

Innovation & Entrepreneurship Competencies for Gen Z: A Systematic Literature Review

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ABSTRACT

This article presents a Systematic Literature Review (SLR) on entrepreneurial competence and innovation competence/innovative behavior among Generation Z (Gen Z) in publications from 2023 to 2026. Using the PRISMA 2020 approach and a structured Scopus search, 29 eligible articles were identified and analyzed through thematic synthesis and an antecedents–mechanisms–outcomes framework. The findings highlight three dominant domains: digitally oriented entrepreneurial competence, entrepreneurial literacy and readiness, and innovation competence ranging from innovation attitudes to innovative behavior and green innovation. Key mechanisms include digital self-efficacy, entrepreneurial alertness, and mindset development, while technology/AI and sustainability shape emerging research trends. Overall, the review shows that the literature is still dominated by intention-based outcomes, indicating the need for future studies to focus more on innovative behavior, entrepreneurial action, and stronger construct and instrument consistency.

Keywords: Entrepreneurial Competencies, Entrepreneurial Skills, Innovation Competencies, Innovative Behavior, Entrepreneurship Education.

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INTRODUCTION

The rapid expansion of the digital economy, accelerated technological advancement including artificial intelligence and growing sustainability pressures have transformed innovation and entrepreneurship from being understood merely as business creation into a broader cross-contextual capacity to generate value through opportunity exploration, experimentation, and adaptive execution. In this landscape, Generation Z occupies a particularly strategic position, as this cohort is entering higher education and the early stages of professional life at a time when technological change is highly dynamic and work patterns are becoming increasingly fluid. Recent literature indicates that digital competence and digital self-efficacy are critical determinants in shaping digital entrepreneurial intention, suggesting that entrepreneurship among Gen Z is now closely intertwined with the ability to navigate technology effectively and with confidence for productive purposes (Huy et al., 2025). Within the student context, the pathway toward a digital entrepreneurial orientation is also influenced by innovative attitudes in digital settings as well as exposure to digital entrepreneurship education (Lopes et al., 2025).

However, the existing literature continues to position entrepreneurial intention as the primary outcome, while Generation Z's entrepreneurial competencies remain insufficiently explained within an integrated framework. Entrepreneurship education has been shown to strengthen Gen Z's entrepreneurial readiness through the development of digital business literacy and financial literacy (Hasan, Hutamy, et al., 2024). Furthermore, studies suggest that digital entrepreneurship education and knowledge enhance digital

entrepreneurial intention, particularly through cognitive mechanisms such as entrepreneurial alertness (Wibowo et al., 2023b), although this relationship is still constrained by psychological barriers, including technology anxiety (Duong et al., 2024b). Taken together, these findings indicate that entrepreneurial competence is not a singular construct, but rather a layered and context-dependent capability. Nevertheless, a truly integrative taxonomy of entrepreneurial competencies specifically relevant to Generation Z has yet to be established.

The need for a more comprehensive synthesis has become increasingly evident as innovation competence and innovative behavior are now being positioned as central to Generation Z's entrepreneurial advantage. Recent evidence suggests that entrepreneurship education may be directly associated with students' innovative behavior, and that this relationship can even be strengthened through the use of Generative AI in educational settings, signaling a shift from a primary focus on entrepreneurial intention toward the development of behavioral capability (El et al., 2026). In the broader domain of entrepreneurial competence, both competencies and entrepreneurial mindset are shaped by educational design, role models, and demographic factors, highlighting the importance of systematically mapping their antecedents (Alkaabi & Senghore, 2024).

Amid the sustainability agenda, recent Gen Z studies have increasingly linked entrepreneurship with green innovation through innovation capability mechanisms such as absorptive capacity and green entrepreneurial orientation, indicating that innovation competence should be understood not merely as creativity, but as the capacity to absorb, assimilate, and apply knowledge for environmentally relevant innovation. In addition, digital transformation in entrepreneurship education through the use of digital tools, such as business planning applications, has been examined among Gen Z cohorts and shown to influence entrepreneurial intention; however, variations in findings across components further reinforce concerns regarding construct inconsistency and measurement heterogeneity (Lesinskis et al., 2023).

At the curricular level, a recent systematic review of technology-enhanced creativity and entrepreneurship curricula in higher education emphasizes the diversity of existing approaches, while also pointing to the need for stronger theoretical integration so that innovation competence and entrepreneurial competence are not treated as separate domains of inquiry (Li et al., 2026a).

Based on these conditions, this study aims to identify and classify the domains of entrepreneurial competence and innovation competence/innovative behavior most consistently reported in studies published between 2023 and 2026, to map the antecedents–mechanisms–outcomes relationships such as the roles of education, literacy, self-efficacy, entrepreneurial alertness, technology/AI, and sustainability context and to evaluate how these constructs have been operationalized and measured, including their instruments, indicators, and overall quality of evidence. In addition, this review seeks to formulate a future research agenda capable of addressing conceptual fragmentation, the persistent dominance of intention-based outcomes, and the methodological limitations that continue to characterize the field. Through a structured search protocol and a rigorous review process, this study is expected to produce a more integrated conceptual map that can support the development of curricula, incubation programs, and interventions aimed at strengthening innovation–entrepreneurship competencies in ways that are genuinely aligned with the characteristics of Generation Z :

RQ1: Which domains of entrepreneurial competence and innovation competence/innovative behavior are most consistently reported in studies from 2023 to 2026, and how can they be classified?

RQ2: What antecedents–mechanisms–outcomes are most dominant in shaping Generation Z's competencies and related outcomes, particularly in relation to education,

literacy, self-efficacy, entrepreneurial alertness, technology/AI, and sustainability context?

RQ3: How have these constructs been operationalized and measured in terms of instruments and indicators, how strong is the quality of the available evidence, and what methodological as well as conceptual gaps give rise to future research agendas?

LITERATURE REVIEW

Conceptualizing Entrepreneurial Competence

Recent literature increasingly emphasizes that entrepreneurial competencies should not be understood merely as “entrepreneurial intention,” but rather as a set of capabilities that can be learned and transformed through experience, education, and ecosystem context. Systematic reviews on entrepreneurial competence reveal substantial conceptual variation and broad categorization; however, these competencies generally encompass the ability to identify opportunities, orchestrate resources, make decisions under uncertainty, and execute value-creating actions (Mai, K.N., Thai, 2025). In an effort to reduce this fragmentation, studies revisiting the EntreComp framework suggest that it remains sufficiently robust to encompass the core dimensions of entrepreneurial competence, while also highlighting the need to pay greater attention to the psychological and contextual nuances that have become increasingly prominent in recent research (Ester Bernadó, 2024).

From the perspective of competence development, reviews examining the impact of entrepreneurship education (EE) on entrepreneurial competencies indicate that learning strategies such as experiential and active learning, digital tools, simulations, and project-based approaches tend to be positively associated with the strengthening of key competence components. However, these effects are highly contingent on intervention design, institutional context, and the alignment between educational activities and the outcomes being measured (Erika Branca, et al, 2025). This insight is particularly important in the context of Generation Z, as many Gen Z studies continue to focus primarily on entrepreneurial intention as the main outcome, while the competencies that operate more directly at the behavioral and performance levels have not yet been mapped in a consistent manner.

Innovation Competence and Innovative Behavior as Capability Outcomes

Innovation competence is increasingly understood as an individual’s capacity not only to generate ideas but also to implement them effectively (Joniakov, 2021). It has been linked to stronger intrapreneurial orientation and improved performance outcomes (Sagbas et al., 2023), and at the organizational level, it extends into green innovation through environmentally oriented product and process innovation (Du & Wang, 2022), which in turn contributes to firms’ competitive advantage (Nguyen & Nguyen, 2023). Recent syntheses of innovative work behavior (IWB) further indicate that its determinants can be grouped into three interrelated levels: personal, teamwork/interpersonal, and organizational. These three levels frequently function not only as direct predictors, but also as mediating or moderating factors in a wide range of explanatory models (Puspitasari et al., 2023). This pattern is highly relevant to Generation Z research, as many studies involving Gen Z position literacy, self-efficacy, and social support as personal-level factors; collaborative learning as a teamwork-level factor; and the entrepreneurial ecosystem within higher education institutions as an organizational-level factor. Collectively, these dimensions provide a strong theoretical basis for explaining variation in innovative behavior among university students.

Generation Z as Context: The Dominance of Digital Entrepreneurship and “Literacy-Based Competence”

Entrepreneurship among Generation Z in the digital sphere is shaped not only by access to technology, but also by digital competencies that cultivate self-efficacy and readiness to act, as reflected in the roles of digital competencies, digital entrepreneurial self-efficacy, and digital business literacy in strengthening entrepreneurial intention and readiness (Bachmann, 2024; Duong et al., 2024b; Hasan, Hutamy, et al., 2024). Empirical studies on digital entrepreneurial intention show that digital competencies influence intention through digital self-efficacy, underscoring the importance of cognitive-social pathways in the development of digital entrepreneurial orientation (Huy et al., 2025). In the higher education context, innovative digital attitude also emerges as an important mediating factor: personality shapes digital innovation attitudes, which in turn foster digital entrepreneurial intention, and this relationship becomes even stronger when exposure to digital entrepreneurship education is higher (Lopes et al., 2025).

Furthermore, more specific forms of literacy have increasingly appeared as competence components that reinforce this process. For example, entrepreneurship education has been found to enhance Gen Z's entrepreneurial readiness, with stronger effects when mediated or amplified by digital business literacy and financial literacy (Hasan, et al., 2024). In digital contexts, this relationship is also strengthened through digital literacy as a facilitating factor in the formation of entrepreneurial intention (Liang et al., 2025). More broadly, financial literacy and digital capability have likewise been shown to promote entrepreneurial intention by strengthening entrepreneurship-related mechanisms as an intervening pathway (Kang, 2024). Within digital entrepreneurship specifically, digital entrepreneurial knowledge encourages intention through entrepreneurial alertness—the ability to detect and interpret opportunity signals suggesting that alertness should be treated as a crucial cognitive-competence mechanism for Generation Z Gen Z (Wibowo et al., 2023b).

Antecedents: Education, Social Roles, and Psychological Factors as Drivers of Competence

Beyond the digital domain, the literature suggests that Generation Z's entrepreneurial competence is strengthened not only by entrepreneurship education, which fosters readiness to act and agility, but also by social factors such as role models and family support that reinforce self-efficacy, motivation, and entrepreneurial intention, (Ahmed Mohamed Elbaz, et al, 2025; Chauhan et al., 2024; Muhammad Hasan, et al, 2025). Research on student entrepreneurship competency and mindset further emphasizes that entrepreneurship education, role models, and demographic characteristics, particularly gender, contribute meaningfully to the development of entrepreneurial competence and mindset (Alkaabi & Senghore, 2024). At the socio-psychological level, both constraints and ecosystem support also play an important role. Studies on Gen Z have integrated components of the Theory of Planned Behavior with constructs such as resilience and perceived constraints to explain variations in entrepreneurial intention (Batz Liñeiro et al., 2024). Other findings indicate that the need for social inclusion among Gen Z can also stimulate entrepreneurial intention, with self-efficacy acting as part of the mechanism linking the two, while gender functions as a differentiating factor (Burlea-Schiopoiu & Popovici, 2024).

In contexts marked by crisis and uncertainty, evidence from Gen Z studies shows that factors such as support from family and friends, the presence of role models, work experience, and exposure to entrepreneurship courses all contribute to the formation of entrepreneurial intention, reinforcing the importance of adaptive competence in unstable environments (Prani, 2023). This aligns with the broader view that Gen Z entrepreneurial competence should not be mapped solely as a set of technical skills, but rather as an

adaptive capability shaped by the interaction between learning processes and contextual conditions.

Technology/AI/GenAI as Accelerators of Innovation–Entrepreneurship Competence

The rise of AI and Generative AI has broadened the discussion of competence from a narrow focus on digital skills toward a more advanced emphasis on AI literacy and the ability to leverage technology for idea generation, decision-making, and business experimentation. Empirical studies indicate that the use of AI and digital platforms, such as TikTok, can enhance entrepreneurial knowledge and experience, and may even be associated with improved business performance in entrepreneurship learning contexts (El et al., 2026). In the pedagogical domain, research further highlights that the use of AI in teaching can interact with psychological factors, such as fear, in shaping sustainable entrepreneurial intention, suggesting that technology should not be viewed merely as a tool, but also as a contextual condition capable of altering the strength and direction of relationships among key constructs (Asad et al., 2025).

More specifically, higher education studies show that Generative AI has the potential to strengthen the relationship between entrepreneurship education and students' innovative behavior, pointing to a shift in emphasis from intention-based outcomes toward innovation-related behavioral outcomes (El et al., 2026). At a broader level of synthesis, recent reviews on Generative AI in entrepreneurship classify the field around several major themes, including technology adoption, skill development, innovation, and performance enhancement, while also underscoring the need for future research agendas that address ethics, learning quality, and competence-related impacts (Dwivedi, 2025).

Sustainability: Green Competence, Absorptive Capacity, and Environmentally/Socially Oriented Innovation

The sustainability dimension enriches the meaning of innovation–entrepreneurship competence by requiring the ability to integrate value creation with social and environmental impact. Among educated members of Generation Z, green entrepreneurial orientation (GEO) and absorptive capacity have been associated with green innovation and environmental orientation, highlighting that innovation competence cannot be reduced to creativity alone; it must also include the ability to absorb, assimilate, and apply knowledge for environmentally relevant innovation (Figiel & Badar, 2025). Cross-national studies further show how younger generations perceive socio-environmental problems and their role in the development of sustainable enterprises, suggesting that values and generational perspectives are essential for understanding the nature of competence in this context (Czy, 2025). At the organizational level, the literature indicates that the transformation of green orientation into green innovation involves knowledge-creation processes and green absorptive capacity, reinforcing the argument that learning capability serves as a key underlying mechanism (Adiguzel Z, 2025).

Within the domain of social entrepreneurship, recent studies have begun to incorporate technological variables, such as AI familiarity, as well as relational factors like social proximity, as antecedents that differentiate intentions to build social enterprises across generations. This suggests that Generation Z's innovation–entrepreneurship competence is increasingly becoming socio-technical in nature (Marjerison et al., 2025).

Operationalization and Research Gaps: The Dominance of Intention, Instrument Heterogeneity, and the Need for Stronger Designs

Although the 2023–2026 literature offers a rich range of models, including moderated mediation and multi-construct pathways, two major gaps remain evident. First, many studies on Generation Z still treat entrepreneurial intention as the primary outcome, whereas measures of innovative behavior, entrepreneurial action, and performance are used far less frequently, even though they are beginning to receive greater attention in studies involving AI/GenAI and digital platforms (El et al., 2026). Second, there is substantial heterogeneity in how competence is operationalized: some studies focus on

literacy dimensions, such as digital or financial literacy; others emphasize self-efficacy or entrepreneurial alertness; while still others rely on constructs such as mindset or innovative digital attitude. This variation makes cross-study synthesis difficult and highlights the need for an explicit taxonomy and rigorous coding rules in order to achieve conceptual clarity (Hasan, Hutamy, et al., 2024). For this reason, the present systematic literature review is important in bringing together these fragmented competence domains into a more integrated conceptual map—one that encompasses digital, cognitive, social, and green competencies. It also aims to clarify the dominant underlying mechanisms, including self-efficacy, entrepreneurial alertness, attitude and mindset, and absorptive capacity, while at the same time evaluating the quality of the available evidence and advancing a future research agenda toward stronger methodological designs, such as experimental and educational intervention studies, longitudinal approaches, and behavior-based outcomes (Ester Bernadó, 2024).

METHOD

This review was conducted using Scopus as the sole database source. Scopus is widely recognized as one of the largest and most comprehensive repositories of reputable academic literature, offering extensive journal coverage as well as reliable search and citation-indexing capabilities (Paul & Criado, 2020; Waehning & Wells, 2024). A Scopus-based systematic literature review approach was adopted to ensure that the processes of study identification, screening, and synthesis were carried out in a systematic, transparent, and replicable manner (Linnenluecke et al., 2020). The use of a single high-quality database such as Scopus also strengthens the methodological rigor of this review by enabling the consistent application of inclusion and exclusion criteria, thereby minimizing duplicate records and reducing the potential bias that may arise from differences in scope and indexing standards across databases.

By relying on Scopus as the primary search source, this study achieves greater clarity in its search strategy, improved replicability, and a more focused synthesis of recent developments in innovation competence and entrepreneurial competence among Generation Z. This includes the examination of their antecedent factors and their relationships with key outcomes such as entrepreneurial intention, entrepreneurial readiness, and innovative behavior within the 2023–2026 publication period (Richard Thorpe, Robin Holt & Pittaway, 2005).

1. Database and keywords

This review drew on several major academic databases relevant to the fields of entrepreneurship, innovation, and higher education, namely Scopus, Web of Science (WoS), and DOAJ, as the core search sources for identifying reputable and/or open-access journal articles. In addition, consistent with recommendations and practices adopted in earlier studies (Page et al., 2021), the search process was supplemented by a limited Google Scholar screening of the first ten pages (approximately 100 records) in order to capture the most relevant literature in a rapid yet efficient manner. Google Scholar was then searched again for verification purposes, and extending the screening range (for example, to the first 200 records) did not yield any additional articles that met the predefined inclusion criteria.

Two authors collaboratively developed the search keywords based on the study's conceptual framework. These keywords were organized into several clusters, including the population cluster (e.g., "Generation Z" or "Gen Z"), the entrepreneurial competence cluster (e.g., "entrepreneurial competencies," "entrepreneurial skills," or "entrepreneurial mindset"), the innovation competence and innovation outcome cluster (e.g., "innovation competencies," "innovative behavior," or "innovation capability"), and the contextual cluster (e.g., "entrepreneurship education," "higher education," or "university students"), including digital-context variations such as "digital entrepreneurship" and technology-

related terms such as “AI.” The full set of keywords and Boolean combinations used in the search process is presented in Table 1.

Table 1. Searching Strings

Databases	Searching Strings
WOS	TS = (("generation z" OR "gen z") AND (entrepreneur* NEAR/3 (competenc* OR skill* OR mindset)) AND (innov* NEAR/3 (competenc* OR "innovative behavio?r" OR capability)) AND ("entrepreneurship education" OR "higher education" OR student*))
Scopus	TITLE-ABS-KEY (("generation z" OR "gen z") AND (entrepreneur* W/3 (competenc* OR skill* OR mindset)) AND (innov* W/3 (competenc* OR "innovative behavio?r" OR capability)) AND ("entrepreneurship education" OR "higher education" OR student*))
DOAJ	("generation z" OR "gen z") AND entrepreneur* AND (competenc* OR skill* OR mindset) AND (innov* OR "innovative behavior")
Google Scholar	("generation z" OR "gen z") AND (entrepreneurial competencies OR entrepreneurial skills) AND ("innovation competencies" OR "innovative behavior")

2. Eligibility Criteria

The inclusion and exclusion criteria applied in this systematic literature review (Table 2) were designed to target empirical journal articles published between 2023 and 2026 that explicitly focus on Generation Z and examine entrepreneurial competence as well as innovation competence/innovative behavior within the context of higher education or early career development. Studies were excluded if they did not center on Generation Z, did not address the relevant competence constructs, were not published as journal articles, or did not provide sufficient information for data extraction. To maintain consistency and reduce potential language bias, only articles published in English were included.

Tabel 2. Eligibility Criteria

Inclusion	
I1	The publication is a peer-reviewed journal article.
I2	The article is written in English.
I3	The article was published between 2023 and 2026.
I4	The study is empirical in nature (quantitative, qualitative, or mixed methods) and provides sufficient information for data extraction.
I5	The participants include Generation Z (Gen Z), either explicitly stated or clearly identifiable, and generally consist of university students or individuals in the early stages of their careers
I6	The study examines entrepreneurial competence/entrepreneurial skills and innovation competence/innovative behavior, with at least one construct representing each domain.
Exclusion	
E1	The article is not written in English.
E2	The publication is not a peer-reviewed journal article, such as a book, conference proceeding, report, working paper, or unpublished manuscript
E3	The article is an editorial, commentary, or purely theoretical work; review and meta-analysis studies are excluded from the main empirical synthesis.

E4	The study does not provide sufficient methodological or results-related information for data extraction, such as unclear sample characteristics, variables, instruments, or findings.
E5	The participants are not from Generation Z and cannot be clearly mapped to this cohort.
E6	The study does not include relevant constructs related to entrepreneurial competence or entrepreneurial skills
E7	The study does not include relevant constructs related to innovation, innovative behavior, or innovation capability.
E8	The context is not relevant to the development of Generation Z competencies, such as studies outside higher education, early career stages, or young entrepreneur settings.
E9	The publication year falls outside the 2023–2026 range.

This review was conducted using a systematic literature review (SLR) procedure adapted from (Mishra & Mishra, 2024) and aligned with the PRISMA Statement (Page et al., 2021). to ensure that the literature search and selection process was transparent, systematic, and replicable. The PRISMA-based selection process began with 312 records from Scopus and 18 additional records identified through supporting searches, yielding 330 initial articles. After removing 86 duplicates, 244 unique records were screened based on titles, keywords, and abstracts, of which 185 were excluded for not matching the review focus. The remaining 59 articles underwent full-text eligibility assessment, and 30 were further excluded for reasons such as publication type, publication year, inadequate operationalization of Generation Z, or lack of relevant measurable constructs. Ultimately, 29 articles met the inclusion criteria and were included in the final synthesis, providing a solid basis for examining recent research trends, conceptual developments, and empirical evidence on innovation and entrepreneurial competencies among Generation Z in the 2023–2026 period, particularly in relation to education, digital and AI contexts, and sustainability-oriented entrepreneurship.

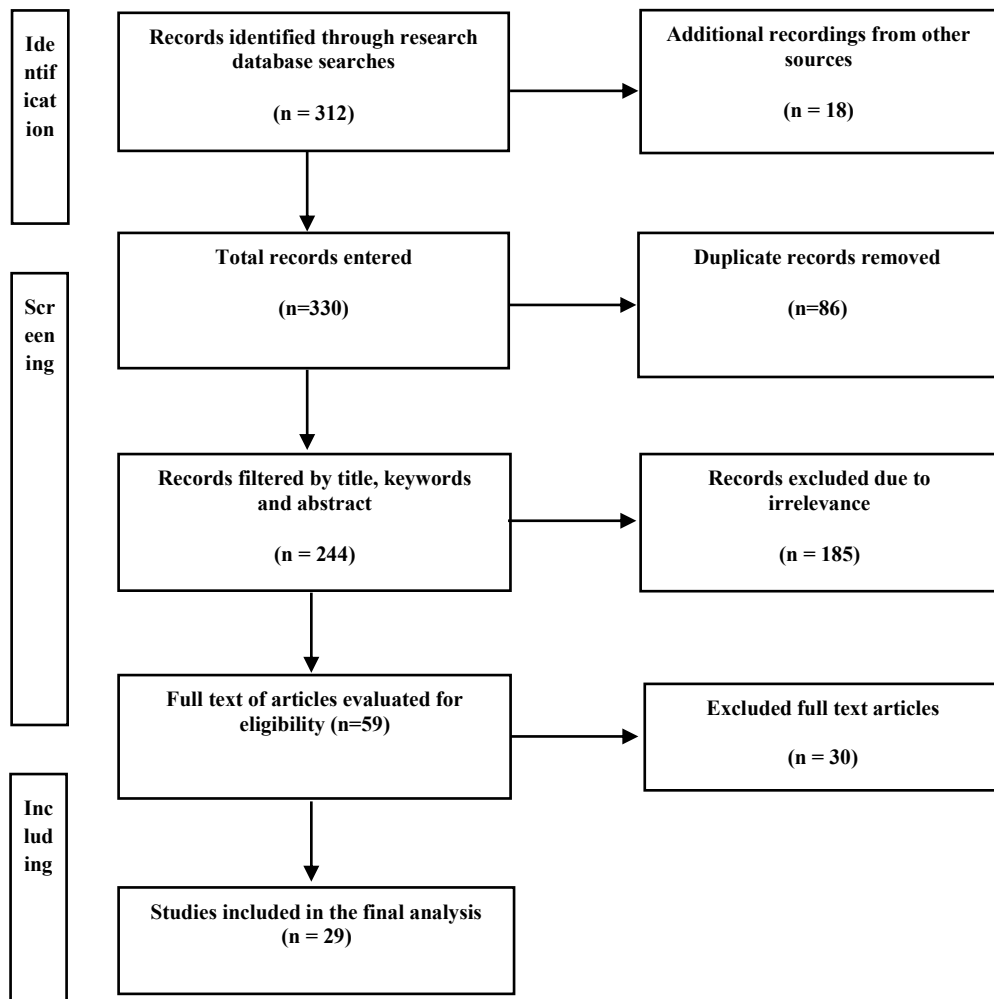


Figure 1. PRISMA flow diagram (Ramírez-Saltos et al., 2023)

RESULTS AND DISCUSSION

The VOSviewer overlay visualization maps keyword co-occurrence in the literature on *Innovation and Entrepreneurship Competencies for Generation Z*, showing that “generation z” is the central node linking education, psychological mechanisms, and entrepreneurial outcomes. The strong connection between “entrepreneurship education,” “entrepreneurial intention,” and “higher education” indicates that the dominant research focus remains on the pathway from entrepreneurship education to entrepreneurial intention. At the same time, keywords such as “digital self-efficacy,” “entrepreneurial alertness,” “mindset development,” and “artificial intelligence” suggest that recent studies increasingly explain entrepreneurial competence through cognitive, psychological, and technological mechanisms. Overall, the map confirms that the literature is still concentrated on intention-based outcomes, while innovation competencies and innovative behavior remain less central, reinforcing the need for this SLR to broaden the discussion toward more concrete innovation and behavioral outcomes.

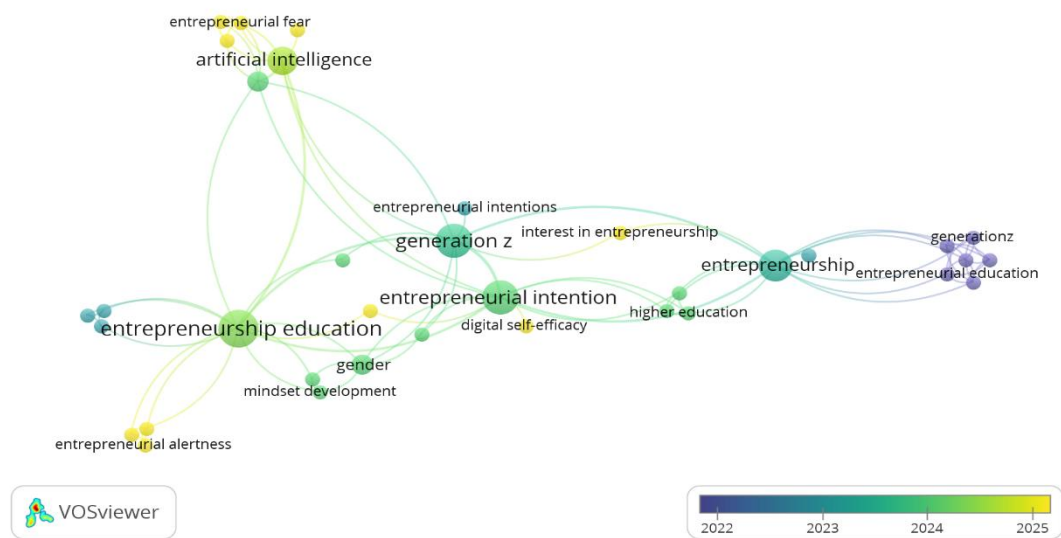


Figure 1. Visualization Map

Based on the thematic synthesis of the 29 selected articles, the main findings indicate that the literature on Innovation and Entrepreneurship Competencies for Generation Z is largely dominated by three major clusters: (1) digitally oriented entrepreneurial competencies and their supporting psychological variables, (2) specific forms of competence or literacy as the “core” of competence development, such as digital business literacy and financial literacy, and (3) innovation competence, which appears in forms ranging from innovation attitudes and innovative behavior to green and social innovation within sustainability-related contexts. This pattern is consistently reflected across studies that position Gen Z as university students or individuals in the early stages of their careers. Although entrepreneurial intention remains the most frequently examined outcome (Duong et al., 2024a; Huy et al., 2025; Lopes et al., 2025; Vu et al., 2024; Wibowo et al., 2023a), the literature is beginning to shift toward more behavior-oriented outcomes, including innovative behavior (El et al., 2026) and more specific forms of innovation such as green innovation (Figiel & Badar, 2025).

In terms of scope and characteristics, the included studies represent a broad and diverse body of work, ranging from cross-national empirical research on Gen Z (Hossain et al., 2023; Prani, 2023; Weligodapola et al., 2023), student entrepreneurship profile studies (Regnault & Acosta, 2024), to research linking Gen Z entrepreneurship with sustainability and social entrepreneurship issues (Burlea-Schiopoiu, 2024; Czy, 2025; Marjerison et al., 2025; Raman et al., 2025). Two articles serve as higher-level conceptual references, namely a comparative literature review of Gen Z and Gen Y (Stojanová & Dreyer, 2022), and a systematic review of technology-enhanced creativity–entrepreneurship curricula in higher education (Li et al., 2026b), while one study draws attention to measurement quality through a psychometric validation of a technostress scale for young entrepreneurs (Amirul et al., 2026). Taken together, this composition suggests that the field is gradually moving beyond a sole emphasis on modeling the determinants of entrepreneurial intention toward a broader concern with learning design and the quality of competence measurement.

Findings for RQ1: The Most Dominant Domains of Entrepreneurial and Innovation Competence

The synthesis indicates that the most dominant competence domains among Generation Z can be grouped into the following categories:

1. Digitally oriented entrepreneurial competence and supporting cognitive-psychological capabilities

Studies on digital entrepreneurship consistently position digital competencies and psychological variables such as digital self-efficacy as central components in the pathway toward digital entrepreneurial intention (Huy et al., 2025). Similarly, research in the digital entrepreneurship domain highlights the role of innovation attitudes—particularly innovative attitudes in digital contexts as an important component linking individual characteristics to digital entrepreneurial orientation (Lopes et al., 2025). At the educational level, models examining digital entrepreneurship education and digital entrepreneurial intention further reinforce the view that, in the context of Gen Z, “competence” is increasingly understood through the lens of a digital learning ecosystem and the personal capabilities that support engagement within it (Duong et al., 2024a; Vu et al., 2024).

2. Entrepreneurial competence as specific literacy and mindset

Two forms of literacy repeatedly emerge as important proxies of competence in the literature, namely digital business literacy and financial literacy, particularly in studies that position entrepreneurship education as a driver of Gen Z’s entrepreneurial readiness (Hasan et al., 2026). Financial literacy has also been linked to Gen Z’s entrepreneurial interest and inclination (Kicova et al., 2025), suggesting that entrepreneurial competence in this body of literature is often operationalized as a form of functional literacy capability that can be directly mobilized in entrepreneurial contexts. In addition, the domain of entrepreneurship competency and mindset is further emphasized as a construct shaped by education, role models, and gender (Alkaabi & Senghore, 2024), indicating that mindset often functions as an overarching conceptual umbrella that encompasses multiple entrepreneurial skills and competence dimensions.

3. Innovation competence: from innovation attitudes and innovative behavior to green and social innovation

On the innovation side, the literature points to three main forms of competence expression: (1) innovation attitudes (Lopes et al., 2025), (2) innovative behavior as a competence-related outcome that is closer to actual behavioral enactment (El et al., 2026), and (3) sustainability-oriented innovation, such as green innovation, which has been associated with green entrepreneurial orientation and absorptive capacity among educated members of Generation Z (Figiel & Badar, 2025). Within the fields of social entrepreneurship and sustainable technology, innovation also appears in the form of social innovation and inclusive community impact (Raman et al., 2025), indicating that the meaning of innovation competence for Gen Z has expanded beyond mere creativity toward forms of innovation that are explicitly oriented toward broader social and environmental impact.

Findings for RQ2: Mapping the Antecedents–Mechanisms–Outcomes Relationships

The synthesis shows that the most consistent antecedents shaping competence development among Generation Z include:

- entrepreneurship education and entrepreneurial learning (Dodoo & Yawson, 2024; Duong et al., 2024a; Hasan, Tiara Hutamy, et al., 2024; Li et al., 2026b)
- the use of digital tools and broader digital transformation in entrepreneurship education, including business-planning technologies such as KABADA and their implications for entrepreneurial intention and funding-related outcomes (Lesinskis et al., 2023; Mavlutova et al., 2025)

- as well as technology/AI exposure and digital platforms as learning and capability-building contexts (Asad et al., 2025; El et al., 2026; Marjerison et al., 2025; Sirait et al., 2025)
- In addition, a number of individual and social factors, such as personality traits and social constraints or supports, also appear consistently as important antecedent conditions (Burlea-Schiopoiu, 2024; Hossain et al., 2023; Tafadzwa et al., 2024; Weligodapola et al., 2023)

The most dominant mechanisms are psychological and cognitive in nature.:

- These include self-efficacy, particularly digital self-efficacy, as a mechanism linking digital competence to digital entrepreneurial intention (Huy et al., 2025).
- and entrepreneurial alertness as a pathway connecting digital entrepreneurship learning to digital entrepreneurial intention (Wibowo et al., 2023a)
- The literature also identifies several moderating mechanisms that reflect contextual complexity, such as digital technology anxiety in digital entrepreneurship models (Duong et al., 2024a), perseverance in technopreneurship (Tafadzwa et al., 2024), and the interaction between entrepreneurial fear and AI use in learning in shaping sustainable entrepreneurial intention (Asad et al., 2025).
- Although the dominant outcome remains entrepreneurial intention (Hossain et al., 2023; Huy et al., 2025; Prani, 2023; Weligodapola et al., 2023), the literature is increasingly expanding toward broader outcomes such as entrepreneurial readiness (Hasan et al., 2026), sustainable entrepreneurial behavior (Burlea-Schiopoiu, 2024), Business performance (Sirait et al., 2025), Innovative behavior (El et al., 2026), Green innovation (Figiel & Badar, 2025), and wider social or inclusion-related impacts (Marjerison et al., 2025; Raman et al., 2025).

Overall, the most recurrent pattern can be summarized as follows: (education/technology/social context) → (literacies + self-efficacy/alertness/mindset) → (intention/readiness/behavior/innovation outcomes), with this relationship becoming more complex and pronounced when digital/AI and sustainability contexts are incorporated (Asad et al., 2025; El et al., 2026; Figiel & Badar, 2025; Sirait et al., 2025).

Findings for RQ3: Operationalization, Measurement, and Quality of Evidence

In terms of measurement, the Gen Z literature in this period tends to operationalize “competence” through three main forms:

- psychological constructs such as self-efficacy, mindset, and entrepreneurial alertness (Alkaabi & Senghore, 2024; Huy et al., 2025; Wibowo et al., 2023a)
- specific literacies, particularly digital business literacy and financial literacy (Hasan, Tiara Hutamy, et al., 2024; Kicova et al., 2025)
- and innovation-related constructs, including innovation attitudes, innovative behavior, absorptive capacity, and green innovation) (El et al., 2026; Figiel & Badar, 2025; Lopes et al., 2025)

This pattern suggests that competence in the Gen Z entrepreneurship literature is not treated as a single unified construct, but rather as a combination of cognitive, literacy-based, and innovation-oriented dimensions. Regarding the strength of evidence, the presence of psychometric-oriented studies (Hasan et al., 2026) indicates growing attention to instrument validity; however, the overall corpus is still dominated by relationship-model studies, such as moderated mediation designs, and is heavily concentrated in higher education settings. As a result, there remains substantial room for improvement in achieving more consistent definitions of competence across studies and in broadening the dominant outcomes from intention toward behavioral, action-based, and performance-related indicators (El et al., 2026; Mavlutova et al., 2025; Sirait et al., 2025). Existing review studies (Li et al., 2026b; Stojanová & Dreyer, 2022) further confirm that the field is developing rapidly, yet remains vulnerable to conceptual fragmentation in the absence of a

unifying taxonomy that integrates entrepreneurial and innovation competence. Overall, Gen Z innovation–entrepreneurship competence appears most strongly as a package of digital capability, specific literacies, and self-regulatory mechanisms shaped by education, technology, and sustainability context, with research gradually shifting toward more tangible outcomes such as behavior, performance, and innovation, even though intention remains the dominant focus. The Findings Matrix (Antecedents–Mechanisms–Outcomes) is presented in the following table.

Table 3. Findings Matrix (Antecedents–Mechanisms–Outcomes)

ID	Focus of Competence (Antecedents)	(Mechanisms)	(Outcomes)	OA	
S01	Digital competencies; Digital entrepreneurial intention	Big Five (kepribadian); Digital kompetensi digital	Digital self-efficacy (mediator)	Digital entrepreneurial intention	https://doi.org/10.1
S02	ENT: Digital entrepreneurship (konteks pendidikan) / INNOV: Innovation attitudes	Personality traits; innovation attitudes (variabel utama)	Innovation attitudes (konstruk kunci)	Digital entrepreneurship (indikator artikel)	https://doi.org/10.1
S03	Financial literacy; entrepreneurship interest	financial literacy —	—	entrepreneurship interest (Gen Z)	https://doi.org/10.3
S04	ENT: Sustainable entrepreneurship perspectives / INNOV: —/social innovation lens	— (exploratory perspectives)	—	perspektif pemuda tentang sustainable entrepreneurship	https://doi.org/10.3
S05	Entrepreneurship competency; Entrepreneurial mindset	Education; Role models; Gender —	—	Entrepreneurship competency & mindset	https://doi.org/10.1
S06	ENT: entrepreneurial intention / INNOV: Digital tool-enabled learning	Use of digital tool (KABADA); digital transformation in EE	—	entrepreneurial intention (Gen Z)	https://doi.org/10.3
S07	entrepreneurial intention	Personality traits (Big Five)	—	entrepreneurial intention	https://doi.org/10.1
S08	Entrepreneurial intentions; Constraints	Entrepreneurial constraints; TPB-related factors (implied)	—	entrepreneurial intentions	https://doi.org/10.1
S09	sustainable entrepreneurial behavior	social inclusion	— (possible sustainable mediators not in title)	entrepreneurial behavior	https://doi.org/10.3
S10	Entrepreneurial knowledge/experience; business performance	AI & TikTok utilization (digital tech diffusion)	—	Entrepreneurial knowledge; Entrepreneurial experience; business	https://doi.org/10.3

ID	Focus of Competence	(Antecedents)	(Mechanisms)	(Outcomes)	OA
				performance	
S11	entrepreneurial intentions	Crony capitalist economy context; COVID-19 shock— (contextual antecedents)		entrepreneurial intentions of Gen Z	https://doi.org/10.3
S12	ENT: entrepreneurial orientation / green innovation; absorptive capacity	Green Green entrepreneurial orientation; absorptive capacity	Absorptive capacity (konstruk kunci)	green innovation; Environmental orientation	https://doi.org/10.3
S13	sustainable entrepreneurial intention	penggunaan dalam pengajaran	AI Entrepreneurial fear (moderator); AI use (moderator synergy)	sustainable entrepreneurial intention	https://doi.org/10.3
S14	social entrepreneurial intention	perbedaan generasi; familiarity; social proximity	AI —	social entrepreneurial intention	https://doi.org/10.3
S15	Entrepreneurial profile (traits/skills)	— (profiling study)	—	Entrepreneurial profile characterization	https://doi.org/10.3
S16	entrepreneurial readiness	entrepreneurship education	Digital business literacy; Financial literacy (konstruk kunci/penguat)	entrepreneurial readiness (Gen Z)	https://doi.org/10.1
S17	Digital entrepreneurial intention	Digital entrepreneurial education	Moderated mediation (variabel rinci lihat full text)	Digital entrepreneurial intention	https://doi.org/10.1
S18	Technopreneurship intention	Perceived parental entrepreneurial passion	perseverance (moderator); perceived parental rewards (moderator)	Technopreneurship intention	https://doi.org/10.1
S19	ENT: entrepreneurship education / innovative behavior; Gen-AI	entrepreneurship education	Gen-AI (moderator)	student innovative behavior	https://doi.org/10.3
S20	Entrepreneurship learning	entrepreneurship learning higher education	Digital in mindset (mechanism)	growth Dual literacies (digital/entrepreneurial literacies)	https://doi.org/10.1
S21	entrepreneurship education (gamified)	Gamified entrepreneurship education	Generational differences (moderator/context)	Understanding outcomes across cohorts (cek full-text)	https://doi.org/10.1
S22	entrepreneurial propensity (review)	—	—	Synthesis of Gen Z vs Gen Y entrepreneurship	https://doi.org/10.1
S23	entrepreneurial intention;	Digital tools in education	—	entrepreneurial intention; attraction of	https://doi.org/10.1

ID	Focus of Competence (Antecedents)	(Mechanisms)	(Outcomes)	OA
	Development funding attraction		development funding	
S24	Digital entrepreneurial intention	Antecedents (not specified in title) —	Digital entrepreneurial intention	https://doi.org/10.1
S25	ENT: Creativity & entrepreneurship curricula (review) /— INNOV: Technology-enhanced creativity	— (SDT lens)	Synthesis of tech-enhanced curricula and outcomes	https://doi.org/10.1
S26	ENT: Young entrepreneurs /— INNOV: Technostress (measurement)	—	Psychometric validation of technostress scale	https://doi.org/10.1
S27	ENT: Social entrepreneurship / Sustainable technologies; Social innovation	—	Impact on communities, social innovation, inclusive development	https://doi.org/10.1
S28	Digital entrepreneurial intention	Digital entrepreneurship education	Entrepreneurial alertness (mediator)	mahasiswa digital entrepreneurial intentions https://doi.org/10.1
S29	ENT: Entrepreneurial competencies / INNOV: — (digital learning)	Digital learning orientation	Blended learning behavior (moderator—dilaporkan dalam artikel)	Entrepreneurial competencies in graduates https://doi.org/10.3

Tabel 4. Key Findings from Reviewed Literature

No	Author(s)	Year	Study Focus	Key Findings	Moderating Factors	Geographic Context
1	Ta, H., Layeghi, G., Delladio, S., Nguyen, V. H. A., & Caputo, A	2025	Examining the impact of big five personality traits and digital competencies on digital entrepreneurial intention: the mediatin...	Big Five traits (extraversion, conscientiousness, neuroticism, openness) and digital competencies positively shape digital entrepreneurial intention; digital self-efficacy acts as a key mediator (agreeableness is not significant). (Springer)		Taiwan (Springer)
2	Lopes, J. M., Gomes, S., & Nogueira, E	2025	Educational insights into digital entrepreneurship: the influence of personality and innovation attitudes	The results reveal that an innovative digital attitude positively influences the digital entrepreneurial intention of higher education students in Portugal. Furthermore, the intensifying role of digital entrepreneuria...		Portugal

No	Author(s)	Year	Study Focus	Key Findings	Moderating Factors	Geographic Context
3	Kicova, E., Michulek, J., Ponisciakova, O., & Fabus, J	2025	When Financial Awareness Meets Reality: Financial Literacy and Gen Z's Entrepreneurship Interest	Higher financial literacy is positively related to Gen Z entrepreneurial interest; calibration (alignment of perceived vs. actual literacy) is the strongest predictor—over/underestimation reduces engagement. (MDPI)		Slovakia (MDPI)
4	Czyżewska, M., Szczygieł, E., Tsaples, G., Manou, D. B., & Papathanasiou, J	2025	The Future of Sustainable Entrepreneurship: Youth Perspectives in Greece and Poland	The results show that the youth in Greece and Poland widely support the inclusion of social and environmental considerations into business strategies, and despite some differences in the strengths of opinions, they ag...		Greece; Poland
5	Alkaabi, K., & Senghore, S	2024	Student entrepreneurship competency and mindset: examining the influence of education, role models, and gender	Findings indicate that access to entrepreneurial role models is associated with higher competence, emphasizing resource mobilization and fostering a growth mindset.		UAE
6	Lesinskas, K., Mavlutova, I., Spilbergs, A., & Hermanis, J	2023	Digital Transformation in Entrepreneurship Education: The Use of a Digital Tool KABADA and Entrepreneurial Intention of Generat...	Using the KABADA digital business-planning tool shows a mostly positive effect on Gen Z entrepreneurial intention, though some intention components are not statistically significant. (MDPI)		Selected Central & Eastern Europe and Southern Europe (MDPI)
7	Weligodapola, M., Weerathna, R. S., Hansini, K. G. K., Ravini, P. H. G. W., Sarathchandra, W. G. T. P., & Samarathunga, S. M. D. P. D	2023	Personality traits empower entrepreneurial intention of generation Z in Sri Lanka	Among Sri Lankan Gen Z, conscientiousness and neuroticism significantly influence entrepreneurial intention, while extraversion, agreeableness, and openness show non-significant effects. (Springer)		Sri Lanka (Colombo District) (Springer)
8	Hossain, M. I., Tabash, M. I., Siow, M. L., Ong, T. S., & Anagreh, S	2023	Entrepreneurial intentions of Gen Z university students and entrepreneurial constraints in Bangladesh	Entrepreneurial attitude, subjective norms, perceived behavioral control, and entrepreneurial resilience are positively and significantly associated with entrepreneurial intention; key entrepreneurial		Bangladesh (Springer)

No	Author(s)	Year	Study Focus	Key Findings	Moderating Factors	Geographic Context
				constraints are identified and ranked. (Springer)		
9	Burlea-Schiopoiu, A., & Popovici, N	2024	— Social Inclusion: A Factor That Influences Sustainable Entrepreneurial Behavior of Generation Z	The findings prove that Generation Z manifests a strong desire for social inclusion, which influences entrepreneurial intention, and that gender moderates this relationship.	Gender	Not specified
10	Sirait, H., dkk.	2025	Exploring the Diffusion of Digital Technologies in Higher Education Entrepreneurship: The Impact of the Utilization of AI and T...	AI directly enhances entrepreneurial knowledge and business performance; TikTok influences performance - indirectly via entrepreneurial learning/knowledge (mediated pathway). (MDPI)		Indonesia (Jakarta) & Malaysia (Sarawak) (MDPI)
11	Pranić, L	2023	— What Happens to the Entrepreneurial Intentions of Gen Z in a Crony Capitalist Economy Amidst the COVID-19 Pandemic? Sustainab...	The results indicate that entrepreneurial disposition, work experience, and gender are directly related to EI. These findings contribute to filling gaps in the existing research on entrepreneurship during major crises...		Croatia
12	Figiel, A., & Badar, A	2025	— Effect of Green Entrepreneurial Orientation and Absorptive Capacity on Green Innovation and Environmental Orientation Among E...	The findings of the study show that the relationship between absorptive capacity and environmental orientation is not always significant, and the impact can be negligible, specifically when the firms have a low commit...		Europe
13	Asad, M., Fryan, L. H. A., & Shomo, M. I	2025	— Sustainable Entrepreneurial Intention Among University Students: Synergetic Moderation of Entrepreneurial Fear and Use of Art...	For the said purpose, considering the inconsistent findings in the literature where the theory of planned behavior is used to cater to entrepreneurial intentions, entrepreneurial fear and the use of artificial intelli...	entrepreneurial fear and use of artificial intelligence in teaching	developing countries
14	Marjerison, R. K., Jun, J. Y., & Kim, J. M	2025	— Socio-Technical Antecedents of Social Entrepreneurial Intention: The Impact of Generational Differences, Artificial	The results show that both social and technical systems significantly and positively influence SEI, particularly among younger generations (Millennials and Generation Z).		China

No	Author(s)	Year	Study Focus	Key Findings	Moderating Factors	Geographic Context
			Intellige...	These findings advance the theoretical underst...		
15	D'Armas Regnault, M., et al	2024	— Characterizing the entrepreneurial profile of university students from a developing country	Key findings reveal that age, gender, parents' educational background, occupation, and the entrepreneurial ecosystem significantly influence the entrepreneurial intentions of university students. Within their entrepre...		developing country; developing countries; developing nation
16	Hasan, M., Hutamy, E. T., Supatminingsih, T., Ahmad, M. I. S., Aeni, N., & Dzhelilov, A. A	2024	— The role of entrepreneurship education in the entrepreneurial readiness of generation Z students: why do digital business lit...	Entrepreneurship education increases Gen Z entrepreneurial readiness, and the effect is strengthened by digital business literacy; evidence from 700 students in Makassar. (ERIC)	Digital business literacy financial literacy (ERIC)	Indonesia (Makassar) (ERIC)
17	Duong, C. D., Ngo, T. V. N., Nguyen, T. P. T., Tran, N. M., & Pham, H. T	2024	— Digital entrepreneurship education and digital entrepreneurial intention: A moderated mediation model	Digital entrepreneurship education and digital entrepreneurial self-efficacy both increase digital technology entrepreneurial intention; self-efficacy partially mediates the education-intention link, while digital technology anxiety weakens the (direct and indirect) effects. (ScienceDirect)	Digital technology anxiety (negative moderator) (ScienceDirect)	Not specified in abstract snippet (ScienceDirect)
18	Maziriri, E. T., Dzingirai, M., Nyagadza, B., & Mabuyana, B	2024	— From perceived parental entrepreneurial passion to technopreneurship intention: The moderating role of perseverance and perce...	Perceived parental passion, desirability, and feasibility shape attitudes toward technopreneurship; predicts technopreneurship intention, with perseverance and perceived parental rewards strengthening this link. (ScienceDirect)	Perseverance; attitude toward perceived parental rewards (ScienceDirect)	Zimbabwe (Harare Metropolitan Province) (ScienceDirect)
19	Rahal, F. E. Z	2026	Does Gen-AI Enhance the Link Between Entrepreneurship Education and Student Innovative Behavior? Sustainability, 18(3), 1258	In spite of the increasing relevance of entrepreneurship, the results reveal constant limitations in students' innovation and creativity, together with a lack of mentorship and training prospects for teachers.		Not specified
20	Hasan, M., et al	2026	Unleashing dual Entrepreneurship learning -			Indonesia

No	Author(s)	Year	Study Focus	Key Findings	Moderating Factors	Geographic Context
			literacies through digital growth mindset: multitheoretical study of entrepreneurship learning in higher educ...	enhances literacy and digital growth literacy; digital growth literacy positively affects both and partially mediates the learning→literacy relationships. (ScienceDirect)		(ScienceDirect)
21	Dodoo, P. D., & Yawson, D. E	2024	Towards understanding multi-generational higher education cohorts in entrepreneurship education	Gamified entrepreneurship- an course engagement (cognitive & of behavioral) increases entrepreneurial intention, which in turn influences vs significant differences appear across generational cohorts (X/Y/Z). (PubMed)	Generational cohort (X vs Y vs Z differences) (PubMed)	Ghana (PubMed)
22	Dreyer, C., & Stojanová, H	2023	How entrepreneurial is German Generation Z vs	A short review on what is Entrepreneurship is followed by a scan of current literature on strengths and weaknesses of The findings point to some cautious optimism, as GenZ's fearlessness may motivate them to match, or...		Not specified
23	Mavlutova, I., Lesinskis, K., & Hermanis, J	2025	Digital Tools in Education: Impact of Entrepreneurial Intention on Attraction and Development Funding	Digital tools in entrepreneurship education are positioned to raise entrepreneurial intention and readiness to attract and development funding, with attention to gender gaps in funding opportunities. (ScienceDirect)		Latvia (ScienceDirect)
24	Vu, T. H., et al	2024	Antecedents of digital entrepreneurial intention among engineering students	Attitude toward digital entrepreneurship is the strongest direct predictor of digital entrepreneurial intention; digital entrepreneurial knowledge boosts self-efficacy and attitude, and digital entrepreneurship education strengthens knowledge and self-efficacy. (ScienceDirect)		Not specified (ScienceDirect)
25	Li, X., Weng, X., & Qu, Q	2026	Technology-enhanced creativity and entrepreneurship	The research findings indicate that technology-enhanced entrepreneurship curricula can meet students' needs for		Not specified

No	Author(s)	Year	Study Focus	Key Findings	Moderating Factors	Geographic Context
			curricula in higher education: Systematic review from the perspective of se...	autonomy, competence, and relatedness in different ways. Our research findings also present challenges of...		
26	Adha, M. A., et al	2026	Technostress measurement scale among Indonesian young entrepreneurs: A psychometric study	Develops and validates the Young Entrepreneurs' Technostress Inventory (YETInv) with a hierarchical six-factor structure, showing strong reliability and validity for Indonesian young entrepreneurs. (ScienceDirect)		Indonesia (Jakarta) (ScienceDirect)
27	Raman, R., et al	2025	Social entrepreneurship and sustainable technologies: Impact on communities, social innovation, and inclusive development	Findings reveal SEs' contributions to SDGs 4, 8, and 9 through inclusive models and digital tools such as AI and blockchain.		Not specified
28	Wibowo, A., dkk	2023	Does Digital Entrepreneurship Education Matter for Students' Entrepreneurial Intentions? Mediating Role of Entrep...	Digital entrepreneurship education and digital entrepreneurship knowledge promote students' digital entrepreneurial intentions; alertness is reported as both a mediating mechanism and a significant moderator. (Direktori Jurnal Akses Terbuka)		Indonesia (Direktori Jurnal Akses Terbuka)
29	Satar, M. S., dkk.	2024	Digital Learning Orientation and Entrepreneurial Competencies in Blended Learning Graduates: Is Blended Learning Sustainable?	Digital learning orientation (DLO) directly improves entrepreneurial competencies; Blended learning (BL) does not directly predict ECs but moderates the DLO→EC relationship. (MDPI)	Blended learning behavior (MDPI)	Saudi Arabia (MDPI)

CONCLUSION

This systematic literature review shows that research on *Innovation and Entrepreneurship Competencies for Generation Z* during 2023–2026 is still largely dominated by the pathway from entrepreneurship education to entrepreneurial intention, especially in higher education. However, the evidence also indicates that competence is increasingly understood as a context-specific capability reflected in three main domains: digitally oriented entrepreneurial competence, entrepreneurial literacy and readiness, and innovation competence ranging from innovation attitudes to innovative behavior and green innovation. These competencies are mainly shaped by education, digital tools, AI-

related contexts, and social environments, and are often mediated by mechanisms such as digital self-efficacy, entrepreneurial alertness, and mindset development.

Overall, this review highlights a gradual shift from intention-based outcomes toward more concrete outcomes such as readiness, performance, innovative behavior, and green innovation. At the same time, the field remains fragmented because competence is operationalized through varied proxies, including literacy, self-efficacy, alertness, and mindset. Therefore, this SLR contributes by offering a more integrated conceptual map of Gen Z entrepreneurial and innovation competencies, while emphasizing the need for future research to strengthen construct consistency, improve measurement, and expand toward longitudinal, intervention-based, and behavior-oriented studies, particularly in digital/AI and sustainability contexts.

CONFLICTS OF INTEREST

The authors confirm that they have declared any potential conflicts that could influence the impartiality of this research. Specifically, they state that they have no financial, professional, or personal relationships with any individuals or organizations that might be perceived to unduly affect the objectivity of the study. This declaration is provided to ensure research integrity by transparently addressing any potential influences on the findings and interpretations, thereby strengthening the credibility and trustworthiness of the article.

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AUTHOR'S CONTRIBUTION STATEMENT

All authors contributed to the study and approved the final manuscript. Author 1 conceptualized the review topic, developed the research questions and search strategy, and led the overall project. Author 2 conducted the database searches, managed records and deduplication, and coordinated the PRISMA screening process. Author 3 performed full-text eligibility assessment, extracted data, and led the quality appraisal of included studies. Author 4 conducted the thematic synthesis, keyword clustering/bibliometric interpretation, and contributed to the development of tables and figures. Author 5 drafted and revised the manuscript for intellectual content, strengthened the theoretical framing and discussion, and finalized formatting and references.

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