring that interpretations were grounded in local epistemologies and cultural practices (Gunawan et al., 2024). Together, the PLS-SEM and Delphi approaches formed a convergent research model. The quantitative analysis established the strength and significance of hypothesized relationships, while the qualitative inquiry enriched the interpretation by situating these relationships within indigenous realities. This dual approach enhanced methodological rigor, minimized bias, and provided a multidimensional understanding of entrepreneurial resilience. The research model thus contributes to the state of the art by demonstrating how digital literacy, dynamic capabilities, and adversity quotient interact in indigenous contexts, and by offering a framework that is both empirically robust and culturally sensitive.

RESULTS

The respondents in this study are largely concentrated in productive age groups, with the highest proportions between 26–35 years (32.0%) and 36–45 years (27.1%). Younger participants aged 17–25 years account for 17.7%, while older groups aged 46–55 and 56–61 represent 16.0% and 7.2% respectively. Most respondents are married (61.9%), followed by single women (22.7%) and widowed or divorced women (15.5%). Educational attainment is predominantly at the basic and secondary levels, with 26.0% completing primary school, 29.8% junior high school, and 30.9% senior high school. Only 13.3% hold diploma or bachelor's degrees, reflecting limited access to higher education among the sample. Business activities are diverse, with agribusiness (33.7%) and creative industries (26.5%) as the most common sectors, complemented by livestock farming (20.4%) and kiosk or retail shops (19.3%). In terms of digital engagement, social media is the dominant platform, used by 71.3% of respondents, while websites (7.7%) and video-sharing platforms (5.5%) remain less utilized. Notably, 34.3% of respondents reported never using digital platforms, highlighting persistent digital divides in the region. Overall, the profile suggests that Dani women entrepreneurs are primarily married, in their productive years, educated at basic to secondary levels, engaged in agribusiness and creative industries, and rely heavily on social media as their main digital tool.

Measurement Model

Figure 3. Measurement Model



Each construct was measured using multiple reflective indicators, and the assessment followed standard procedures for convergent validity, discriminant validity, and internal consistency reliability. Digital Literacy was measured using five indicators (DL1–DL5), with standardized loadings ranging from 0.797 to 0.883. All loadings exceeded the recommended threshold of 0.70, indicating strong item reliability. Dynamic Capability was assessed through six indicators (DC1–DC6), with loadings between 0.722 and 0.820, demonstrating acceptable convergent validity. Entrepreneurial Resiliency included six indicators (ER1–ER6), with loadings ranging from 0.794 to 0.856, confirming the construct's internal consistency.

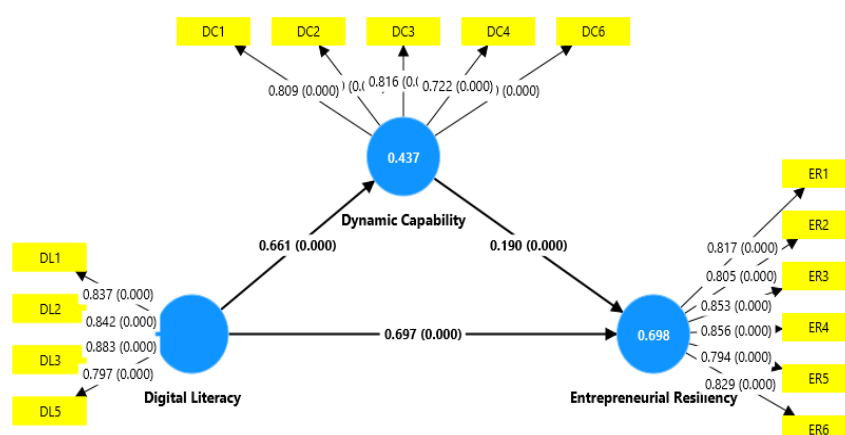
Structural Model

The structural model reveals a statistically robust and conceptually coherent framework for understanding the relationships among Digital Literacy, Dynamic Capability, and Entrepreneurial Resiliency. Each path was tested using bootstrapping with 5,000 resamples, ensuring the reliability of inference and the stability of estimates across sampling distributions (Hair et al., 2019). The results support a dual mechanism, where Digital Literacy enhances Entrepreneurial Resiliency both directly and indirectly through Dynamic Capability.

The path coefficient from Digital Literacy to Dynamic Capability is 0.661 ($p = 0.000$), indicating a strong and statistically significant effect. This relationship confirms that digital competencies particularly those related to communication, coordination, and access serve as enablers of adaptive routines. Entrepreneurs who are digitally literate are better equipped to sense opportunities, seize resources, and reconfigure practices in response to environmental shifts (Teece, 2016, 2018). In Papua Pegunungan, where formal managerial systems are limited, adaptation is enacted through communal knowledge and ecological awareness (Eisenhardt & Martin, 2000).

The path from Dynamic Capability to Entrepreneurial Resiliency is 0.190 ($p = 0.000$), demonstrating that adaptive routines significantly contribute to resilience. This finding aligns with Shepherd et al. (2016), who argue that resilience is strengthened when adaptive practices are embedded in socio-cultural contexts. In this model, Dynamic Capability functions as a strategic mediator, translating digital inputs into resilient outcomes through localized improvisation and experiential learning.

Figure 4. Structural Model



The direct path from Digital Literacy to Entrepreneurial Resiliency is 0.697 ($p = 0.000$), complemented by an indirect effect through Dynamic Capability ($\beta = 0.126$, $p = 0.002$). This dual pathway clarifies that resilience emerges both as a direct outcome of digital literacy and as a mediated transformation where digital tools are embedded within routines of sensing, seizing, and reconfiguring.

Table 1. Indirect Effect

	(O)	(M)	STDEV)	(\STDEV)	P values
Digital Literacy -> Entrepreneurial Resiliency	0.126	0.124	0.040	3.134	0.002

The model's R^2 value for Dynamic Capability is 0.437, indicating that Digital Literacy explains 43.7% of the variance in capability formation. The R^2 value for Entrepreneurial Resiliency is 0.698, reflecting substantial explanatory power from both Digital Literacy and Dynamic Capability. These values meet the recommended thresholds for social science modeling and confirm that the model captures meaningful variance in both endogenous constructs (Hair et al., 2019).

Table 2. Q-Square

	SSO	SSE	$Q^2 (=1-SSE/SSO)$
Digital Literacy	724.000	724.000	0.000
Dynamic Capability	905.000	684.690	0.243
Entrepreneurial Resiliency	1086.000	600.569	0.447

Predictive relevance was assessed using the Stone–Geisser Q^2 statistic, obtained through blindfolding procedures. The Q^2 value for Digital Literacy is 0.000, which is expected since it functions as an exogenous construct. The Q^2 value for Dynamic Capability is 0.243, indicating medium predictive relevance, while the Q^2 value for Entrepreneurial Resiliency is 0.447, reflecting strong predictive relevance. These values affirm that the model is not only explanatory but also predictive, capable of anticipating entrepreneurial outcomes beyond the observed data. In indigenous contexts, this predictive strength is particularly valuable, as it enables the design of interventions that are empirically grounded and culturally responsive.

Qualitative Strand

The Delphi process revealed a consistent pattern in how Dani women entrepreneurs in Papua Pegunungan engage with digital technologies (Sekayi & Kennedy, 2017). From the outset, Round 1 highlighted that mobile phones are not individually owned but shared collectively, producing the phenomenon of “one phone for all.” As one participant explained, *“HP itu kami pakai sama-sama. Kalau ada satu mama punya, dia yang buka WA dan kasih tahu yang lain. Kami lihat cara rawat ternak atau cara tanam dari situ.”* This illustrates that mobile phones are primarily used for basic learning and information exchange rather than for direct commercialization. Such practices confirm the infrastructural role of digital literacy in marginalized contexts (Ng, 2012; van Laar et al., 2020; Singh et al., 2023; Nur & Muafi, 2025).

Round 1 also revealed that WhatsApp is typically operated by a single individual to connect the community with external networks, while intra-community communication remains face-to-face. One participant noted, *“Kalau ada pesanan noken, biasanya lewat satu mama yang punya HP. Kami jarang kirim kabar antar mama karena tinggal dekat, jadi langsung bicara.”* This pattern underscores the selective use of digital tools as gateways to external opportunities, while local routines remain embedded in direct social interaction. Such findings resonate with Teece (2018) and Zahra et al. (2014), who argue that dynamic capabilities that is sensing, seizing, and reconfiguring are often embedded in socio-cultural practices rather than technological sophistication.

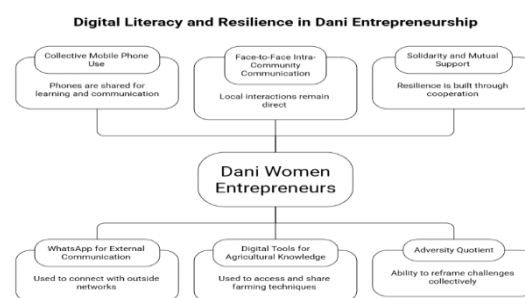
In Round 2, participants refined these statements, reinforcing the collective and adaptive nature of digital literacy. One participant emphasized, *“Posting hasil panen jarang sekali, lebih banyak untuk belajar,”* while another added, *“Saya ikut grup tani lewat HP teman, lalu cerita ke mama-mama lain.”* These comments highlight that digital tools are used to access agricultural

knowledge, which is then redistributed within the group. This collective learning process reflects adaptive routines that strengthen resilience (Eisenhardt & Martin, 2000; Lengnick-Hall et al., 2011).

The fourth statement, concerning solidarity and resilience, was particularly emphasized. One participant explained, *"Kalau jalan rusak, kami kumpul bicara langsung."* Another added, *"Kami kuat karena sama-sama bantu, bukan karena HP."* These narratives demonstrate that resilience is sustained through cooperation and mutual support, with WhatsApp serving only as a supplementary tool for external communication. This finding illustrates the moderating role of the adversity quotient (Stoltz, 2010; Shepherd & Williams, 2020), which enables entrepreneurs to reframe adversity as a collective challenge, consistent with Gunawan et al. (2024).

Round 3 confirmed these refinements, as all four statements were strongly endorsed by the panelists. No statement was moderately or not endorsed, indicating a high level of consensus. This unanimous endorsement strengthens the credibility of the findings and demonstrates that the integration of digital literacy, dynamic capabilities, and adversity quotient is both empirically grounded and contextually relevant.

Figure 5. Delphi Results



Finally, Round 4 consolidated the consensus into a unified narrative. The panelists agreed that mobile phones and WhatsApp are used collectively, primarily for learning and external communication, while entrepreneurial resilience is sustained through solidarity and face-to-face interaction. As one participant summarized, *"Kalau ada kesulitan, kami tetap kerja sama supaya usaha jalan."* This consensus underscores that resilience in indigenous entrepreneurship is shaped less by technology itself and more by the integration of minimal digital literacy, adaptive routines, and collective endurance. Such integration provides a theoretical foundation for inclusive entrepreneurship education and policy interventions tailored to indigenous contexts (Colbourne et al., 2024; Peredo & Chrisman, 2006).

DISCUSSION

Digital Literacy As Collective Infrastructure

The quantitative findings confirmed that digital literacy significantly influences dynamic capabilities, consistent with Ng (2012) and van Laar et al. (2020), who conceptualize digital literacy as the ability to access, evaluate, and apply information for entrepreneurial purposes. The Delphi results contextualized these statistical relationships by showing that digital literacy is enacted collectively, often through shared devices and basic platforms such as WhatsApp and Facebook. This resonates with Singh et al. (2023) and Park et al. (2021), who emphasize that in digitally underserved regions, digital literacy functions as connective infrastructure rather than individual proficiency. The absence of advanced digital production and evaluative skills, as shown in the measurement model, is not a deficiency but reflects localized digital cultures where operational literacy sustains entrepreneurial performance under resource constraints (Iltizam

Fairuzi et al., 2025; Nur & Muafi, 2025). Almeida (2024) and Chatterjee et al. (2022) further argue that digital literacy extends beyond technical skills to strategic appropriation of digital affordances, enabling entrepreneurs to mobilize networks and translate knowledge into value. In this context, adversity quotient (Stoltz, 2010; Shepherd & Williams, 2020) is embedded in digital practices, as limited access is reframed as a challenge to be overcome through cooperation, strengthening resilience through collective adaptation.

Dynamic Capabilities As Adaptive Routines

The PLS-SEM analysis demonstrated that dynamic capabilities mediate the relationship between digital literacy and entrepreneurial resiliency, aligning with Teece (2016, 2018), Zahra et al. (2014), and Eisenhardt & Martin (2000). These capabilities are not abstract managerial constructs but embodied practices enacted through improvisation, reliance on informal networks, and ecological awareness (Helfat & Peteraf, 2009; Davis et al., 2016). The Delphi findings illustrated that information accessed digitally is redistributed within the group and operationalized through adaptive routines such as seasonal farming adjustments and resource exchange.

This reflects Korber & McNaughton (2018), who argue that resilience is generative rather than reactive, and Lengnick-Hall et al. (2011), who emphasize that adaptive routines embedded in socio-cultural contexts strengthen resilience. In Papua Pegunungan, dynamic capabilities are enacted through tacit knowledge, oral transmission, and communal improvisation, consistent with Suddaby et al. (2015). Adversity quotient reinforces these adaptive routines by enabling entrepreneurs to perceive infrastructural limitations and patriarchal constraints not as insurmountable barriers but as shared challenges that strengthen communal adaptation (Gunawan et al., 2024; Menzies et al., 2024)

Resilience Through Solidarity and Cultural Agency

The dual pathway revealed by the structural model clarifies that resilience emerges directly from digital literacy and indirectly through dynamic capabilities. This resonates with Shepherd et al. (2016) and Williams & Shepherd (2016), who conceptualize resilience as a dynamic process enacted through adaptation, resourcefulness, and innovation in the face of uncertainty.

The Delphi consensus emphasized that resilience is sustained primarily through solidarity and cooperation, with digital tools serving as supplementary mechanisms for external communication and knowledge acquisition. This aligns with Dana (2015), Ratten & Dana (2017), and Henry et al. (2018), who emphasize that indigenous entrepreneurship is inseparable from socio-cultural systems, ecological rhythms, and communal governance structures. The integration of adversity quotient into this process demonstrates that resilience is not merely psychological but structural, enacted through collective endurance and cultural agency. Dani women entrepreneurs exemplify this by reframing adversity as motivation to persist, balancing dual roles as women and indigenous actors within patriarchal systems (Azam Roomi & Harrison, 2010; Morris et al., 2024).

CONCLUSION

This study examined how digital literacy, dynamic capabilities, and adversity quotient interact to shape entrepreneurial resiliency among indigenous Dani women in Papua Pegunungan, using a mixed-methods design that combined PLS-SEM and Delphi inquiry. The quantitative results confirmed all hypotheses: digital literacy significantly influences dynamic capabilities, dynamic capabilities enhance resiliency, and digital literacy affects resiliency both directly and indirectly. The qualitative findings enriched this evidence, showing that digital literacy is practiced collectively through shared devices and simple platforms such as WhatsApp,

functioning as connective infrastructure. Dynamic capabilities were expressed through communal improvisation, ecological awareness, and tacit knowledge, while resilience was sustained through solidarity and cooperation. Adversity quotient further enabled entrepreneurs to reframe limitations as shared challenges, strengthening collective endurance and cultural agency. Overall, the study advances a socio-technical understanding of resiliency in indigenous contexts, highlights the importance of localized digital training, community-based capability development, and inclusive entrepreneurship policies, and calls for future research across diverse settings to test and extend this framework.

REFERENCES

- Almeida, Fernando. (2024). Entrepreneurs' decision-making in sustainable open innovation practices. *The International Journal of Entrepreneurship and Innovation*, 14657503241289868. <https://doi.org/10.1177/14657503241289869>
- Azam Roomi, M., & Harrison, P. (2010). Behind the veil: women-only entrepreneurship training in Pakistan. *International Journal of Gender and Entrepreneurship*, 2(2), 150–172. <https://doi.org/10.1108/17566261011051017>
- Braune, E., & Dana, L.-P. (2022). Digital entrepreneurship: Some features of new social interactions. *Canadian Journal of Administrative Sciences / Revue Canadienne Des Sciences de l'Administration*, 39(3), 237–243. <https://doi.org/https://doi.org/10.1002/cjas.1653>
- Chatterjee, S., Chaudhuri, R., Vrontis, D., & Thrassou, A. (2022). SME entrepreneurship and digitalization – the potentialities and moderating role of demographic factors. *Technological Forecasting and Social Change*, 179, 121648. <https://doi.org/https://doi.org/10.1016/j.techfore.2022.121648>
- Chin, W. W. (2010). How to Write Up Report PLS Analyses. In V. E. Vinzi, W. W. Chin, J. Henseler, & H. Wang (Eds.), *Handbook of Partial Least Squares: Concept, Methods, and Application* (pp. 655–690). Springer.
- Colbourne, R., Peredo, A. M., & Henriques, I. (2024). Indigenous entrepreneurship? Setting the record straight. *Business History*, 66(2), 455–477. <https://doi.org/10.1080/00076791.2023.2166034>
- Dana, L. P. (2015). Indigenous entrepreneurship: An emerging field of research. *International Journal of Business and Globalisation*, 14(2), 158–169. <https://doi.org/10.1504/IJBG.2015.067433>
- Davis, M. H., Hall, J. A., & Mayer, P. S. (2016). Developing a new measure of entrepreneurial mindset: Reliability, validity, and implications for practitioners. *Consulting Psychology Journal: Practice and Research*, 68(1), 21–48. <https://doi.org/10.1037/cpb0000045>
- Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic Capabilities: What Are They? *Strategic Management Journal*, 21(10/11), 1105–1121. <http://www.jstor.org/stable/3094429>
- Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2013). Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology. *Organizational Research Methods*, 16(1), 15–31. <https://doi.org/10.1177/1094428112452151>
- Gunawan, N., Tambunan, A. A., Kosssay, L., & Siska, D. (2024). The Role of Adversity Quotient on Entrepreneurial Success among Indigenous Women Entrepreneurs: A Case Study of the Dani Tribe, Papua Pegunungan Province, Indonesia. *Pakistan Journal of Life and Social Sciences (PJLSS)*, 22(2), 21954–21967. <https://doi.org/10.57239/PJLSS-2024-22.2.001556>
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM Article information. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Helfat, C. E., & Peteraf, M. A. (2009). Understanding dynamic capabilities: progress along a developmental path. *Strategic Organization*, 7(1), 91–102. <https://doi.org/10.1177/1476127008100133>

- Henry, C. S., Sheffield Morris, A., & Harrist, A. W. (2015). Family Resilience: Moving into the Third Wave. *Family Relations*, 64(1), 22–43. <https://doi.org/10.1111/fare.12106>
- Henry, E. Y., Dana, L. P., & Murphy, P. J. (2018). Telling their own stories: Māori entrepreneurship in the mainstream screen industry. *Entrepreneurship and Regional Development*, 30(1–2), 118–145. <https://doi.org/10.1080/08985626.2017.1388445>
- Iltizam Fairuzi, M., EkoPujianto, W., Lucy Larassaty, A., & Sholikhah, A. (2025). Building Resilient Entrepreneurship: How Financial Literacy and Digital Inclusion Drive Performance in SMEs? *Jurnal Manajemen Dan Organisasi*, 16(2), 177–197. <https://doi.org/10.29244/jmo.v16i2.63697>
- Jennings, J. E., & Brush, C. G. (2013). Research on women entrepreneurs: Challenges to (and from) the broader entrepreneurship literature? *The Academy of Management Annals*, 7(1), 663–715. <https://doi.org/10.1080/19416520.2013.782190>
- Korber, S., & McNaughton, R. B. (2018). Resilience and entrepreneurship: a systematic literature review. *International Journal of Entrepreneurial Behavior & Research*, 24(7), 1129–1154. <https://doi.org/10.1108/IJEBR-10-2016-0356>
- Lengnick-Hall, C. A., Beck, T. E., & Lengnick-Hall, M. L. (2011). Developing a capacity for organizational resilience through strategic human resource management. *Human Resource Management Review*, 21(3), 243–255. <https://doi.org/10.1016/j.hrmr.2010.07.001>
- Mele, G., Capaldo, G., Secundo, G., & Corvello, V. (2024). Revisiting the idea of knowledge-based dynamic capabilities for digital transformation. In *Journal of Knowledge Management* (Vol. 28, Issue 2, pp. 532–563). Emerald Publishing. <https://doi.org/10.1108/JKM-02-2023-0121>
- Menzies, J., Chavan, M., Jack, R., Scarparo, S., & Chirico, F. (2024). Australian indigenous female entrepreneurs: The role of adversity quotient. *Journal of Business Research*, 175. <https://doi.org/10.1016/j.jbusres.2024.114558>
- Morris, M. H., Kuratko, D. F., Santos, S. C., & Soleimanof, S. (2024). Fear and the poverty entrepreneur: The paradox of failure and success. *Business Horizons*, 67(1), 41–54. <https://doi.org/10.1016/j.bushor.2023.07.002>
- Nakpodia, F., Ashiru, F., You, J. J., & Oni, O. (2024). Digital technologies, social entrepreneurship and resilience during crisis in developing countries: evidence from Nigeria. *International Journal of Entrepreneurial Behaviour and Research*, 30(2–3), 342–368. <https://doi.org/10.1108/IJEBR-01-2023-0012>
- Ng, W. (2012). Can we teach digital natives digital literacy? *Computers & Education*, 59(3), 1065–1078. <https://doi.org/10.1016/j.compedu.2012.04.016>
- Nur, S. A., & Muafi, M. (2025). Link between dynamic capability and sustainable entrepreneurship: The mediation role of digital networking. *Jurnal Siasat Bisnis*, 29(1), 1–14.
- Park, H., Kim, S., Jeong, Y., & Minshall, T. (2021). Customer entrepreneurship on digital platforms: Challenges and solutions for platform business models. *Creativity and Innovation Management*, 30(1), 96–115. <https://doi.org/10.1111/caim.12404>
- Peredo, A. M., & Chrisman, J. J. (2006). Toward a Theory of Community-Based Enterprise. *Academy of Management*, 31, 309–328. <https://doi.org/10.5465/amr.2006.20208683>
- Ratten, V., & Dana, L. P. (2017). Gendered perspective of indigenous entrepreneurship. *Small Enterprise Research*, 24(1), 62–72. <https://doi.org/10.1080/13215906.2017.1289858>
- Savira, M., Fahmi, F. Z., & Aritenang, A. F. (2025). Innovation and Well-Being in Indigenous Entrepreneurship in Indonesia: A Capability Approach. *Journal of Human Development and Capabilities*, 26(2), 177–198. <https://doi.org/10.1080/19452829.2025.2456010>
- Sekayi, D., & Kennedy, A. (2017). Qualitative delphi method: A four round process with a worked example. *Qualitative Report*, 22(10), 2755–2763. <https://doi.org/10.46743/2160-3715/2017.2974>

- Shepherd, D. A., Williams, T., Wolfe, M., & Patzelt, H. (2016). Learning from entrepreneurial failure: Emotions, cognitions, and actions. In *Learning from entrepreneurial failure: Emotions, cognitions, and actions*. Cambridge University Press. <https://doi.org/10.1017/CBO9781316416242>
- Singh, R., Kumar, V., Singh, S., Dwivedi, A., & Kumar, S. (2023). Measuring the impact of digital entrepreneurship training on entrepreneurial intention: the mediating role of entrepreneurial competencies. *Journal of Work-Applied Management*, 16(1), 142–163. <https://doi.org/10.1108/JWAM-11-2022-0076>
- Stoltz, Paul G., Ph.D - *Adversity quotient work_ finding your hidden capacity for getting things done- HarperCollins e-Books (2014_2000)*. (n.d.).
- Suddaby, R., Bruton, G. D., & Si, S. X. (2015). Entrepreneurship through a qualitative lens: Insights on the construction and/or discovery of entrepreneurial opportunity. *Journal of Business Venturing*, 30(1), 1–10. <https://doi.org/10.1016/j.jbusvent.2014.09.003>
- Taneja, M., Kiran, R., & Bose, S. C. (2024). *Relating entrepreneurial self-efficacy with entrepreneurial success: perception-based analysis of students of higher educational institutions*. <https://doi.org/10.1080/1331677X.2024.2317145>
- Teece, D. J. (2016). Dynamic capabilities and entrepreneurial management in large organizations: Toward a theory of the (entrepreneurial) firm. *European Economic Review*, 86, 202–216. <https://doi.org/10.1016/j.euroecorev.2015.11.006>
- Teece, D. J. (2018). Business models and dynamic capabilities. *Long Range Planning*, 51(1), 40–49. <https://doi.org/10.1016/j.lrp.2017.06.007>
- van Laar, E., van Deursen, A. J. A. M., van Dijk, J. A. G. M., & de Haan, J. (2020). Determinants of 21st-Century Skills and 21st-Century Digital Skills for Workers: A Systematic Literature Review. *Sage Open*, 10(1). <https://doi.org/10.1177/2158244019900176>
- Williams, T. A., & Shepherd, D. A. (2016). Building Resilience or Providing Sustenance: Different Paths of Emergent Ventures in the Aftermath of the Haiti Earthquake. *Academy of Management*, 59(6). <https://doi.org/10.5465/amj.2015.0682>
- Zahra, S., Wright, M., & Abdelgawad, S. (2014). Contextualization and the advancement of entrepreneurship research. *International Small Business Journal*, 32, 479–500. <https://doi.org/10.1177/0266242613519807>