



Inclusive Strategy Model for Strengthening Entrepreneurship among Muslims with Disabilities: A Penta-Helix and Co-Creation Approach

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Abstract: Muslim with disabilities face multidimensional barriers that limit their participation in formal employment, making entrepreneurship a strategic avenue for economic independence and social inclusion. This study develops a conceptual model of resilience for Muslim entrepreneurs with disabilities by integrating internal and external support factors through a Penta-Helix and co-creation perspective. Employing a qualitative approach that combines an extensive literature review with semi-structured interviews involving practitioners, policymakers, academics, and disability-focused NGOs, the study identifies key factors shaping entrepreneurial resilience. The findings reveal that resilience is not an innate trait but an emergent capability cultivated through the interaction of internal psychological strengths such as self-efficacy, persistence, opportunity recognition, innovativeness, and risk-taking and structured external support systems. Islamic values further reinforce emotional stability, moral discipline, and purpose-driven motivation. Despite these strengths, structural challenges persist, including limited market access, inadequate financial literacy, insufficient mentoring, and enduring social stigma. To address these barriers, the proposed model presents inclusive ecosystem solutions, including Sharia-compliant financing, integrated incubators, collaborative co-working hubs, mentoring platforms, and advocacy programs involving government, industry, academia, communities, and the media. This model contributes to the literature on disability entrepreneurship by offering a holistic, value-integrated, and ecosystem-oriented framework.

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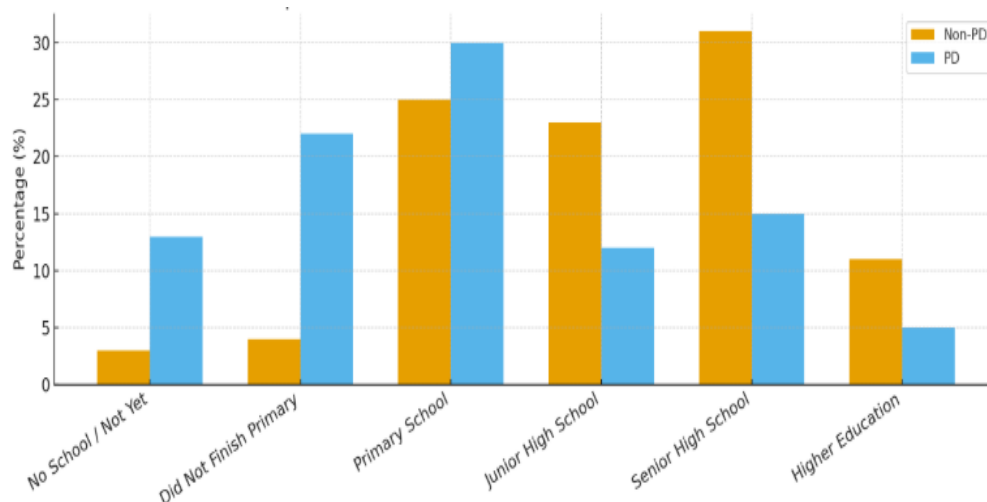


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Introduction

Approximately 1.3 billion people, or around 16% of the global population, live with disabilities, and this number continues to rise due to the increasing prevalence of chronic illnesses and longer life expectancy. Disability results from the interaction between specific health conditions, environmental factors, and individual characteristics (WHO, 2023). In Indonesia, data from Badan Pusat Statistik (2024) indicate that more than 17.8 million people are categorized as persons with disabilities. About one-third of this population lacks adequate formal education, making them more economically vulnerable (see Figure 1). In addition, the labor force participation rate of persons with disabilities in Indonesia is only 23.94%. This group also faces higher risks and more barriers in performing daily activities compared to individuals without disabilities (Kementerian UMKM, 2025). These conditions reflect significant limitations in accessing broader economic opportunities (Cahyati & Choirunnisa, 2022; Indarti et al., 2024; Renko et al., 2016).

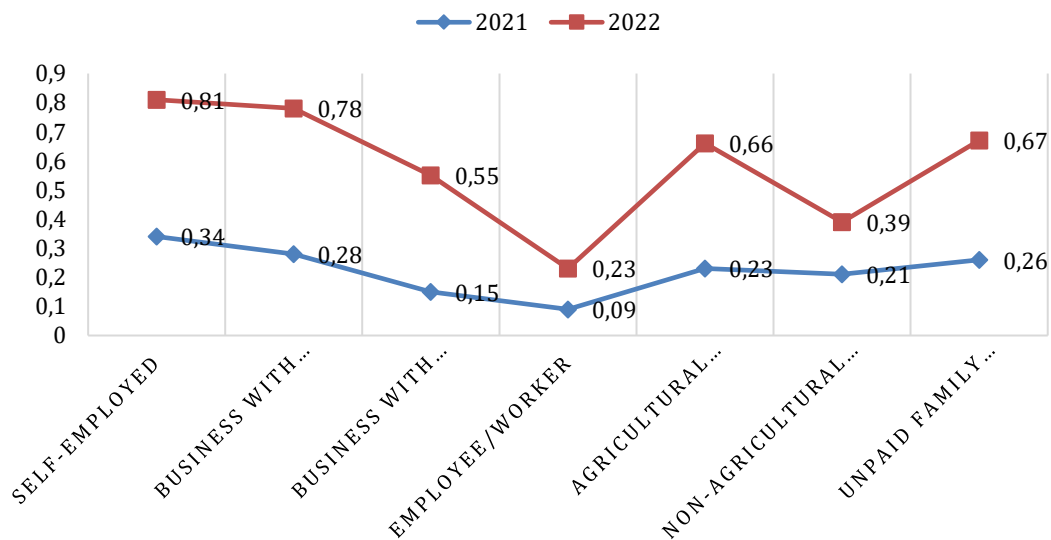
Within these constrained circumstances, entrepreneurship emerges as a strategic pathway for persons with disabilities to achieve economic empowerment and personal fulfillment (Meng & Kim, 2025). For this group, entrepreneurial activity serves as an important instrument for building financial independence and gaining greater control over their lives (Norstedt & Germundsson, 2023). Limited access to formal employment—often a result of structural and systemic discrimination makes entrepreneurship a realistic avenue to enhance autonomy and expand economic inclusion (Ashalatha et al., 2024). Consequently, scholarly attention to how persons with disabilities engage in and navigate their entrepreneurial experiences has become increasingly salient within contemporary entrepreneurship literature (Hidegh et al., 2022). This is especially relevant in understanding how their entrepreneurial resilience is formed, both through external support mechanisms and through their capacity to adapt to various constraints they encounter (Ashalatha et al., 2024; Meng & Kim, 2025).



Source: National Socio-Economic Survey (2020)

Figure 1. Comparison of Education Levels Between Persons with Disabilities (PD) and Persons without Disabilities (Non-PD) in Indonesia

Another report from the Decent Work Indicators in Indonesia 2022 published by BPS Indonesia shows that the majority of workers with disabilities in Indonesia are engaged in entrepreneurial activities, with the highest proportions found in the categories of self-employment and self-employment assisted by unpaid family workers or temporary laborers (see Figure 2). The number of workers with disabilities increased significantly from 2021 to 2022 across all employment status categories, and this growth is evident for both genders, with men forming the majority. There is also a proportion of workers with disabilities who work as independent laborers in the agricultural sector (0.66%) and those who run businesses assisted by permanent or paid workers (0.55%). Meanwhile, the smallest proportion comes from the category of wage employee laborers, employees, or staff which accounts for only 0.23% of the total employed population nationally. In addition, most workers with disabilities reside in rural areas. These findings underscore that person with disabilities are increasingly participating in the labor market, particularly through entrepreneurial activities as a means of strengthening economic independence.



Source: BPS (2022)

Figure 2. Distribution of Workers with Disabilities in Indonesia by Employment Status (2021–2022)

Religious perspectives also reinforce the narrative of empowerment, particularly in Muslim-majority societies such as Indonesia (Aziz & Ilham, 2025). Islamic teachings uphold the values of brotherhood, justice, and respect for human dignity, while promoting equal treatment regardless of physical condition (Tias, 2024). Islam does not marginalize persons with disabilities; rather, it affirms that they possess equal rights in social, economic, and spiritual life. Physical differences are not considered indicators of a person's worth or standing before God (Agustina & Noviantoro, 2023). These inclusive values provide a strong moral foundation for encouraging economic participation and fostering a more humane entrepreneurial ecosystem (Afdawaiza, Supriani, et al., 2025). In this context, Islamic entrepreneurship is not merely an economic activity but also a form of social worship that upholds principles of justice and empowerment (Afandi et al., 2025; Yusfiarto et al., 2025). Through this value-based framework, which emphasizes autonomy, Islamic teachings have the potential to strengthen the resilience of persons with disabilities in facing entrepreneurial challenges.

To comprehensively understand the dynamics of entrepreneurship among persons with disabilities, an individual-centered approach is no longer sufficient (Tiasakul et al., 2024). Entrepreneurial processes are shaped by the interaction between individuals and their environment, making an ecosystem perspective essential (Pérez-Macías et al., 2024; Tiasakul et al., 2024). In this regard, Penta-Helix Theory offers a relevant conceptual framework (Sudiana et al., 2020), as it involves key actors who collaboratively contribute to creating an enabling environment for strengthening entrepreneurial resilience. Government institutions provide inclusive regulations and policy frameworks; academia produces research and empowerment models (Setijaningrum & Rahardian, 2022); the business sector creates partnership opportunities and inclusive value chains; while community organizations offer social support and advocacy (Nicholls, 2006; OECD, 2023). The synergistic interaction of these actors fosters an ecosystem that enhances the resilience, adaptive capacity, and sustainability of entrepreneurs with disabilities.

Although various studies have discussed disability and entrepreneurship, research that specifically examines how entrepreneurial resilience among persons with disabilities is formed within the context of developing countries with Muslim-majority populations remains scarce. Furthermore, the integration of psychological, social, religious, and structural factors as well as the dynamics of penta-helix collaboration has yet to be widely employed as a basis for constructing a comprehensive resilience model. Therefore, this study aims to develop a resilience model for entrepreneurs with disabilities by mapping the internal and external factors that shape their entrepreneurial endurance. The proposed model is expected to contribute theoretically to the literature on inclusive entrepreneurship while offering practical recommendations for strengthening the entrepreneurial ecosystem for persons with disabilities in Indonesia.

Literature Review and Hypothesis Development

Penta-Helix Framework and Co-Creation

As outlined earlier, the central focus of this study is directed toward examining institutionalized ideas and their patterns of distribution across various specialized domains that collectively constitute the five pillars of the Penta-Helix innovation model (Etzkowitz, 1993; Halibas et al., 2017; Yolanda et al., 2026). This model is widely employed as an analytical framework for understanding the dynamics of science and innovation policy, as well as the mechanisms through which knowledge is transferred from producers of knowledge to policymakers (Etzkowitz & Leydesdorff, 1997; Widhiasthini et al., 2025; Wisudayati et al., 2020). In its original conceptualization, the effectiveness of innovation policy is understood to depend on the creation of “hybridization,” or institutional overlapping spaces among stakeholders, ensuring that no single actor dominates and that the system does not operate in isolation without coordination (Cai & Etzkowitz, 2020; Etzkowitz, 2002; Etzkowitz & Leydesdorff, 2000). Subsequent developments of the model emphasize the importance of differentiated roles among the government, industry actors, academia, communities, and the media, each of which contributes distinctively to facilitating the emergence of innovation (Afonso et al., 2012; Ivanova, 2014). To ensure the effectiveness of such collaboration, a “consensus space” is required an arena that enables all five actors to interact on the basis of trust and shared understanding (Afdawaiza, Yusfiarto, et al., 2025; Pambekti et al., 2022; Sudiana et al., 2020).

Within the Penta-Helix framework, synergy among actors is seen as the foundation for fostering innovation and sustainable economic development. Academia plays a role in producing skilled human resources and transforming knowledge and research into new products or business ventures. The business sector drives knowledge-based economic growth by providing capital, networks, collaboration opportunities, and corporate social responsibility (CSR) programs that reinforce startup innovation (Campbell et al., 2015; Carayannis et al., 2012). Government contributes by creating an enabling environment through regulations, licensing, incentives, grants, and basic infrastructure (Etzkowitz, 2002). Communities enhance innovation by generating new ideas, strengthening creative capacities, providing spaces for interaction, and offering feedback on product development (Nylander & Tholander, 2017). Meanwhile, the media facilitates innovation by disseminating information, generating public visibility, linking actors, and bridging them to national and global markets (Awaluddin et al., 2016). Furthermore, mechanisms such as technology transfer, cross-sector collaboration, network strengthening, conflict moderation, public communication through media, and collaborative leadership within the consensus space are crucial factors that promote systemic innovation in the Penta-Helix framework (Sudiana et al., 2020).

Table 1. The Role of Each Helix in the Penta-Helix Model with a Co-Creation Dimension

Helix	Role / Description	Source (Adapted)
Academia	Develops human resources (graduates, lecturers, researchers); transforms knowledge and research into innovation and new products/businesses; collaborates with other helices in co-creating solutions through joint research and community-engaged programs.	Carayannis et al. (2012)
Business	Economic actor contributing to a knowledge-based economy; provides capital, networks, collaboration, and CSR; supports startup innovation; engages in co-creation with communities and academia to design market-oriented innovations.	Carayannis et al. (2012)
Government	Regulates legal and policy frameworks; provides permits, incentives, grants, and infrastructure; facilitates co-creation by enabling multi-stakeholder forums, participatory policymaking, and collaborative innovation platforms.	Etzkowitz (2002)
Community	Source of innovative ideas; provides interaction platforms; enhances creative skills; offers feedback on new products; actively participates in co-creation through citizen involvement, community testing, and participatory design.	Nylander & Tholander (2017)
Media	Disseminates information, provides publicity, serves as a feedback channel, and connects actors to markets; supports co-creation by amplifying public voice, facilitating dialogue, and enabling collaborative communication ecosystems.	Awaluddin et al. (2016)

Source: Adapted from Sudiana et al. (2020)

Disability-Entrepreneurial Resilience

Resilience is understood as an individual's capacity to negotiate, adapt, and effectively manage stress or trauma, enabling them to recover from difficult situations (Windle, 2011). In the entrepreneurial context, resilience becomes a critical element because it reflects not only the personal endurance of entrepreneurs but also influences entrepreneurial intention, business continuity, and innovation levels. In this domain, resilience extends beyond individual traits to encompass organizational and strategic dimensions that allow entrepreneurs to respond to

uncertainty, adapt, and create new value (Branca et al., 2025; Bullough et al., 2014). Likewise, within the entrepreneurial ecosystem perspective, resilience is viewed as the ecosystem's ability to continuously recover and adjust to external shocks and internal pressures, including its capacity to realign resources, bounce back from failures, and modify business models as the basis for competitive advantage (Branca et al., 2025; Lai et al., 2016; Roundy et al., 2017; Schutte & Mberi, 2020; Scuotto et al., 2017).

From the Resource-Based View, entrepreneurial resilience can be understood as an intangible yet strategically valuable asset capable of generating sustainable competitive advantage. Although the concept has gained attention across various disciplines, research on resilience remains relatively limited in the management literature (Santoro et al., 2021; Utama et al., 2023). Furthermore, resilience can be imprinted into the organization through the process of imprinting, where founder characteristics leave long-lasting effects on the firm and strengthen its adaptive capacity in facing environmental dynamics (Bryant, 2014; Marshall, 1993). Incorporating resilience into the conceptual model is therefore relevant given its influence on both strategy and performance, as well as its comparable role to entrepreneurial intention (Branca et al., 2025; Schlaegel et al., 2021). Thus, entrepreneurs must continuously adjust to market needs and conditions and respond to disruptions arising from both internal operations and the external environment.

In the context of persons with disabilities, resilience becomes even more essential because their entrepreneurial journey is shaped by a combination of institutional and individual factors. Renko et al. (2016) demonstrate that in the United States, persons with disabilities are less likely to start and succeed in business due to barriers such as lower educational attainment, limited access to capital, and inadequate social support. This underscores the need for more inclusive policies and training tailored to the specific needs of entrepreneurs with disabilities. Hidegh et al. (2022) further highlight that entrepreneurship can serve as a pathway to empowerment for entrepreneurs with disabilities, offering access to economic independence, positive freedom, and more meaningful participation in the labor market. However, barriers such as limited social acceptance and insufficient community engagement continue to hinder change at the collective level.

These findings are reinforced by Jammaers & Williams (2023), who show that entrepreneurs with disabilities in Belgium often interpret their physical limitations as sources of value that enhance their skills, credibility, and innovative capacity. Nonetheless, such value attribution does not eliminate the tangible challenges they face, including discrimination, practical barriers in business operations, and the risk of being confined to niche markets that restrict growth potential (Ashalatha et al., 2024; Aziz & Ilham, 2025; Norstedt & Germundsson, 2023; Pavey, 2006; Yusfiarto et al., 2022). These studies collectively indicate that the resilience of entrepreneurs with disabilities does not originate solely from internal factors but emerges through complex interactions between their physical, social, and cultural capital. Consequently, entrepreneurial resilience among persons with disabilities depends on individual personal strengths while also being shaped and often constrained by external environmental conditions, including institutional support, social norms, and the structure of available opportunities.

Religious Value and Persons with Disabilities

In Islamic teachings, religious values regard all human beings including persons with disabilities as dignified individuals with equal rights and potential before Allah (Ali & Codina, 2025). The principle of rahmatan lil 'alamin emphasizes that Islam serves as a source of universal compassion that upholds justice and provides protection for vulnerable groups. The Qur'an rejects all forms of discrimination based on physical conditions (Qur'an 49:13) and asserts that dignity is determined by piety rather than bodily ability (Agustina & Noviantoro,

2023; Aziz & Ilham, 2025; Hassan & Hussain, 2025). As such, persons with disabilities are positioned as an essential part of society who must be respected, included, and empowered. These religious values form an ethical foundation that reinforces social acceptance, dignity, and equal participation across various spheres of life (Ali & Codina, 2025; Aziz et al., 2025; Tias, 2024).

Islam also emphasizes that disability is neither a punishment nor a sign of spiritual deficiency, but rather a part of the diversity of Allah's creation that must be embraced with dignity. The traditions of Prophet Muhammad (peace be upon him) illustrate that individual with physical limitations held honor and contributed significantly to the community, such as the case of Abdullah bin Umm Maktum, who was entrusted with strategic responsibilities in Madinah (Al-Aoufi et al., 2012; Alfiani & Sulaiman, 2022; Aziz et al., 2025). This value underscores that each individual possesses unique potential that can develop when provided with social support, adequate accessibility, and opportunities for empowerment. Islam's approach to disability emphasizes capacity-building rather than mere charity and promotes the elimination of stigma that has long hindered the productive participation of persons with disabilities in social and economic domains (Aziz & Ilham, 2025; Bambang et al., 2023; Billah et al., 2025; Tias, 2024).

In the modern context, Islamic religious values can serve as a strong pillar for developing a genuinely inclusive ecosystem for persons with disabilities particularly in education, employment, entrepreneurship, and active participation in the halal industry (Alfiani & Sulaiman, 2022; Ali & Codina, 2025; Aziz & Ilham, 2025). The principles of *adl* (justice), *ihsan* (benevolence), and *ta'awun* (mutual support) provide a normative foundation for communities, organizations, and state institutions to ensure that every individual, regardless of physical or sensory limitations receives equal opportunities and a supportive environment to develop their potential (Ali & Codina, 2025; Aziz et al., 2025; Bengtsson, 2018; Tias, 2024). Within the halal industry, which upholds ethics, quality, safety, and sustainability, persons with disabilities can contribute through various strategic and operational roles.

Furthermore, the integration of Islamic ethical values within contemporary social policies offers a strategic pathway for strengthening disability-inclusive development. Islamic jurisprudence (*fiqh*) provides a rich normative basis for promoting accessibility and economic empowerment through social instruments (Khoirunnisa et al., 2023), which can be mobilized to support livelihood programs for persons with disabilities. Several modern initiatives demonstrate how Islamic social finance can function as a redistributive and developmental mechanism that reduces structural barriers while enhancing long-term capabilities (Hussain et al., 2022; Mutmainah et al., 2024; Sunarsih et al., 2023; Widiastuti et al., 2022). When aligned with national disability policies and community-based support systems, these instruments have the potential to create synergistic impact by fostering independence, enabling skill development, and enhancing social mobility. Thus, the integration of Islamic religious values with institutional mechanisms not only reflects the ethical commitments of the Muslim-majority context but also promoting inclusive participation of persons with disabilities in society.

Method

This study employs a qualitative approach integrating a literature review and semi-structured interviews as the primary methods for identifying and consolidating the research constructs (Patton, 2014). This approach was chosen because the topic of disability entrepreneurship remains relatively underexplored within the empirical Islamic economics literature, necessitating an in-depth and contextually grounded understanding directly from practitioners,

stakeholders, and experts in the field. A qualitative design enables the researcher to capture lived experiences, social dynamics, and diverse stakeholder perspectives that cannot be adequately understood through purely quantitative methods (Creswell & Plano Clark, 2017). The identification and consolidation of constructs in this study followed a multiphase process.

In the first phase, semi-structured interviews were conducted with nine experts. Four disability-entrepreneurship practitioners (business owners) with established experience in managing and operating their ventures were interviewed. These practitioners provided practical insights into the dynamics of disability entrepreneurship as well as the challenges and opportunities they commonly encounter. Second, a semi-structured interview was conducted with a commissioner from the National Disability Commission, Ministry of Social Affairs of the Republic of Indonesia. This interview, alongside discussions with academics actively researching related issues and examining potential problems and solutions through triple-helix and co-creation approaches enabled us to understand the various activities and institutional functions supporting disability-entrepreneurship development. Several measurement items proposed by the experts were also documented accordingly.

Disability-empowerment NGOs were also involved in the interview series, particularly those focusing on entrepreneurship development for persons with disabilities. In addition, semi-structured interviews were conducted with researchers from universities and NGOs working on disability-entrepreneurship studies. Through these interviews, a range of significant factors influencing the resilience of entrepreneurs with disabilities were identified. In the final phase, all factors considered potentially critical to disability entrepreneurship were obtained through a systematic review of contemporary literature in this field and related areas such as personal traits and support programs involving key actors within the penta-helix framework. The finalization of constructs and measurement items was then carried out by following structured-interview protocols.

Table 2. Respondent Profile

No.	Function	Role	Institution
R1	Commissioner	Government/Regulator	National Commission on Disability
R2	Chairperson	Non-Governmental Organization	Disability Service Foundation
R3	Researcher	Non-Governmental Organization	Disability Service Foundation
R4	Chairperson	Academician Community	University Disability Service Center
R5	Researcher	Academician Community	University Disability Service Center
R6	Business Owner	Entrepreneur with Disabilities	Independent Business / SME
R7	Business Owner	Entrepreneur with Disabilities	Independent Business / SME
R8	Business Owner	Entrepreneur with Disabilities	Independent Business / SME
R9	Business Owner	Entrepreneur with Disabilities	Independent Business / SME

Analysis and Discussion

Model Development

Research on entrepreneurship among persons with disabilities consistently demonstrates that structural, social, and psychological barriers interact to shape their entrepreneurial experiences. Renko et al. (2016) emphasize that, in the United States, entrepreneurial entry is strongly influenced by education, access to capital, and the strength of social networks. This finding aligns with respondents' insights, which highlight the importance of foundational courage and

mental readiness. One respondent stated that “*entrepreneurs with disabilities must be willing to take risks... this courage must be balanced with capability, vision, resilience, and strong abilities to identify opportunities.*” This indicates that the starting point of an entrepreneurial journey is not solely determined by external resources, but also by individuals’ psychological capacities and internal readiness. Another respondent added, “*taking risks also means being prepared to face failure, learn from mistakes, and keep evolving; without this mindset, a business will easily stagnate.*” This statement reinforces Santoro et al.’s (2020) finding that internal motivation, adaptability, and resilience are crucial factors for building entrepreneurial robustness, especially when technological and environmental support remains inadequate.

“The main problems often faced by entrepreneurs with disabilities frequently stem from internal factors. Challenges such as difficulty maintaining business consistency, limited risk-taking courage, underdeveloped self-efficacy, and constraints in managing and building networks often hinder the sustainability of their ventures.”

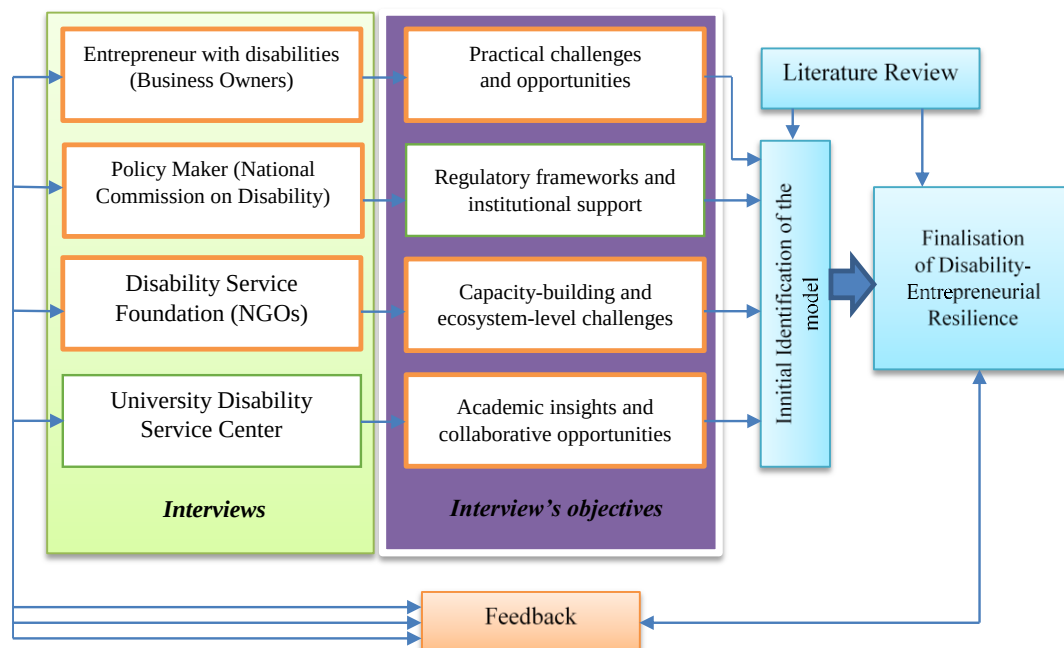


Figure 3. Framework of Construct Development for Disability–Entrepreneurial Resilience

A qualitative approach provides deeper insights into the meaning of entrepreneurship for persons with disabilities. Hidegh et al. (2022) emphasize that entrepreneurship is not merely an economic activity but also a pathway through which persons with disabilities gain autonomy and enhance their participation in the labor market, even though the social freedom they receive remains limited. This perspective aligns with field findings that highlight the importance of mental foundations before business development efforts can occur. One respondent explained that “*innovation is often the main issue... but everything begins with internal motivation, mental strength, and a solid team before they can move to the next stage of business development.*” This demonstrates that psychological, social, and structural empowerment are essential prerequisites for generating innovative capacity. In line with the findings of Jammaers & Williams (2023), respondents also emphasized that courage, consistency, and emotional support are integral to the process of entrepreneurial identity formation, in which physical limitations can become a source of strength when supported by strong internal capacities and adequate external assistance.

“Persons with disabilities often face weaknesses in their internal entrepreneurial foundations, including motivation, mental strength, consistency, and psychological readiness for innovation. In many cases, physical limitations are not the main barrier; rather, what is more decisive is the lack of psychological empowerment and emotional support needed to build self-confidence, risk-taking capacity, and the ability to create innovation.”

In developing countries, structural and social challenges faced by persons with disabilities become even more complex. Studies from India by [Ashalatha et al. \(2024\)](#) and [Iytha et al. \(2024\)](#) show that resilience develops through a combination of experiences with discrimination, technological support, and personal factors such as gender and disability type. These findings align with respondents’ insights regarding the need for synergy and competence before persons with disabilities can effectively engage in entrepreneurial collaboration. One respondent emphasized that *“how can they join in collaboration without motivation, courage, synergy, and competence? The incubator is the starting point, and then it prepares them to scale up their business.”* This indicates that incubation, structured training, and long-term learning are key components for building a strong entrepreneurial foundation. Consistent with the study of [Pérez-Macías et al. \(2024\)](#), which highlights the importance of collective efficacy and self-belief, respondents also noted that persons with disabilities tend to have lower levels of self-confidence such that *“continuous mentoring is essential until they are truly able to grow independently.”*

“The resilience of persons with disabilities requires strong external support, especially from key actors. For instance, the government plays a role in establishing inclusive regulations and providing supporting facilities; academics offer research, training, and evidence-based empowerment models; businesses open collaboration opportunities and market access; and communities and social organizations offer emotional support and a conducive environment.”

From the perspective of social empowerment, [Indarti et al. \(2024\)](#) underscore the significant role of social entrepreneurship as a mechanism for social transformation among persons with disabilities. These findings are enriched by respondents’ perspectives, which describe mentorship not only as guidance but as a critical foundation in determining business direction and ensuring sustainability. One respondent noted that *“mentorship is essential because it helps assess feasibility before financing is provided. Once their internal entrepreneurial capacity is sufficiently strong, financing can act as a catalyst for improving entrepreneurial performance.”* This positions mentorship not merely as an additional support mechanism but as a fundamental evaluative and capacity-building function. Another respondent stressed that *“external roles such as community organizations, universities, government agencies, and other stakeholders are crucial in providing integrated and comprehensive support.”* These insights align with the findings of [Meng & Kim \(2025\)](#), which demonstrate that the resilience and psychological capacities of persons with disabilities are formed through a combination of internal and external support, affirming the need for empowerment mechanisms that are systemic rather than solely individual.

Table 3. Concept Map of Penta-Helix Roles in Supporting Muslim Disability Entrepreneurship

No	Supporting Solution	Role	Potential Penta Helix Actors	Enhanced Description
1	Inclusive Entrepreneurship Incubator	Functions as a provider of inclusive and <i>Sharia</i> -based entrepreneurship training programs that connect academia, industry, government, communities, and media.	Academia: Islamic universities; Business: Islamic MSMEs; Government: Ministry of Social Affairs, Ministry of Cooperatives; Community: Islamic NGOs, disability groups; Media: Islamic media platforms	The incubation program strengthens self-efficacy, creativity, and risk-taking through Islamic-oriented business training, enhanced by media coverage to expand the impact of empowerment.
2	Collaborative Co-Working and Market Hub	Acts as a facilitator of inclusive workspaces and market-access networks that bring together Penta Helix actors for innovative collaboration.	Academia: Universities; Business: Halal industry players; Government: Local economic agencies; Community: Business associations, Islamic NGOs; Media: Digital marketing platforms	Provides physical and digital collaboration spaces that encourage co-creation of halal products, expand business networks, and enable broader market access through digital media support.
3	Targeted Access to <i>Sharia</i> -Financing	Serves as a linkage to <i>Sharia</i> -compliant financing for disabled entrepreneurs through collaboration among academia, regulators, financial industries, communities, and media literacy channels.	Academia: Islamic finance scholars; Business: Islamic banks; Government: Financial regulators; Community: Cooperatives, zakat institutions; Media: Financial literacy platforms	Develops inclusive <i>Sharia</i> financing schemes, provides financial literacy education, and utilizes media platforms to enhance access to financing information.
4	Advocacy Programs for Inclusivity	Functions as a public advocacy agent to promote inclusive policies and shift social perceptions through Penta Helix synergy.	Academia: Policy research centers; Government: Ministries and local governments; Business: Halal industry associations; Community: Civil society groups, Islamic NGOs; Media: Islamic and mainstream media	Drives awareness campaigns, policy dialogues, and media publications to strengthen public legitimacy and social acceptance of Muslim disabled entrepreneurs.
5	Mentorship Platform Led by Muslim Alumni and Industry Practitioners	Provides an integrated mentoring platform connecting mentors from academia, the halal industry, government agencies, communities, and online media-learning channels.	Academia: Muslim alumni networks; Business: Halal professionals; Government: Entrepreneurship agencies; Community: Religious leaders, NGOs; Media: Online learning platforms	Develops a network of Muslim mentors who offer technical guidance, moral encouragement, and spiritual motivation, expanded through digital learning media for accessible mentoring.
6	Inclusive Participation in the Halal Ecosystem	Facilitates the participation of disabled entrepreneurs in the halal value chain through the collaboration of Penta Helix actors.	Academia: Halal research centers; Business: Halal MSMEs; Government: Halal certification authorities; Community: Producer groups, disability communities; Media: Halal promotion channels	Supports involvement in halal production, certification, and distribution processes and promotes disabled entrepreneurs' participation through media narratives that highlight their success stories.

Source: Authors own research

Table 3 presents a comprehensive concept map illustrating how the Penta-Helix framework comprising academia, business, government, community, and media collectively supports Muslim disability entrepreneurship through six strategic solutions. Several respondents highlighted that *“each solution reflects a specific functional role, ranging from capacity building (inclusive incubators and mentorship platforms), infrastructure provision (co-working spaces and market hubs), and financial inclusion (Islamic-compliant financing access), to broader systemic support such as policy advocacy and integration into the halal ecosystem”*. Furthermore, other respondents emphasized that *“the model underscores strong collaborative synergy among stakeholders to enhance entrepreneurial competencies, expand market access, and strengthen social legitimacy for disabled Muslim entrepreneurs. The inclusion of media as an active actor was also noted as a key element in facilitating information dissemination, raising awareness, and shaping positive narratives”*. Therefore, this concept map not only reflects a multi-actor support system but also demonstrates an integrated and holistic approach to fostering an inclusive, sustainable, and Islamic-aligned entrepreneurial ecosystem for Muslim individuals with disabilities

Discussion on Conceptual Model

This integrative model illustrates how Muslim entrepreneurs with disabilities build entrepreneurial resilience through the multidimensional interaction of personal characteristics, human capital, spiritual values, and internal motivation (see Table 3). At the core of this model lies Muslim Disability–Entrepreneurial Resilience, conceptualized as an adaptive capacity that enables individuals to confront and navigate social, structural, and psychological challenges that often restrict entrepreneurial opportunities. Personal characteristics such as self-efficacy, endurance, opportunity recognition, innovativeness, the need for autonomy, and risk-taking constitute the foundational pillars of this resilience. These factors operate as psychological energy sources that shape the ability of persons with disabilities to initiate, manage, and sustain their business ventures (Ashalatha et al., 2024; Hidegh et al., 2022; Jammaers & Williams, 2023; Meng & Kim, 2025; Renko et al., 2016). Thus, resilience is not merely an innate trait but an emergent outcome of lived experiences, social learning, and the internalization of contextual value.

Building upon this core, the model emphasizes the crucial role of motivation and human capital as structural reinforcers of resilience. Intrinsic motivation such as the desire for independence, the aspiration to support one’s family, or the intention to contribute to the Muslim community drives persistence when confronting uncertainty and market fluctuations. Extrinsic motivation, including the pursuit of income, social recognition, and formal legitimacy, further strengthens long-term entrepreneurial orientation. Meanwhile, human capital comprising education, entrepreneurial competence, prior work or business experience, and technological literacy expands individuals’ adaptive capacities, reduces technical barriers, and increases the likelihood of business sustainability (Iytha et al., 2024; Pérez-Macías et al., 2024; Santoro et al., 2020). For entrepreneurs with disabilities, these components become especially strategic in overcoming accessibility gaps and environmental constraints. Together, motivation and human capital create a stabilizing structure that enhances the readiness and persistence required for entrepreneurial success.

The model also assigns a central role to religious values and beliefs, including spirituality, vision, flexibility, and commitment to purpose (Treloar, 2002). For Muslim entrepreneurs, these religious dimensions function not only as moral guidance but also as a source of meaning that frames action, strengthens motivation, and shapes a resilient work ethic. Islamic principles such as *adl* (justice), *ihsan* (benevolence), and *ta’awun* (mutual support) provide a normative direction that encourages persons with disabilities to regard entrepreneurship as a vehicle for

empowerment, social contribution, and self-development (Ali & Codina, 2025; Aziz et al., 2025; Aziz & Ilham, 2025). Moreover, spiritual faith reinforces emotional resilience an essential psychological mechanism for coping with stigma, discrimination, and physical limitations that may hinder mobility or market access. Spirituality thus functions as a social-psychological buffer, providing emotional stability and long-term orientation in the entrepreneurial journey (Khoirunnisa et al., 2023).

On the right side of the model, various challenges faced by entrepreneurs with disabilities are mapped into a set of practical and actionable socio-ecosystem solutions (Indarti et al., 2024). These include inclusive entrepreneurship incubators, collaborative co-working and market hubs, targeted access to *Sharia*-compliant financing, mentoring platforms led by Muslim industry practitioners, public advocacy programs, and equal opportunities to engage in the halal ecosystem. These interventions address structural barriers such as limited market access, insufficient mentoring, low financial literacy, and persistent societal stigma. Participation in the halal industry across production, certification, and distribution offers meaningful pathways for enterprise growth aligned with religious identity. Collectively, such ecosystem solutions underscore that entrepreneurial resilience is not solely the function of internal attributes but emerges from the synergy between individual capacities and external, structured support systems that provide access, opportunities, and sustained guidance.

Overall, this integrative model affirms that the entrepreneurial resilience of persons with disabilities does not arise spontaneously; rather, it emerges at the intersection of internal strengths and systematically structured external support (see table 3). When personal characteristics, motivation, human capital, and spiritual values are strengthened through an inclusive and collaborative ecosystem, persons with disabilities are not only able to overcome structural and social barriers but also capable of contributing meaningfully to strategic sectors, including the expanding halal industry. This model thus provides both a theoretical foundation and practical direction for understanding how disability entrepreneurship can flourish within a value-driven, community-oriented, and sustainable empowerment framework. More broadly, it contributes to the literature on inclusive entrepreneurship by demonstrating that resilience is not merely an individual attribute but the product of multilevel synergies personal, social, institutional, and spiritual.

Conclusion

It is widely recognized that inclusivity plays a crucial role in the development of disability entrepreneurship, forming a central focus of contemporary discussions on economic empowerment and social participation. Thus, this study develops an integrative resilience model for Muslim entrepreneurs with disabilities by synthesizing individual capacities, human capital, motivational dynamics, religious values, and ecosystem-level support derived from the Penta-Helix framework. The findings demonstrate that entrepreneurial resilience is not an innate trait, but an emergent capability shaped through the interaction between internal psychological strengths and structured external support. Personal characteristics such as self-efficacy, persistence, opportunity recognition, innovativeness, and risk-taking serve as essential foundations enabling entrepreneurs with disabilities to initiate and sustain ventures despite physical and social constraints.

Motivation and human capital further strengthen adaptive capacity and long-term business orientation. Islamic values provide meaning, emotional stability, and ethical guidance through principles of justice, benevolence, and mutual support, thereby fostering a value-driven and resilient entrepreneurial ethos. However, internal strengths alone are insufficient. Entrepreneurs with disabilities continue to face ecosystem-level challenges, including limited

market access, low financial literacy, weak mentoring, and persistent social stigma. The proposed model highlights that resilience emerges from multilevel synergies connecting individual agency, institutional support, and religious values. Overall, it contributes to the disability entrepreneurship literature by offering a comprehensive, value-integrated, and ecosystem-oriented resilience framework tailored to the context of Muslim-majority developing countries.

Theoretical Implications

This study advances disability entrepreneurship theory by reframing entrepreneurial resilience as a multilevel, socially constructed capability rather than a fixed personal trait. It integrates psychological resilience theory, human capital theory, and ecosystem perspectives within a faith-based value framework, demonstrating that religious values function as an internal resilience resource and a normative guide shaping entrepreneurial behavior. Finally, the model broadens the entrepreneurship inclusion literature by situating disability entrepreneurship within Islamic economic ethics, offering a culturally contextualized framework relevant to developing Muslim-majority economies.

Practical Implication

This study offers actionable guidance for practitioners working within disability-inclusive entrepreneurship ecosystems in Muslim-majority contexts. First, business development programs should move beyond generic training by strengthening psychological capital particularly self-efficacy, persistence, and opportunity recognition through mentoring models that combine skills transfer with confidence-building and adaptive learning. Second, incubators and support organizations should integrate religious value-based motivation, recognizing that Islamic principles such as *sabr* (perseverance), *tawakkul* (trust in God), and social responsibility can serve as intrinsic resilience resources rather than merely spiritual beliefs.

Entrepreneurship support initiatives should also adopt ecosystem-oriented approaches, ensuring coordinated access to finance, markets, mentorship, and digital infrastructure instead of isolated interventions. Halal industry actors can operationalize inclusion by embedding disabled entrepreneurs into supply chains and procurement systems, shifting from charity-based CSR toward long-term capability-building partnerships. Meanwhile, NGOs and community organizations should focus on emotional reinforcement, identity affirmation, and stigma reduction, which are shown to be critical resilience enablers. Overall, practitioners are encouraged to treat resilience not as an individual deficit to be fixed, but as a capability cultivated through structured support environments.

Policy Implications

The findings highlight the need for system-level policy frameworks that institutionalize inclusive entrepreneurship as part of national economic and Islamic social development agendas. Governments should develop integrated disability-inclusive entrepreneurship policies that align regulatory support with Islamic ethical principles of justice and social welfare. This includes simplifying business registration, providing targeted tax incentives, and ensuring accessible infrastructure for entrepreneurs with disabilities. Public policy should also coordinate cross-sector collaboration under a Penta-Helix model, linking government, academia, industry, communities, and media. Islamic social finance instruments such as *zakat*, *waqf*, and *qard al-hasan* can be formalized as sustainable funding mechanisms for disability entrepreneurship, shifting from consumption support to productive empowerment. Education

policy should embed inclusive incubation curricula in universities and vocational institutions, combining digital literacy, adaptive technologies, and faith-sensitive entrepreneurship training.

Limitation and Further Research

This study is exploratory and primarily based on qualitative methods, including semi-structured interviews and literature synthesis, which provide rich contextual insights but limit the generalizability of the findings and do not allow empirical validation of the proposed resilience model. Future research should employ mixed-methods approaches with quantitative techniques, such as Structural Equation Modeling or the Analytic Network Process, to test the model's reliability, validity, and predictive capability. Comparative studies across different cultural and institutional contexts, as well as longitudinal research, are also recommended to examine the evolution of entrepreneurial resilience over time and further strengthen the theoretical and practical contributions of the proposed framework.

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