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## PROBLEMS, CHALLENGES, AND ENTREPRENEURIAL CHARACTERISTICS IN THE DIGITAL ERA: A SYSTEMATIC LITERATURE REVIEW

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### Abstract

The digital transformation of global economies has redefined the nature of entrepreneurship, presenting both unprecedented opportunities and multifaceted challenges. This study conducts a systematic literature review (SLR) of 35 peer-reviewed articles published between 2019 and 2024, retrieved from major academic databases including Scopus, Web of Science, ERIC, EBSCOhost, and TCI. The review aims to synthesize current knowledge on the problems, challenges, and entrepreneurial characteristics relevant to the digital era. Standardized tools—including a research screening form, a quality appraisal checklist, and a data extraction sheet—were employed to ensure methodological rigor. Findings reveal a range of persistent barriers such as funding limitations, infrastructural gaps, and regulatory fragmentation, particularly in emerging economies. Entrepreneurs must also respond to dynamic adaptation challenges, including digital transformation, market volatility, and organizational constraints. In response, six core entrepreneurial traits were identified as critical to success in digital contexts: self-efficacy, initiative, creativity, resilience, strategic foresight, and social orientation. The study presents an integrated conceptual framework illustrating the interplay between external problems, internal adaptation challenges, and individual characteristics. These insights offer practical implications for researchers, educators, and policymakers aiming to foster resilient and digitally competent entrepreneurship.

**Keywords:** Digital entrepreneurship, Entrepreneurial characteristics, Systematic literature review, Innovation challenges, Digital transformation

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## Introduction

In today's rapidly evolving digital economy, entrepreneurship is no longer defined solely by risk-taking and opportunity recognition. It now demands digital agility, data literacy, and strategic foresight as baseline competencies for success (Gunawan, 2024; Singh et al., 2022). The proliferation of artificial intelligence, digital platforms, and algorithmic decision-making has transformed how entrepreneurs identify opportunities, interact with customers, and create value (Khoo et al., 2024; Antonizzi & Smuts, 2020). These changes are particularly visible in emerging economies, where digital adoption has accelerated post-pandemic but often without corresponding institutional support or infrastructure (Islam et al., 2023; Farrell et al., 2022). Entrepreneurs must navigate environments characterized by technological disruption, market unpredictability, and regulatory complexity—while simultaneously overcoming structural constraints such as limited access to funding, inadequate digital skills, and persistent sociocultural biases (Cherif, 2025; Beck, 2022). These dynamics underscore a pressing need to understand not just what entrepreneurs face, but how they respond—through personal characteristics, strategic adaptation, and contextual resilience. Despite an increasing body of research on digital entrepreneurship, there remains a lack of integrated synthesis that maps these external problems, internal challenges, and the entrepreneurial traits that mediate success in digitally disrupted environments. As a result, entrepreneurship today is shaped by both external structural conditions and internal adaptive capacities. Despite growing scholarly interest in digital entrepreneurship, existing literature remains fragmented across disciplinary and regional lines. Some studies emphasize psychological traits such as resilience or self-efficacy (Frese, 2000; Singh et al., 2022), while others highlight institutional hurdles like policy fragmentation or inadequate infrastructure (Lu, 2022; Islam et al., 2023). Additionally, prior reviews tend to focus narrowly on specific segments—such as youth entrepreneurs, SMEs, or gendered entrepreneurship—offering limited insight into broader systemic patterns.

This study addresses that gap through a systematic literature review (SLR) of 35 peer-reviewed articles published between 2020 and 2025, encompassing diverse methodologies and global contexts. The review aims to synthesize current understanding of the interplay between entrepreneurial problems, adaptation challenges, and personal characteristics in the digital era. Specifically, the study pursues three objectives:

1. To categorize the key problems faced by entrepreneurs in digital contexts.

2. To identify recurring challenges that influence entrepreneurial adaptation.
3. To synthesize entrepreneurial traits that contribute to success amid digital disruption.

This synthesis supports evidence-based advancement in research, policy, and education within entrepreneurship and innovation.

## Literature Review

### 1. Digital Entrepreneurship in Context

Digital entrepreneurship refers to the creation and management of ventures that leverage digital technologies such as e-commerce platforms, artificial intelligence (AI), cloud computing, and social media to drive innovation and market engagement (Nambisan, 2017; Antonizzi & Smuts, 2020). Unlike traditional models rooted in localized operations and physical infrastructures, digital entrepreneurship enables scalable and boundaryless business models. This shift has lowered entry barriers but simultaneously introduced heightened technological complexity and global competition (Autio et al., 2018; Khoo et al., 2024). Recent studies underscore that digital entrepreneurship is not merely about adopting technology, but also about navigating digitally mediated ecosystems characterized by platform dependencies, data-centric decision-making, and continuous adaptation (Berger et al., 2020; Gunawan, 2024).

### 2. External Problems Facing Entrepreneurs in the Digital Era

Despite its promise, digital entrepreneurship remains constrained by a range of external structural and institutional problems, particularly in developing economies. These include:

- Funding limitations and capital inaccessibility, especially for women and marginalized groups (Cherif, 2025; Farrell et al., 2022)
- Regulatory ambiguity and fragmented digital policies (Lu, 2022; Jercan & Nacu, 2024)
- Digital infrastructure gaps, such as low internet penetration and outdated systems in rural regions (Islam et al., 2023; Khoo et al., 2024)

These constraints are consistent with entrepreneurial constraint theory, which posits that opportunity exploitation is shaped by access to resources and supportive institutions (Minniti & Levesque, 2008).

### 3. Adaptive Challenges in Digital Contexts

Beyond structural issues, entrepreneurs in the digital era encounter adaptive challenges that require strategic learning and agility. These include technological adaptation, such as adopting tools like CRM systems and AI without prior experience (Singh et al., 2022; Semrádová Zvolánková & Krajčík, 2024), and market volatility, where shifting consumer behaviors—accelerated by the COVID-19 pandemic—demand rapid innovation (Cueto et al., 2022). Organizational constraints also persist, with many SMEs lacking skilled talent, leadership, and digital readiness (Phansaita et al., 2023). Meanwhile, regulatory fragmentation and misaligned support ecosystems create further friction for business adaptation (Lu, 2022; Kitipadung & Jaiborisudhi, 2023). Addressing these challenges requires what Teece (2007) terms dynamic capabilities—the ability to reconfigure internal and external resources in rapidly evolving environments.

### 4. Entrepreneurial Characteristics Required for Digital Success

To thrive in such volatile environments, entrepreneurs must possess a composite of psychological, behavioral, cognitive, and digital traits. The literature identifies six interrelated domains:

**Table 1.** Six interrelated domains of entrepreneurial traits

Domain	Core Traits	Supporting Sources
<b>Cognitive/Psychological</b>	Self-efficacy, locus of control, optimism, grit	Singh et al. (2022); Beck (2022)
<b>Behavioral/Proactive</b>	Initiative, autonomy, opportunity recognition	Hidayatulloh & Ashoumi (2022)
<b>Creative/Innovative</b>	Creativity, design thinking, product innovation	Gunawan (2024)
<b>Resilience/Adaptability</b>	Emotional resilience, flexibility, stress tolerance	Malewska et al. (2021); Cherif (2025)
<b>Strategic/Digital Readiness</b>	Digital tool proficiency, foresight, systems thinking	Jercan & Nacu (2024)
<b>Ethical/Social Orientation</b>	Empathy, storytelling, community orientation	Khoo et al. (2024); Yutidhammadamrong (2020)

These traits reflect a shift from traditional entrepreneurial models toward multidimensional digital competencies. For example, emotional intelligence and storytelling are now seen as competitive advantages in online branding and trust-building (Yutidhammadamrong, 2020).

### 5. Synthesis and Gaps in the Literature

Although many studies have explored aspects of digital entrepreneurship, most remain discipline- or sector-specific, focusing on youth, gender, or regional contexts in isolation. Only a few attempt to integrate how external constraints, adaptive processes, and personal traits interact to shape entrepreneurial outcomes (Wattanakomol & Silpcharu, 2023; Antonizzi & Smuts, 2020). This review therefore addresses a critical gap by synthesizing literature across disciplines and geographies to develop a conceptual framework that links problems, challenges, and characteristics within digital entrepreneurial ecosystems.

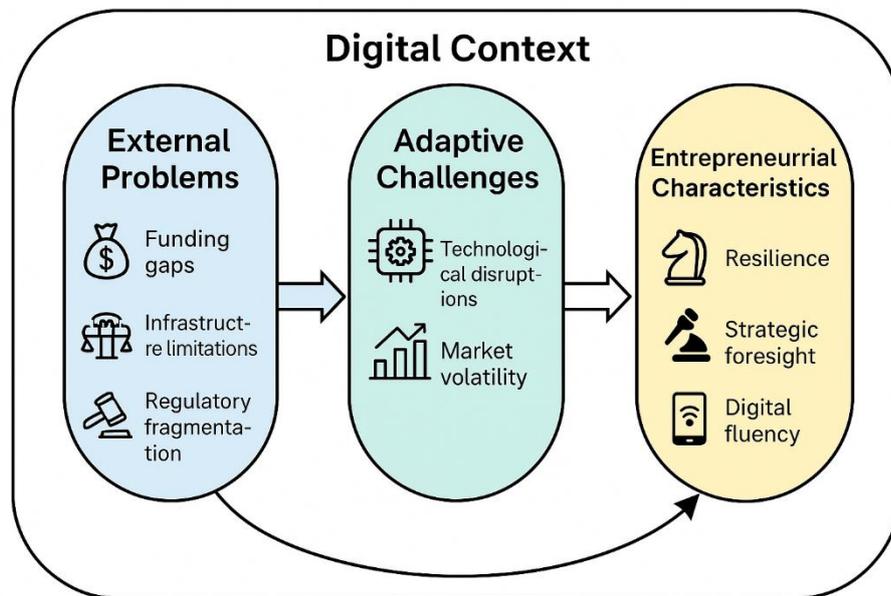


Figure 1. Conceptual Framework

This conceptual framework illustrates the interrelationships among three key components influencing digital entrepreneurship: external problems, adaptive challenges, and entrepreneurial characteristics. External problems—such as funding gaps, infrastructure limitations, and regulatory fragmentation—shape the challenges entrepreneurs must continuously respond to, including technological disruptions and market volatility. In turn, these challenges demand specific personal characteristics such as resilience, strategic foresight, and digital fluency. The framework reflects a dynamic and reciprocal relationship, suggesting

that personal traits not only respond to challenges but also shape how entrepreneurs perceive and manage them within digital ecosystems.

## **Research Methodology**

This review followed the PRISMA 2020 guidelines to ensure transparency and methodological rigor (Page et al., 2021). The process was structured into four phases: (1) identification, (2) screening, (3) eligibility, and (4) quality appraisal and synthesis.

### **Data Sources and Search Strategy**

A comprehensive search was conducted across five databases: Scopus, Web of Science, ERIC, EBSCOhost, and Thai-Journal Citation Index (TCI). The search focused on publications from 2019 to 2024, using Boolean strings such as: "digital entrepreneur" OR "entrepreneurial characteristics" OR "entrepreneurial challenges" OR "entrepreneurial mindset" AND "digital era". Filters were applied to retrieve peer-reviewed journal articles in English or Thai that explicitly addressed entrepreneurial behavior, challenges, or traits within digital contexts.

### **Inclusion and Exclusion Criteria**

Included studies met the following criteria:

- Empirical or conceptual focus on digital entrepreneurship
- Published between 2019 and 2024
- Reported on entrepreneurial problems, challenges, or traits
- Peer-reviewed articles (quantitative, qualitative, or mixed-method)

Excluded studies:

- Non-peer-reviewed works (e.g., theses, conference papers)
- Articles unrelated to entrepreneurship or digital aspects
- Studies without full-text access

### **Study Selection and Quality Appraisal**

The selection process involved three stages: (1) title and abstract screening, (2) full-text review, and (3) final eligibility check. From an initial pool of 51 articles, 35 met the inclusion criteria. To ensure methodological rigor, the researchers employed a research screening form, a research appraisal form, and a data extraction form during the review process. All selected articles were appraised using a seven-item quality checklist adapted from Gough (2007) and EPPI-Centre standards. The criteria assessed included clarity of objectives, theoretical grounding, data credibility, practical relevance, methodological transparency,

quality of reporting, and overall knowledge contribution. Only studies that achieved a rating of Level 1 or 2—meaning they satisfied at least five of the seven criteria—were included in the final synthesis.

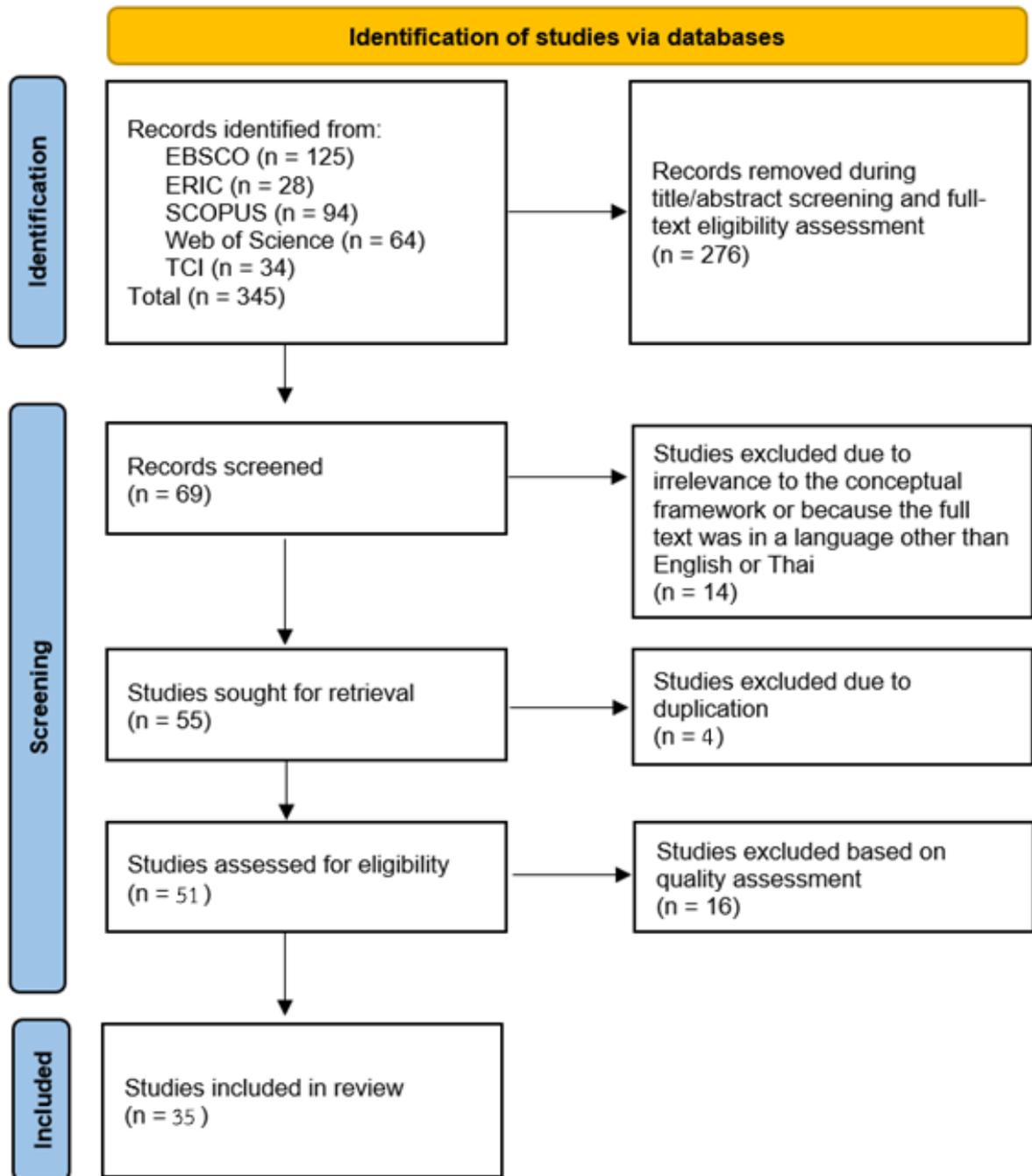


Figure 2. PRISMA Flow Diagram

### **Data Extraction and Thematic Synthesis**

Metadata (e.g., year, country, method, sample) were extracted and summarized in a study characteristics table. Thematic analysis followed the inductive approach proposed by Thomas and Harden (2008), consisting of open coding, theme grouping, and cross-comparative synthesis across studies. To ensure the reliability of theme identification, two researchers independently coded a subset of studies and engaged in iterative discussion to reach consensus. This process strengthened the transparency and credibility of the synthesized findings.

### **Research Result**

This review synthesized 35 peer-reviewed studies published between 2019 and 2025. The findings are organized into three core domains: (1) problems faced by entrepreneurs, (2) adaptation challenges in digital contexts, and (3) entrepreneurial characteristics contributing to success.

#### **Overview of Included Studies**

The studies cover a diverse geographic range, with strong representation from Southeast Asia—particularly Thailand (n = 12), Malaysia, and Indonesia—alongside contributions from the United States, Canada, Latin America, and Europe. Research designs include qualitative (n = 15), quantitative (n = 12), and mixed/conceptual methods (n = 9), with foci spanning SMEs, women entrepreneurs, student start-ups, and social enterprises. The studies reflect growing academic interest in how digital transformation intersects with entrepreneurial ecosystems, particularly in emerging economies where infrastructural, cultural, and policy constraints remain salient.

#### **Thematic Analysis**

A thematic synthesis was conducted based on an inductive-deductive coding framework, grouping the findings across three focal variables: problems, challenges, and entrepreneurial characteristics. Coding categories were derived from the reviewed literature and iteratively refined through constant comparison. The themes presented below represent recurrent, validated insights across geographical and methodological boundaries.

## Problems Faced by Entrepreneurs in the Digital Era

The reviewed studies highlighted a set of structural, psychological, technological, and socio-cultural problems that inhibit entrepreneurial development in the digital age. These problems are often interconnected and exacerbate one another.

**Table 2.** Categorized Problems Identified in the Reviewed Literature

Category	Sub-problems	Supporting Studies
<b>Structural</b>	<i>Lack of funding, poor access to capital, regulatory complexity</i>	Lu (2022); Cherif (2025); Kitipadung & Jaiborisudhi (2023)
<b>Technological</b>	<i>Digital illiteracy, low adoption of tools, weak infrastructure</i>	Antonizzi & Smuts (2020); Islam et al. (2023); Khoo et al. (2024)
<b>Psychological</b>	<i>Low assertiveness, digital fear, pessimism, poor self-efficacy</i>	Akkeedet (2024); Singh et al. (2022); Beck (2022)
<b>Socio-cultural</b>	<i>Gender bias, family role conflict, lack of role models</i>	Daunt (2023); Cherif (2025); Farrell et al. (2022); Islam et al. (2023)

Entrepreneurial problems in the digital era fall into four overlapping categories: structural, technological, psychological, and socio-cultural. Structural deficits—such as limited capital, regulatory ambiguity, and weak infrastructure—are especially prevalent in emerging economies, where bureaucratic delays and fragmented support remain common (Lu, 2022; Ciobanu & Bărbulescu, 2025; Islam et al., 2023; Wattanakomol & Silpcharu, 2023). Technological issues persist as SMEs and rural entrepreneurs often lack digital maturity and underutilize tools like ERP systems, AI, and cybersecurity platforms (Semrádová Zvolánková & Krajčík, 2024; Jercan & Nacu, 2024). Psychological barriers—including low self-efficacy and fear of failure—are prominent among students, early-stage entrepreneurs, and women in conservative settings (Beck, 2022; Singh et al., 2022). Meanwhile, sociocultural constraints such as gender norms and institutional neglect disproportionately affect marginalized groups (Cherif, 2025; Khoo et al., 2024). These findings are consistent with entrepreneurial constraint theory (Minniti & Levesque, 2008) and opportunity structure theory (Aldrich & Martinez, 2001), which emphasize that entrepreneurial outcomes are shaped not only by innovation capacity but also by systemic limitations.

## Challenges of Entrepreneurs in the Digital Era

Table 3 presents a typology of four recurring adaptive challenges faced by digital-era entrepreneurs, synthesized across the reviewed literature. These challenges are not static but require entrepreneurs to continually adjust strategies, acquire new competencies, and reorganize resources in response to environmental shifts.

**Table 3.** Typology of Entrepreneurial Challenges

Challenge Domain	Subtypes / Issues	Key Studies
<b>Technological Adaptation</b>	<i>Digital transformation, automation, digital marketing</i>	Kulkova et al. (2023); Singh et al. (2022); Gunawan (2024)
<b>Market &amp; Customer Shifts</b>	<i>Consumer behavior change, COVID impact, global competition</i>	Polmitr & Luanamroen (2023); Daunt (2023)
<b>Organizational Capacity</b>	<i>Workforce shortages, team management, digital leadership</i>	Phansaita et al. (2023); Wattanakomol & Silpcharu (2023)
<b>Regulatory &amp; Ecosystem Barriers</b>	<i>Fragmented institutions, bureaucracy, , lack of support</i>	Lu (2022); Kitipadung & Jaiborisudhi (2023)

These challenges were consistently highlighted across diverse regional contexts. For example, Cueto et al. (2022) found that young entrepreneurs in Southeast Asia frequently had to pivot their business models and redesign offerings in response to abrupt shifts in digital consumption patterns during and after the COVID-19 crisis. Similarly, Phansaita et al. (2023) observed that many food-truck businesses in Thailand faced persistent skill shortages and struggled with internal leadership adaptation when integrating digital ordering systems. In terms of technological adaptation, Singh et al. (2022) emphasized that while digital tools are widely available, their effective use is limited by entrepreneurs' prior experience and confidence. This suggests a strong interplay between technological demands and personal characteristics, which is further explored in the next section. These findings reflect a broader pattern where adaptive challenges intersect with structural problems—highlighting the need

for both systemic support and entrepreneurial capabilities that are dynamic and forward-looking.

### Entrepreneurial Characteristics in the Digital Era

Entrepreneurial characteristics are a recurring theme in the literature, particularly regarding adaptation, risk management, and digital innovation. These traits fall into six core domains, informed by classical theories (e.g., McClelland, 1961; Frese, 2000) and modern frameworks on digital competencies (e.g., Antonizzi & Smuts, 2020; Singh et al., 2022). Recent insights suggest that digital-era entrepreneurs need more than innovation. Traits like digital literacy, strategic foresight, and networking now complement traditional attributes such as autonomy and risk-taking (Antonizzi & Smuts, 2020). Resilience has shifted from being reactive to a strategic capacity—often referred to as “anticipatory resilience”—helping entrepreneurs proactively prepare for disruption (Malewska et al., 2021). Storytelling and emotional intelligence have also become critical, especially in service sectors where trust, branding, and customer experience drive competitive advantage (Yutidhammadamrong, 2020; Islam et al., 2023). Finally, gender and demographic factors shape entrepreneurial behavior: women often emphasize community values, ethics, and relational skills, while men more frequently adopt technical or market-driven approaches (Cherif, 2025; Khoo et al., 2024).

**Table 4.** Framework of Entrepreneurial Characteristics Identified in the Literature

Domain	Key Traits	Supporting Studies
Cognitive / Psychological	<i>Self-efficacy</i> , internal locus of control, optimism, grit	Singh et al. (2022); Daunt (2023); Beck (2022)
Behavioral / Proactive	<i>Initiative</i> , opportunity recognition, autonomy	Hidayatulloh & Ashoumi (2022); Kunaake & Darawong (2024)
Creative / Innovative	<i>Creativity</i> , design thinking, product innovation	Gunawan (2024); Kitipadung & Jaiborisudhi (2023)
Resilience / Adaptability	<i>Resilience</i> , crisis management, emotional, flexibility	Malewska et al. (2021); Cherif (2025)
Strategic / Digital Readiness	<i>Strategic foresight</i> , digital tool usage, system thinking	Jercan & Nacu (2024); Semrádová Zvolánková & Krajčik (2024)

Domain	Key Traits	Supporting Studies
Ethical / Empathetic	<i>Social orientation</i> , customer empathy, storytelling	Yutidhammadamrong (2020); Khoo et al. (2024)

## Discussion, Conclusion, and Recommendations

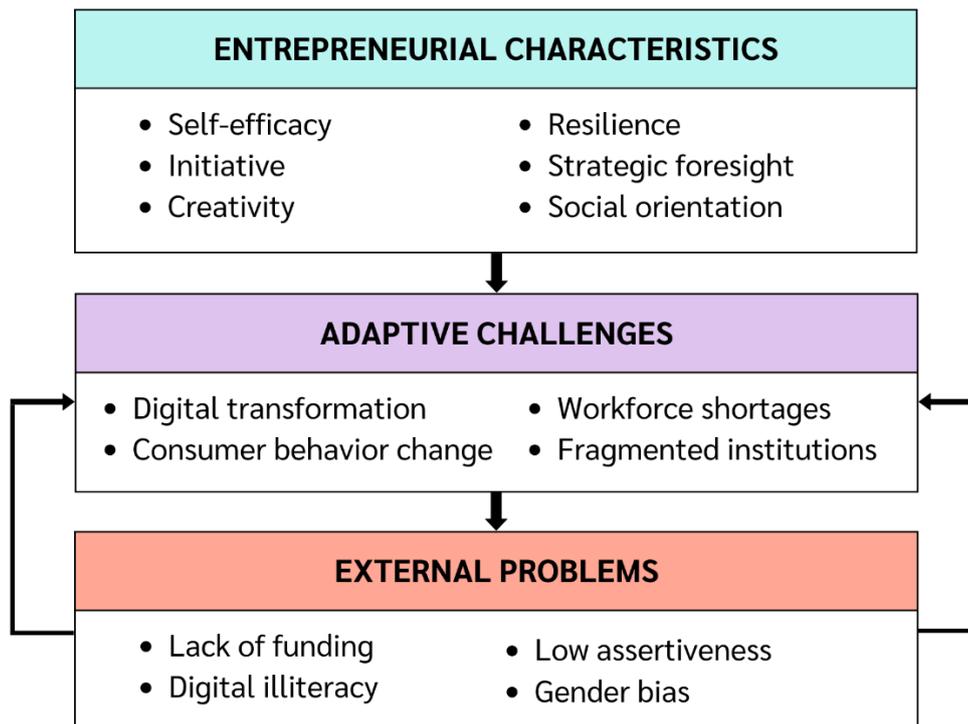
This systematic review highlights the complex, multi-dimensional nature of digital entrepreneurship in the 21st century. Drawing from 35 peer-reviewed studies, the analysis reveals that entrepreneurial success depends on the dynamic interplay between structural constraints, adaptive challenges, and individual traits. The findings affirm that external problems—such as capital limitations, regulatory fragmentation, and digital inequality—continue to hinder entrepreneurship, particularly in low- and middle-income countries (Lu, 2022; Farrell et al., 2022). These systemic issues intersect with adaptive challenges, including the need for continuous technological upgrading, shifting market demands, and organizational agility (Semrádová Zvolánková & Krajčík, 2024; Cueto et al., 2022). While this review offers a comprehensive synthesis, it is important to acknowledge that its scope is inherently limited by the selected timeframe (2019–2024) and regional concentration—particularly the dominance of studies from Southeast Asia. These factors may influence the generalizability of the findings, despite efforts to ensure methodological rigor through systematic selection and thematic analysis.

## Recommendations

To develop effective strategies for digital-era entrepreneurship, it is crucial to address the interconnected nature of the problems, challenges, and personal characteristics identified in this study. The findings suggest that structural problems (e.g., funding gaps, digital infrastructure), adaptive challenges (e.g., technological disruption, market shifts), and entrepreneurial traits (e.g., resilience, digital fluency) form a dynamic system that jointly shapes entrepreneurial outcomes. The conceptual framework developed from this synthesis provides a foundation for targeted interventions that operate across individual, institutional, and ecosystem levels. As such, the following recommendations are organized to reflect this systemic perspective.

## Body of knowledge

This study presents an integrated conceptual model synthesizing insights from 35 scholarly articles to explain how digital-era entrepreneurs navigate the interplay between external problems, adaptive challenges, and individual characteristics. The model offers a systemic understanding of digital entrepreneurship and serves as a foundation for future empirical validation.



**Figure 3.** Conceptual Model of Digital-Era Entrepreneurship

The proposed conceptual model, which integrates external problems, adaptive challenges, and entrepreneurial characteristics, provides a valuable framework for designing practical interventions. For instance, in curriculum development, entrepreneurship education can be restructured to not only focus on innovation and opportunity recognition, but also include modules on strategic foresight, digital resilience, and navigating institutional constraints. On a policy level, the model can inform targeted support mechanisms—such as funding schemes for digital infrastructure, mentorship programs aligned with entrepreneurial traits, and reforms that reduce regulatory friction in digital sectors. By operationalizing this

model, stakeholders can better align education, policy, and practice in ways that reflect the complexity of digital-era entrepreneurship.

According to Figure 3, the framework consists of three interrelated layers.

**1. External Problems** – Structural and socio-cultural barriers, including limited access to capital, infrastructure gaps, regulatory complexity, gender norms, and institutional bias.

**2. Adaptive Challenges** – Ongoing demands such as digital adoption, market volatility, talent shortages, and policy fragmentation that require strategic responses.

**3. Entrepreneurial Characteristics** – Key personal traits such as self-efficacy, digital fluency, strategic foresight, and resilience that enable entrepreneurs to manage and overcome these challenges.

Bidirectional arrows illustrate dynamic relationships: external problems shape the nature of challenges, which in turn require specific traits to address them. Conversely, entrepreneurial traits influence how challenges are perceived, interpreted, and acted upon—creating a continuous feedback loop.

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