ENHANCING ENTREPRENEURIAL COMPETENCE OF GENERATION Z: A KNOWLEDGE MANAGEMENT PERSPECTIVE

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Abstract

This paper investigates the development of entrepreneurial competence (EC) in Central Europe through the lens of knowledge management. Using a mixed-methods design, the study combines secondary data from the Global University Entrepreneurial Spirit Students' Survey (GUESSS) with primary institutional data (online questionnaire with closed- and open-ended items, complemented by a structured group discussion) covering 62% of Czech public higher education institutions (HEIs). Results show that Czech students are less inclined to pursue entrepreneurship than their global peers, despite Generation Z's predisposition toward entrepreneurial activity. Moreover, EC development at Czech HEIs is inconsistent and lacks systematic coordination. The research highlights disparities in institutional responsibility, funding, and target group size across universities. While all HEIs conduct EC-related activities, systematic inter-university knowledge sharing remains limited. This paper argues that integrating knowledge management at a national or inter-university level could enhance EC development by enabling better networking, knowledge retention, and innovation. The findings offer strategic guidance for businesses, policymakers, and HEI leaders seeking to systematise entrepreneurial education for Generation Z at universities.

Implications for Central European audience: The findings offer a practical roadmap for Central European HEIs to systematically enhance entrepreneurial competence education by leveraging knowledge management. A coordinated approach can help ensure consistent development of EC among Generation Z. The paper encourages businesses and policymakers to initiate inter-university collaboration, especially in countries with similar innovation profiles to the Czech Republic.

Keywords: entrepreneurial competencies; Generation Z; higher education; knowledge management

JEL Classification: M13, I23, O31

Introduction

Entrepreneurial competence (EC) is one of the critical factors of European competitiveness (Council of the European Union, 2018). With constant technological advances, digitalisation, and the world's interconnectedness, it is necessary to consider acquiring new knowledge and skills and adopting a holistic approach to adult learning (Loumpourdi, 2024). In higher education and enterprises, it is necessary to develop competencies different from those in the past (Coelho & Martins, 2022).

For more than two decades, the European Union (EU) has emphasised the promotion of entrepreneurial activity through strategic investment in entrepreneurial education (Nowak, 2016). However, there is still limited empirical evidence on how higher education institutions (HEIs) have implemented these educational priorities in practice (Audretsch et al., 2025; Puerta Gómez et al., 2024). Most studies continue to focus narrowly on student perceptions (Chang et al., 2025), or examine specific activities at only one university (Kuratko & Morris, 2024), or isolated examples of entrepreneurship initiatives within HEIs (Mele et al., 2024).

Furthermore, despite considerable financial investment by the EU, there is no clear or standardised evaluation of the long-term impact of such initiatives (Kujala et al., 2022). This underscores the need for systematic, institution-focused analysis. It is therefore essential to investigate the perspective of HEIs and to identify their capabilities using a structured framework, such as knowledge management theory, which can help to systematise institutional collaboration and learning (Santos et al., 2024).

This article adopts this innovative perspective, applying the principles of knowledge management to provide a framework for systematic collaboration among HEIs aimed at developing students' EC. This, in turn, has the potential to strengthen the broader entrepreneurial ecosystem (Audretsch et al., 2025). It offers insight also for businesses that rely on entrepreneurial graduates and for policymakers shaping innovation ecosystems.

Moreover, this article focuses on the EC development of Generation Z (Gen Z), who are currently completing higher education or entering the labour market (GWI, 2023). Generational cohorts are shaped by formative historical events and social influences that imprint distinct values and behaviours (Brindha & Priyadarshini, 2020). Gen Z refers to those born between 1997 and 2013 (Schroth, 2019), although the range of years may vary between authors (Dreyer & Stojanová, 2023). As Machová et al. (2021) state, Gen Z is heavily influenced by the technologies around them. Gen Z emphasises independence, prefers figurative and quick forms of communication, and does not seek as many forms of teamwork (Brindha & Priyadarshini, 2020).

The main objective of this article is to investigate how public HEIs support EC development among Gen Z students, using the Czech Republic as a representative case of a median innovator in the EU (Directorate General for Research and Innovation, 2023). The article addresses two exploratory research questions:

- **RQ1:** How do the entrepreneurial intentions and perceived university entrepreneurial climate of Czech Generation Z students compare with the published Global University Entrepreneurial Spirit Students' Survey (GUESSS) results?

- **RQ2:** What organisational arrangements, resources, activities, target groups, and cooperation patterns characterise the support for entrepreneurial competence at Czech public higher education institutions?

RQ1 addresses the individual and ecosystem levels of the study's multilevel framework and is answered using published GUESSS indicators, whereas RQ2 addresses the institutional level and is answered using primary data collected from HEIs. The theoretical rationale for both questions is developed in the theoretical framework concluding the literature review.

This article is structured as follows. First, the article presents a literature review focused on Generation Z, the development of entrepreneurial competence, and its theoretical grounding in knowledge management. Second, the entrepreneurial orientation and perceptions of Czech Gen Z university students are analysed using international comparative data from the GUESSS survey. Third, the role of Czech public HEIs in supporting EC is examined using primary data from public universities. The discussion integrates both student and institutional perspectives through a knowledge management lens to identify systemic gaps and opportunities.

1 Literature review

Competence combines knowledge, skills, and attitudes, and includes the practical application of these skills across a range of professional tasks (Rodrigues et al., 2021). Skills development remains a top policy priority for the EU, particularly in response to labour market shifts (EU, 2023). According to Armstrong and Taylor's concept (2020), competencies are an essential characteristic that leads to effective or superior performance. They may be behavioural, technical or task-related. The most commonly cited competencies include team orientation, communication, people management, customer focus, results orientation, problem-solving, planning and organising, technical skills, people leadership, and business awareness (Armstrong & Taylor, 2020), most of which are a part of EC supporting the launch of a new business. The common reference framework for EC in the EU is called the EntreComp Framework, which combines 15 different competencies (Miço & Cungu, 2023).

Higher education institutions (HEIs) are one of the key shapers of competencies of students (Puerta Gómez et al., 2024). Therefore, they are not only academic actors but also key stakeholders in the entrepreneurial ecosystem (Audretsch et al., 2025), directly influencing startup activity, knowledge transfer, and local business vitality.

In recent years, several studies have highlighted that the development of entrepreneurial competence increasingly requires digital readiness, data literacy and adaptability – skills strongly associated with Generation Z (Dreyer & Stojanová, 2023; Narojczyk & Nowak, 2024). These findings emphasise the need for HEIs to adopt more systematic and integrated approaches to EC development, particularly in post-transition economies.

The literature review examines Gen Z competencies, their link to EC, and the basic principles of knowledge management and their connection to the development of EC at HEIs. It also considers the entrepreneurial and innovation context in which Czech HEIs operate.

1.1 Generation Z competencies

Generation Z (Gen Z) is characterised by its digital nativeness, demand for flexibility, and preference for meaningful work (Machová et al., 2021). According to a Gen Z survey by GWI (2023), 48% of the Gen Z population was already employed or running a business in 2022, while 42% was studying. The survey explored Gen Z in 2022 in 50 countries, where 246 ,761 respondents took part (GWI, 2023). Table 1 illustrates some specifics of Gen Z resulting from this survey.

Table 1 | Overview of Generation Z specifics in 50 countries

Generation Z specifics	Comment
Digital competence	They trust online and social media highly, but this can negatively impact their health. They use modern methods of communication and social media.
Meaningful work	Higher orientation to meaningful work, preference for flexibility and earning.
Work-life balance	Generation Z decides what to buy and what to focus on, protecting their leisure time and separating work from their private lives. They are not as career ambitious.
Content over price	They are motivated by the purpose/value of the activity; they follow the ethical side. Financial awareness is relatively stable.
Gaming	Social interaction through interactive games.

Source: own elaboration based on Gen Z survey, GWI (2023) and Dreyer and Stojanová (2023)

Recent evidence from the Czech labour market complements these findings. Gen Z places high importance on opportunities for online communication, meaningful and stimulating work tasks, and the value "prestige", which reflects a desire to share achievements and maintain social visibility online (Hovořáková & Pauknerová, 2024).

However, it is essential to note that diversity is a defining characteristic of Gen Z (Deloitte, n.d.). Deloitte (n.d.) suggests that the future of work will require a profile of a 'Renaissance' person with multiple talents, interests, and areas of expertise. It will require a combination of four key job competencies:

- Digital competence: work with digital technologies, including configuration and customisation;
- Analytical skill: interpretation, visualisation, and communication of data;
- Business management competence: including EC also in general administrative roles;
- Design and creative skills: in the broadest sense, also in areas such as finance or manufacturing.

HEIs should reflect the development of these competencies and should encourage the EC developments. With a strong connection to digital technology that has been with them all their lives (Machová et al., 2021), the communication style and the EC development should be adapted to Gen Z. Different combinations of competencies relevant to Gen Z have been identified in the literature (Machová et al., 2021; Narojczyk & Nowak, 2024). The following subchapter examines a link between Gen Z and entrepreneurial competencies.

1.2 Entrepreneurial Competence link to Generation Z

Entrepreneurial competence (EC) plays a critical role in shaping modern business environments, especially in economies where innovation is central to growth. Startups and small and medium-sized enterprises, launched often also by university students or graduates (Sieger et al., 2024), are vital drivers of economic dynamism (Mele et al., 2024; Modina et al., 2024).

Research consistently shows that EC is a multidimensional construct that integrates opportunity recognition, creativity, problem-solving, risk management and the ability to mobilise resources in uncertain conditions (Alkaabi & Senghore, 2024). These competencies are increasingly shaped by digitalisation, technological literacy and data-driven decision-making, which makes EC development particularly relevant for digitally fluent Generation Z students (Dvouletý et al., 2025).

In higher education, structured entrepreneurial learning pathways – such as experiential courses, incubators, mentoring programmes and interdisciplinary project work – have been shown to significantly enhance students' entrepreneurial mindset and behavioural intentions (Chang et al., 2025). University incubators and entrepreneurial labs also strengthen EC through hands-on experimentation, networking and exposure to real market challenges (Mele et al., 2024).

When HEIs successfully equip students with entrepreneurial mindsets, local economies benefit from increased rates of business creation, innovation, and employability (Chang et al., 2025). Conversely, a lack of systematic EC development can limit regional competitiveness (Antlová et al., 2024). The concept of entrepreneurship has been researched for a long time (Dreyer & Stojanová, 2023), and belongs to the eight essential competencies necessary to maintain competitiveness of the EU (Council of the European Union, 2018).

Entrepreneurial Competence (EC) can be understood as the capacity to act upon opportunities and ideas and to transform them into values for others. It is founded upon creativity, critical thinking, problem-solving, taking initiative, perseverance, and the ability to work collaboratively to plan and manage projects that are of cultural, social, or financial value. (Council of the European Union, 2018).

EC involves the ability to start one's own business and a complex set of skills, knowledge, and capabilities such as creativity, innovation, and endurance time (Dreyer & Stojanová, 2023). According to an empirical study of Polish university students, Gen Z with following competencies grouped in a form of mega-factor can succeed as entrepreneur: Strategic Analyst, Innovative Champion, Determined Optimist, Communication Leader, Purposeful Player, Calm Promoter, Team Champion (Narojczyk & Nowak, 2024). Based on a detailed literature search, Dreyer and Stojanová (2023) investigated the link between EC and Gen Z, and their main research findings are summarised in Table 2.

Table 2 | Attitudes of Generation Z towards areas related to the labour market and entrepreneurial competence (EC)

Labour market and EC	Generation Z attitude	Impact on EC
Career orientation	Less career-oriented	Limits
Motivation to work	Meaningfulness of work	Supported by
Attitude to time	Separation of personal life from work	Limits
Leaving the comfort	They need certainty and structure, but they are also open to taking risks	Neutral influence
Communication	Modern and effective communication, primarily online	Supported by
Character of the entrepreneur	Visionary – purpose, online idea dissemination and followership	Supported by

Source: adapted from Dreyer and Stojanová (2023)

As shown in Table 2, Gen Z has attitudes that both support and limit their EC. An essential question for Gen Z is why they work. If they see meaning in an activity, they devote their time and energy to it. However, it is also crucial for them to separate work from their leisure time. Furthermore, research by Dreyer and Stojanová (2023) found that Gen Z has excellent technical skills linked to their communication style. Regarding entrepreneurship, Gen Z is referred to as visionaries, and online technology makes it relatively easy for them to spread their ideas or follow other visionaries (Dreyer & Stojanová, 2023). The correlation between Generation Z and a positive influence on the business environment was also studied in Poland, where it turned out that Generation Z is well-suited to become an entrepreneur (Narojczyk & Nowak, 2024).

Berková et al. (2020) show that the lack of knowledge of university students prevents about one-third of students who have a business idea from starting a company. Therefore, increasing students' knowledge through practical methods is necessary (Berková et al., 2020). The connection between EC development and knowledge management is examined in the following subsection.

Although the literature offers extensive insights into the entrepreneurial competence of university students, several authors note that existing evidence is fragmented and often inconsistent across regions. For instance, while Western European studies report growing entrepreneurial intentions among Gen Z, research from Central and Eastern Europe shows significantly more sceptical attitudes and higher risk aversion (Holienka et al., 2022). This discrepancy suggests that EC development is not solely an individual-level phenomenon but is strongly shaped by structural, cultural and institutional factors of the national ecosystem. Moreover, the operationalisation of EC varies across studies, limiting comparability and indicating a need for more unified measurement frameworks (Chang et al., 2025).

1.3 Knowledge Management and its role in Entrepreneurial Competence Development at HEIs

Knowledge management provides a structured framework through which HEIs can coordinate their activities, retain institutional memory and support organisational learning – factors that are essential for consistent and high-quality entrepreneurial competence development (Santos et al., 2024).

A strategic application of knowledge management not only enhances internal collaboration among HEIs but also strengthens ties with industry partners (Santos et al., 2024). This interconnectedness fosters a culture of open innovation, where entrepreneurial initiatives developed by students can align more closely with real-world business challenges and opportunities (Santos et al., 2024).

Recent research shows that knowledge management capabilities at HEIs are critical for developing entrepreneurial competence because they enable knowledge sharing across faculties, improve coordination of entrepreneurship-related activities and support experiential learning practices (Dvouletý et al., 2025). For digitally native Generation Z students, knowledge management systems built on digital tools, repositories and collaborative platforms improve access to learning resources and strengthen the translation of knowledge into entrepreneurial action (de Bem Machado et al., 2022).

Many authors see a direct link between the quality of human capital and successful business performance (Becker, 1993; Martins, 2021; Milton & Lambe, 2019; Rhem, 2022). A specific feature of human capital is that acquired skills, or knowledge cannot be separated from the person. Thus, when a person leaves a company, this type of human capital leaves with the employee (Becker, 1993).

Knowledge is, therefore, an important element of a company's intangible assets that every company should pay attention to (Milton & Lambe, 2019). Knowledge management is linked to both the organisation and its environment. Internally, knowledge management links management with employees, corporate goals and strategies and corporate metrics systems. Externally, knowledge management occurs between the organisation and the professional community (de Bem Machado et al., 2022).

Milton and Lambe (2019) consider the following characteristics as the cornerstones of knowledge management:

- Connecting people through communities and networking,
- Better access to documents,
- Knowledge retention,
- Learning from experience,
- Creating best practice,
- Innovation,
- Providing information on markets or customers.

These management elements are also relevant to HEIs, where knowledge management can improve coordination, preserve institutional experience, promote continuous learning and support talent development (Milton & Lambe, 2019; Rhem, 2022).

Applied to EC development, these principles can support communication across faculties and support units, knowledge retention and cooperation with external partners. However, due to the constant progress, a combination of multiple approaches is needed for quality decision-making (Liebowitz, 2019).

Despite the recognised importance of knowledge management for organisational learning, research highlights several limitations in its practical implementation in higher education. Many HEIs lack formalised knowledge management structures and rely heavily on informal

knowledge sharing, which leads to fragmentation, duplication of activities and loss of institutional memory (Milton & Lambe, 2019). Additionally, while digital tools create opportunities for enhanced knowledge exchange, studies show that HEIs often underutilise these technologies or fail to align them with broader strategic goals (de Bem Machado et al., 2022). These inconsistencies limit the ability of knowledge management systems to support long-term entrepreneurial competence development and create variations in institutional performance, particularly within post-transition ecosystems such as Czechia.

1.4 Entrepreneurial Ecosystem and Innovation Context

One of the key elements of knowledge management is innovation (Milton & Lambe, 2019). The most widespread innovations are often incremental (Tidd et al., 2007). Innovation frequently involves combining existing knowledge in new ways and is closely linked to entrepreneurship and EC. For example, entrepreneurship courses can support students in transforming ideas into innovative business opportunities (Alkaabi & Senghore, 2024).

An integral part of research and innovation is the university environment, which should reflect innovation in its approach and leadership (Sauphayana, 2021). The European Commission understands the importance of innovative strategies in education, particularly in promoting collaboration between universities and businesses. Its priorities include strengthening university–business cooperation, supporting start-ups, retaining talent and encouraging collaboration among universities (European Commission, 2022).

University students equipped with strong entrepreneurial competencies can serve as future founders of university spin-offs, which are key components of regional innovation ecosystems. These entities play a critical role in translating research into business value, thereby reinforcing local economic development and technological advancement (Modina et al., 2024).

Innovation performance varies across the EU, as demonstrated by the European Innovation Scoreboard, in which Slovenia and the Czech Republic (CZ) were classified as median innovators in 2022 (Directorate General for Research and Innovation, 2023).

Recent analyses of the Czech entrepreneurial ecosystem also highlight structural barriers such as low perceived opportunities, high administrative burden and relatively weak digital readiness, which shape how young people perceive the attractiveness and feasibility of entrepreneurship (Dvouletý & Procházka, 2024). Fear of failure, a long-term barrier in Central European countries, remains particularly strong among young people, limiting entrepreneurial intentions despite their creativity and digital competency (Holienka et al., 2022). Compared with global leaders, Czech HEIs operate within an environment of median innovation performance, which may reduce students' exposure to entrepreneurial role models and highly innovative firms (Hovořáková & Pauknerová, 2024).

To sum up, the development of EC at HEIs has a positive impact on innovation and plays an essential role in whether students intend to start businesses and commercialise their ideas (Sánchez, 2011; Wang et al., 2021). Antlová et al. (2021) and Wang et al. (2021) stressed the importance of gaining knowledge about starting, running, and innovating a business during university education. Furthermore, receiving training on entrepreneurship and innovation positively influences attitudes towards entrepreneurship in the future (Porkodi & Saranya, 2023; Prihandono & Utami, 2018; Wang et al., 2021). These relationships provide

the ecosystem-level context for interpreting the GUESSS and institutional findings presented in this study.

1.5 Theoretical Framework

Building on the reviewed literature, this study adopts a multilevel theoretical framework linking knowledge management, EC development and the characteristics of Generation Z within the entrepreneurial ecosystem.

At the individual level, Generation Z brings strong digital skills, flexibility, and preference for meaningful work, but also reduced entrepreneurial confidence influenced by higher uncertainty and risk aversion (Dreyer & Stojanová, 2023; Hovořáková & Pauknerová, 2024). These characteristics affect their entrepreneurial intentions and highlight the need for structured support from HEIs.

At the institutional level, HEIs play a dual role: they develop students' entrepreneurial competences and simultaneously act as knowledge-intensive organisations. Effective knowledge management enhances knowledge sharing, supports innovation-based teaching, promotes learning from experience and enables more coordinated entrepreneurial support across faculties (Milton & Lambe, 2019; Santos et al., 2024).

Through entrepreneurship courses, incubators, mentoring and collaboration with businesses, HEIs provide environments where EC can be developed through experiential and innovation-driven learning (Chang et al., 2025; Mele et al., 2024).

At the ecosystem level, innovation performance, digital readiness and institutional quality shape the broader opportunity environment in which students make career decisions. Evidence from Central Europe suggests that median innovation performance, administrative burden and cultural barriers (e.g. fear of failure) may reduce the likelihood that Gen Z chooses entrepreneurship (Dvouletý & Procházka, 2024; Holienka et al., 2022).

Knowledge management functions as the integrative mechanism linking these three levels. It supports the flow of knowledge within HEIs, connects HEIs to external actors in the entrepreneurial ecosystem, and enables students to translate digital and domain-based knowledge into entrepreneurial action (de Bem Machado et al., 2022; Dvouletý et al., 2025).

This conceptual framework underpins the study's research questions and guides the empirical analysis presented in this paper. Accordingly, RQ1 addresses the individual and ecosystem levels through published GUESSS indicators, whereas RQ2 addresses the institutional level through the HEI questionnaire and structured discussion. The two strands are integrated in the Discussion through the knowledge management lens.

2 Research methodology

This study's methodology is based on a two-source mixed-methods approach that integrates secondary data analysis of GUESSS and primary institutional research based on closed-ended questionnaire data, optional open-ended responses, and a structured group discussion. The overall objective was to explore how entrepreneurial competence (EC) is supported at Czech public universities and how this development contributes to Generation Z's entrepreneurial potential within the broader business and innovation environment. Czechia was selected as an informative Central European case because it combines median

innovation performance with comparatively low student evaluations of the entrepreneurial climate at universities, as indicated by the published GUESSS results.

The study uses a two-source mixed-methods design in which published quantitative GUESSS indicators provide a national and international benchmark, while primary closed-ended and qualitative institutional data provide a complementary HEI perspective for interpreting these patterns in the Czech context. This approach provides complementary perspectives on student-level and institutional patterns.

2.1 Literature and secondary data analysis

A comprehensive literature review was conducted using scientific databases, including Web of Science and Scopus, with a focus on EC, university students of Generation Z, and knowledge management. This informed the formulation of the research questions outlined in the introduction, particularly regarding the role of Czech higher education institutions (HEIs) in fostering EC among Generation Z students.

In parallel, the published international and Czech national reports of the GUESSS were analysed as documentary sources (Bowen, 2009). This is a long-standing international research initiative coordinated by the University of St. Gallen and University of Bern, which investigates university students' career aspirations, entrepreneurial intentions, and perceived support from HEIs. The survey is organised every two years by the Universities of St. Gallen and Bern (GUESSS, n.d.). The survey is conducted online in regular waves and provides one of the most comprehensive global datasets capturing university students' aspirations, entrepreneurial intentions and HEI support structures (Sieger et al., 2024).

The last GUESSS wave included 227,712 respondents in 2023 from 57 countries (Antlová et al., 2024), offering a global benchmark in EC at HEIs (Sieger et al., 2024). In 2021, more than 267,000 respondents from 58 countries participated in the ninth wave of this survey (Sieger et al., 2024). The wave from 2018 reflects 208,000 responses from more than 3,000 universities from 54 countries (GUESSS, n.d.).

In the Czech Republic, the 2023 GUESSS survey included 1,407 completed student responses from 12 public universities, representing a broad cross-section of the Czech higher education landscape (Antlová et al., 2024). Notably, 73.7% of respondents were at the Bachelor level, and the most represented fields of study were Economics, Business/Management, and Computer Sciences/Information Technology. In terms of gender, 56.7% were female and 42.2% male, with 82% of respondents holding Czech nationality, and 18% being international students (Antlová et al., 2024).

Selected indicators from the published Czech national and international GUESSS reports were compared descriptively across the 2018, 2021, and 2023 waves. The authors' added value in this part of the research lies in selecting comparable indicators, synthesising them across waves, and integrating them with the institutional evidence collected from Czech HEIs. The Czech edition of GUESSS in 2021 included 1,971 respondents from 11 Czech universities (Antlová et al., 2021). In the 2018 wave, 1,254 Czech respondents from 8 universities participated. The demographic profile was similar, with most students aged 18–24, and Business, Economics, and Engineering being the most frequent study fields (Antlová et al., 2019).

For international comparison, we relied on core GUESSS indicators that are consistently available across countries, including entrepreneurial intention, perceived entrepreneurial climate at the university and participation in entrepreneurial education. All cross-country comparisons presented in this paper are descriptive and do not control for structural differences such as national culture, economic performance or higher education funding regimes. These contextual factors are therefore explicitly considered in the discussion when interpreting the observed gaps between Czech students and their global peers. No respondent-level reweighting, significance testing, or multivariate analysis was performed.

Secondary data analysis enabled international comparison and provided the necessary context for results and discussion complemented by primary data described in the following section.

2.2 Primary data collection

Because GUESSS captures the student perspective only, this study complemented it with original primary data targeting the institutional view of HEIs, a critical component in understanding how EC is developed systematically in a country and business environment.

Therefore, primary research focuses on public universities and their strategies of EC development. A questionnaire survey was carried out with the help of an inter-university knowledge-sharing network, "Univerzita pro podnikavost" (University for Entrepreneurship, UfE). It is a network of universities and innovation centres in the Czech Republic. With the help of this network, every public university in the Czech Republic was approached.

Primary data were collected in May 2023 through an online questionnaire combined with elements of structured group discussion within the UfE. One knowledgeable representative from each responding HEI completed the questionnaire. The survey was administered via Computer-Assisted Web Interviewing (CAWI), which is a widely used method of electronically administered surveys. The CAWI method was chosen to allow respondents from geographically dispersed universities to complete the questionnaire flexibly, to reduce administrative burden for both respondents and researchers, and to ensure a standardised presentation of questions. The data collection was conducted by the authors, who distributed the survey link to the identified institutional contacts and monitored the completeness and consistency of incoming responses. This method was complemented by elements of structured group discussion within the inter-university network to validate initial interpretations of institutional practice. All 16 representatives subsequently participated in the structured group discussion and contributed to themes within their area of experience; the discussion was used to elaborate and validate the interpretation of institutional practices. The discussion was documented through written notes taken by the authors during the session.

Respondents were purposively selected among staff members who are directly involved in the design and delivery of entrepreneurship support at their institutions (e.g., heads of technology transfer offices, coordinators of entrepreneurship or innovation centres, career services staff, vice-deans for external relations). Because no standardised "entrepreneurship support" position exists across Czech HEIs, the sample includes a heterogeneous set of roles that nevertheless share operational responsibility for EC development. The questionnaire was designed to capture key dimensions of knowledge management in this area (knowledge creation, storage, sharing and application) and translated these into questions on organisational responsibility, activity portfolios, funding, staffing and cooperation patterns. To

support content relevance and clarity, the questionnaire items were reviewed by a small group of academics and practitioners experienced in entrepreneurship education and HEI management, and minor revisions were made to clarify wording and ensure alignment with the study's conceptual framework. During data cleaning, responses were further screened for internal consistency (e.g., coherence between reported funding, staffing and activity intensity), and implausible values were cross-checked with publicly available institutional information where possible. This helped to ensure that responses reflected informed institutional perspectives rather than individual or administrative opinions.

The questionnaire consisted of 16 substantive questions covering: (1) the institution represented; (2) the organisational unit responsible for entrepreneurship support (e.g., faculty, university-wide centre, career service, technology transfer office); (3) sources of funding for entrepreneurship support (project-based, institutional budget, external grants and other sources); (4) the size of the annual budget dedicated to entrepreneurship support; (5) the number of full-time equivalent (FTE) staff involved; (6) the portfolio of activities implemented (e.g., courses, workshops, mentoring, competitions); (7) financial rewards in entrepreneurship competitions and the form of their disbursement; (8) the main target groups (students, doctoral candidates, academic staff, alumni); (9) the estimated annual reach of entrepreneurship support activities in terms of the number of individuals involved; (10) cooperation with external partners such as innovation centres, regional authorities or private companies, and the perceived intensity of this cooperation; and (11) the extent to which entrepreneurship support is also provided in English. The questionnaire included both closed-ended and open-ended questions, allowing respondents to elaborate on specific funding schemes, types of activities and forms of cooperation. Three variables collected in the questionnaire – the annual budget dedicated to entrepreneurship support (item 4), the amount and disbursement of competition prizes (item 7), and the perceived intensity of cooperation with external partners (item 10) were reported in inconsistent formats across institutions and were missing for a subset of respondents. These variables were therefore not analysed quantitatively and are not reported as separate findings below. The closed-ended items included single-choice, multiple-response, and numerical formats, while the open-ended items were optional.

Closed-ended responses were analysed using descriptive statistics to characterise the organisational arrangements, funding structures, staffing levels and activity portfolios of Czech public universities. Open-ended responses were analysed using an inductive thematic approach at the semantic level, following Braun and Clarke (2006). The second author generated initial codes through repeated reading of all responses. The first author independently reviewed a subsample of responses and the proposed categories, and discrepancies were resolved through discussion. The structured group discussion, in which all 16 representatives contributed to topics within their experience, was used to elaborate and review the candidate interpretations rather than to calculate theme frequencies. The final coding framework distinguished themes related to coordination and governance of entrepreneurship support, funding and human resources, activity portfolios and target groups, external cooperation and ecosystem linkages, and barriers, challenges and good practices. The coded data were used to contextualise and enrich the quantitative patterns rather than to quantify frequencies of specific themes. Data were obtained from representatives of 16 of the 26 Czech public HEIs, representing approximately 62% of the sector and providing broad coverage of Czech public higher education. Because the open-ended items were optional,

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the themes were used to contextualise the closed-ended findings rather than to quantify their prevalence. For multiple-response closed items, each option was calculated as a percentage of the 16 HEIs; totals may therefore exceed 100%. In Figure 6, one representative was not able to estimate the answer; therefore, n = 15 was used.

Because participation was voluntary, a self-selection bias cannot be fully excluded. Universities with more developed entrepreneurship or knowledge management structures may have been more willing to participate, potentially leading to a slight overestimation of institutional support. However, the 62% response rate from public universities and representation across diverse institution types mitigate this concern.

Qualitative data may also be influenced by social desirability bias, as institutional representatives may present their university in a favourable way. To reduce this effect, the structured group discussion allowed respondents to elaborate on the questionnaire findings and enabled the authors to compare interpretations across institutions. Findings were cross-validated with publicly available institutional documents where possible.

3 Results

The mixed-method approach allows for triangulation of student perceptions via GUESSS with HEIs strategies influencing the business environment in Central Europe. The reliance on descriptive statistics at the institutional level is justified by the exploratory nature of this study and the relatively small population of public universities; our primary aim is to provide a sector-wide mapping of how EC support is organised, rather than to test specific causal hypotheses. At the same time, the empirical contribution is strengthened by triangulating student-level evidence from GUESSS with institutional-level findings from the CAWI survey. This combination allows us to compare how Generation Z students perceive entrepreneurial opportunities and support at their universities with how universities themselves describe their structures, resources, and activities in this area. Nevertheless, descriptive analysis has inherent limitations, as it does not permit formal inference about the relationships between individual- and institutional-level variables. To make fuller use of the collected data, Section 3.2 therefore complements the descriptive statistics with a cross-analysis of institutional characteristics (Table 5) and with a qualitative contextualisation based on the open-ended responses (Section 3.2.1). Future research using respondent-level GUESSS data could apply inferential models, for example, to examine students' entrepreneurial intentions as a function of perceived entrepreneurial climate and participation in entrepreneurship education.

3.1 University students' perspective

The planned career paths of Czech students immediately after graduation remain overwhelmingly weighted toward employment: 65% of respondents in 2023 intend to become employees, nearly matching the global average of 66%. However, this share has fallen sharply from 83% in 2018 and 72% in 2021. There is an increase in the Other/ I do not know category and a slight increase in the Founder category, as Table 3 illustrates.

Table 3 | The planned career path of Czech university students (CZ) after graduation in 2023 (n = 1,407), compared to 2021 (n = 1,971), 2018 (n = 1,254) and to global GUESSS in 2023 (n = 227,712), in %

Perspective	Global in 2023	CZ in 2023	Change from 2021	Change from 2018
Employee	66	65	-7	**-18**
Founder	**16**	**11**	+2	+5
Successor	2	2	-1	0
Other/ I do not know yet	**16**	**22**	+6	+11

Source: own elaboration based on GUESSS 2023 (Antlová et al., 2024)

Although only 11% of Czech students plan to start their own business immediately after graduation, in contrast to 16% globally, this share has risen from 6% in 2018 and 9% in 2021, signalling growing entrepreneurial ambition despite remaining below the international norm. Part of the persistent gap reflects the still-limited ecosystem of university support: in the 2021 wave, just 18% of Czech students had enrolled in an elective entrepreneurship course, compared with 26% worldwide (Antlová et al., 2021), and in 2023, 70% of Czech students had taken no entrepreneurship course at all, in contrast to 58.8% globally (Sieger et al., 2024).

Moreover, Czech universities score an average of 3.7 on a 1 to 7 entrepreneurial-climate scale (Antlová et al., 2024), indicating limited access to guidance, mentorship, and practical start-up opportunities on campus. In contrast, the global average score across 57 countries is 4.5, with the Czech Republic placed alongside Germany and Austria in 54th–56th place out of 57 evaluated nations (Sieger et al., 2024), as Table 4 shows below.

Table 4 | Average university entrepreneurial climate in selected countries and the global average in 2023 (N = 226,186), mean scores on a 1–7 scale

University entrepreneurial climate	Average	Ranking from 57 countries
Indonesia, Mexico	5.9	First ranking
Global (57 countries)	4.5	38th ranking
Hungary	4.0	50th ranking
Slovakia	3.9	51st ranking
Czech Republic, Germany, Austria	3.7	54th-56th ranking
Iran	3.3	Last ranking

Source: own elaboration based on GUESSS (Sieger et al., 2024)

However, students from HEIs in Central European countries view the entrepreneurial climate less favourably compared to the global perspective (Sieger et al., 2024). The Czech Republic, along with Austria and Germany, ranks among the lowest in this regard. Slovakia and Hungary also appear in the bottom tier, landing at the 50th and 51st positions out of 57 countries worldwide (Sieger et al., 2024). These findings support our first research question, indicating that Czech Gen Z university students are less inclined toward entrepreneurship than their global peers and receive less support for entrepreneurial culture.

One explanation lies in regional characteristics of the entrepreneurial environment in Central Europe, such as limited perceived opportunities, lower innovation performance and persistent structural barriers that affect young people's entrepreneurial intentions (Dvouletý & Procházka, 2024; Holienka et al., 2022). Furthermore, empirical evidence from the Czech labour market shows that Gen Z's work values and expectations focus strongly on stability, meaningful work and opportunities for online communication – factors that may decrease their willingness to engage in riskier entrepreneurial activities (Hovořáková & Pauknerová, 2024).

To sum up, the literature review and the GUESSS results indicate that although Gen Z possesses strong digital capabilities and creativity, the translation of these qualities into EC requires targeted and well-structured support from HEIs, on which the next section will focus.

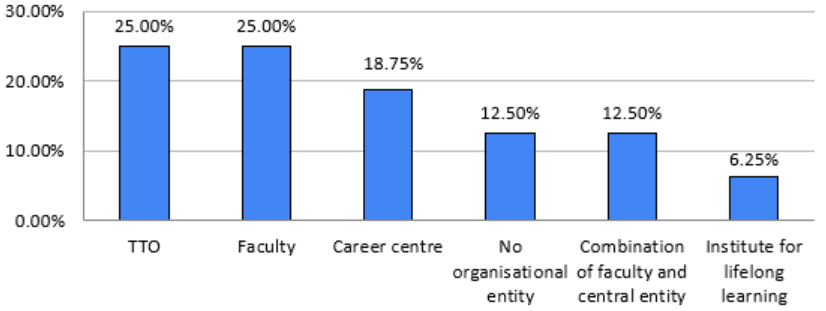
3.2 Results related to public universities

The GUESSS results presented above indicate that Czech Gen Z students perceive a comparatively weak entrepreneurial climate at their universities (RQ1). This section therefore turns to the institutional perspective (RQ2) and examines how Czech public HEIs organise, fund, staff, and deliver EC support.

Primary data obtained through the CAWI questionnaire and structured group discussion among representatives of Czech public HEIs show that entrepreneurship is promoted through different organisational arrangements and combinations of support activities.

Figure 1 shows the organisational classification of the entity that develops EC at university. Most often, EC at HEIs is being developed at the Technology Transfer Offices (TTOs), which deal with commercialisation, or at faculties related to entrepreneurship (such as the Faculty of Economics, Business School, etc.). Other entities developing EC at Czech HEIs are career centres, a combination of faculty and a central entity (TTO, career centre or other entity associated with central university management). Two studied HEIs have no dedicated entity, and in one case, the role falls to an Institute for Lifelong Learning. This organisational diversity may make regular networking and knowledge sharing more difficult. In the structured discussion, participants noted that staff located in different types of units did not always have a common forum for exchanging practices across HEIs.

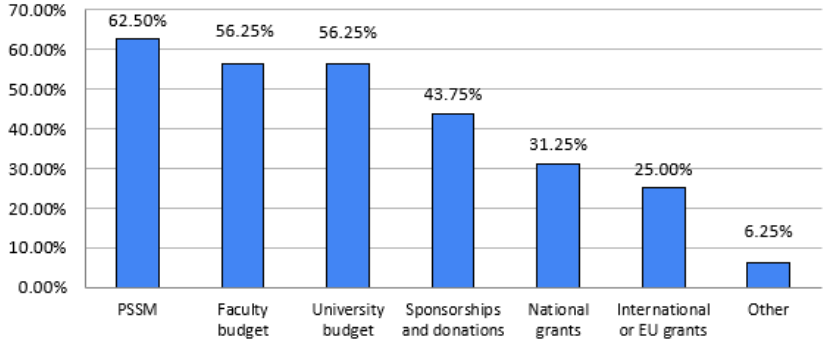
Figure 1 | Organisational entity developing EC at Czech HEIs in 2023 (% of HEIs with the given entity)



Source: own study based on the research results (n = 16)

Participating HEIs reported a range of funding sources for their EC, as illustrated in Figure 2. The most used source was a Programme to Support the Strategic Management of Universities (PSSM), a Ministry of Education project aimed at improving university management. The open-ended responses and group discussion suggested that the responsible unit may influence the budget line from which activities are financed (for example, university-level budgets for central units and faculty budgets for faculty-led activities). Furthermore, almost half of HEIs attract funding from donors and sponsors. Around a third uses national grants other than PSSM, and a quarter uses international or EU grants. The rest of the HEIs use another source (e.g. finances from the commercial activity of its science park). Participants also described time-limited project funding as a potential continuity risk and limitation of knowledge management because staff and activities may change when grants end, which can make knowledge retention more difficult. Because respondents could select more than one source, these percentages indicate prevalence of use, not the relative monetary importance of each source or whether it was primary or supplementary.

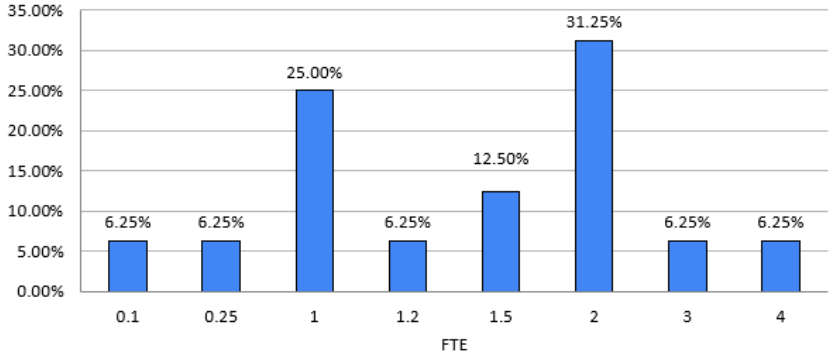
Figure 2 | Funding sources for the development of EC (% of HEIs using given source; multiple responses possible)



Source: own study based on the research results (n = 16)

Figure 3 demonstrates the staffing of EC development at HEIs. Research results show that 87.5% of the studied HEIs (14 of 16) have at least one FTE responsible for this activity, and nearly a third have two FTEs.

Figure 3 | Number of FTE staff developing EC (% of HEIs with a given number of FTEs)

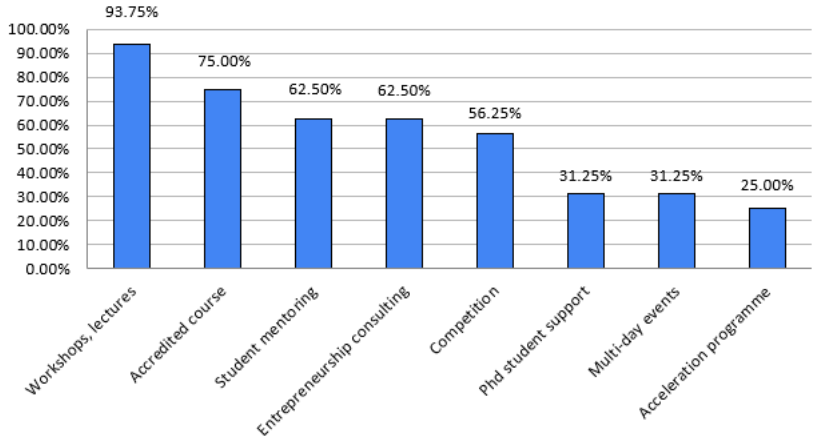


Source: own study based on the research results (n = 16)

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The most common activities for developing EC at HEIs include lectures, workshops, and accredited courses on entrepreneurship. Student mentoring, business counselling, and student competitions are also very common. Some HEIs also work with doctoral students or prepare multi-day events. The least common activity is the HEI's own acceleration programme. Figure 4 shows a clear overview of the different activities, with each HEI performing multiple activities in various combinations.

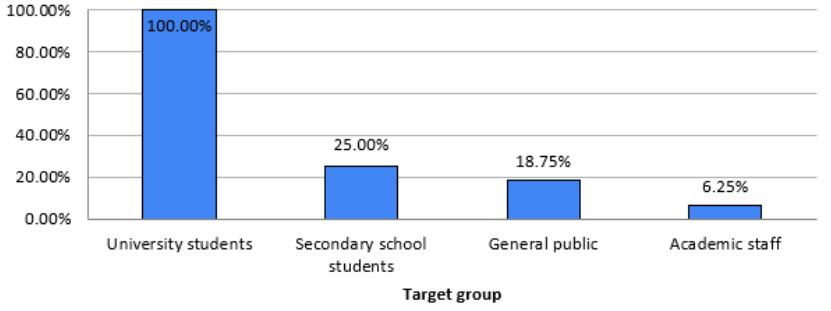
Figure 4 | Activities aimed at promoting EC (% of HEIs engaging using given activity; multiple responses possible)



Source: own study based on the research results (n = 16)

The survey also showed that besides HEI students, some activities are focused on other target groups. However, this is the case in only a quarter of HEIs. Different target groups include secondary school students and the general public, as shown in Figure 5. Interestingly, only one HEI aims to develop EC among its academic staff.

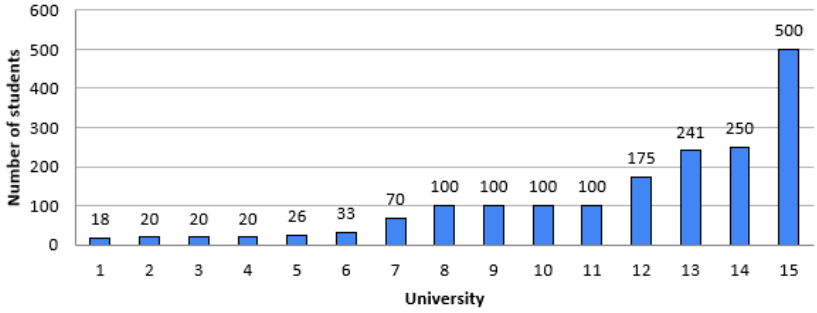
Figure 5 | Supported groups (% of HEIs supporting given group; multiple responses possible)



Source: own study based on the research results (n = 16)

The size of the supported target group (Figure 6) shows a large discrepancy among the HEIs. 40% of HEIs support 18 to 33 students a year. A third of HEIs support between 70 and 100 students. The remaining four HEIs support between 175 and 500 students. One university could not give a reasonable estimate of its supported target group size and was omitted.

Figure 6 | Number of HEI students supported at each HEI

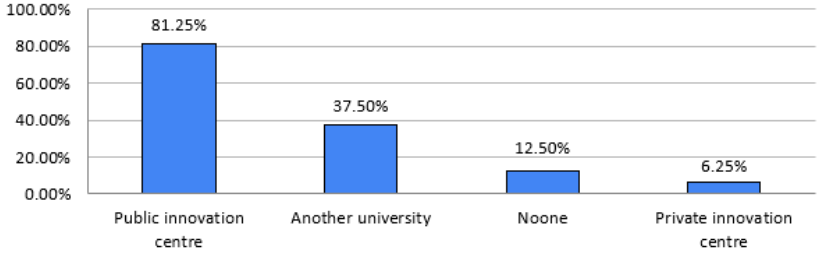


Source: own study based on the research results (n = 15)

The survey also looked at EC development in the English language at HEIs. Exactly half of the analysed HEIs support the development of EC both in Czech and English. The other half uses only the Czech language.

As Figure 7 shows, most HEIs (81.25%) cooperate with a publicly established innovation centre to develop EC. In addition, some HEIs (37.5%) cooperate with another university. Two HEIs do not collaborate with any external body; one HEI cooperates with a private innovation centre.

Figure 7 | Cooperation with other actors developing EC (% of universities cooperating with given institution; multiple responses possible)



Source: own study based on the research results (n = 16)

A simple cross-analysis of the institutional characteristics in Table 5 suggests that the scale of support is related to institutional capacity.

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Table 5 | Institutional profiles of EC support at Czech public HEIs in 2023 (n = 16)

HEI	Responsible unit (author classification)	FTE	# funding sources	Reach/ year	EC in English	Cooperation partners
A	Central (rectorate) coordination unit	2	2	70	No	Public innovation centre
B	Faculty	2	2	26	No	Public innovation centre; another university
C	TTO / commercialisation unit	1.5	5	≤500*	Yes	Public innovation centre; another university
D	No dedicated entity	0.25	2	≈100	Yes	Public innovation centre
E	Faculty	1	1	≤20**	No	Public innovation centre; another university
F	Combination (faculty + central)	1.2	3	250	Yes	Public innovation centre; another university
G	Career centre (central)	1	3	18***	No	None
H	Faculty	2	4	100	No	Public innovation centre
I	Career centre (central)	4	4	241	Yes	Public innovation centre; another university
J	Institute for Lifelong Learning	0.1	4	20	No	Public innovation centre
K	Faculty	1.5	3	100	Yes	Public innovation centre
L	TTO / commercialisation unit	2	3	33	Yes	Public innovation centre
M	Career centre (central)	2	4	100	No	Private innovation centre
N	Combination (TTO + central)	1	4	20	Yes	Public innovation centre; another university
O	TTO / commercialisation unit	3	2	≈175	No	None
P	No dedicated entity	1	0	n/a****	Yes	Public innovation centre

Note: * (institution C, "≤500") the respondent gave an upper-bound estimate ("up to 500"), not an exact count. ** (institution E, "≤20") the respondent gave multiple figures for different formats (up to 10 for regular sessions, up to 20 for multi-day trips); the table uses the higher figure. *** (institution G, "18") reported as students per semester, not per year, so it is not directly comparable to the other annual figures. **** (institution P, "n/a") the respondent explicitly said they could not estimate reach, since their EC programme had just launched (rather than simply skipping the question).
Abbreviations: EC = entrepreneurial competence; FTE = full-time equivalent; TTO = technology transfer office; n/a = not available.
Anonymised institutional codes (A–P) are consistent only within this table.
Source: own elaboration based on the research results (n = 16)

The descriptive cross-analysis suggests that average staffing tends to increase with reported annual reach: institutions supporting 175 to 500 students per year report an average of 2.4 FTEs, compared with 1.6 FTEs among institutions supporting 70 to 100 students and 1.2 FTEs among those supporting 18 to 33 students. The four highest-reach HEIs all anchor EC support in a central-level unit, such as a technology transfer office, career centre, or a combination of faculty and central coordination. However, central coordination alone does not necessarily imply a higher annual reach. A further pattern emerges from the closed-ended data: HEIs that provide EC support in English cooperate with another university at twice the rate of those that do not (50% versus 25%). Given the small number of institutions (n = 16), these patterns are indicative only, and no statistical inference is implied.

3.2.1 Qualitative contextualisation of the institutional findings

The optional open-ended responses were used to interpret how the reported organisational arrangements, resources, activities, and cooperation patterns may be connected. The structured group discussion was used to elaborate and review these interpretations. The qualitative material was not used to calculate theme frequencies; instead, it provided contextual explanations for the descriptive results. Table 6 summarizes the main themes from open-ended responses.

Table 6 | Thematic contextualisation of institutional responses

Theme	Connection to the institutional evidence	Knowledge-management interpretation
Fragmented organisational responsibility	EC support is located in TTOs, faculties, career centres, hybrid structures, or no dedicated unit. The discussion suggested that representatives in different unit types did not always share a common forum.	Coordination and knowledge sharing depend on clear ownership and cross-unit routines.
Project dependence and continuity	HEIs combine PSSM, institutional budgets, sponsorships, and grants. The discussion linked some temporary projects to discontinuity in staffing or activities.	Time-limited funding can create risks for knowledge retention and institutional memory.
Uneven institutional capacity and reach	Staffing ranges from 0.1 to 4 FTEs and reported annual reach from 18 to 500 students. The descriptive data do not establish a causal relation between these variables.	HEIs differ in their capacity to disseminate support and convert knowledge into EC opportunities.
Broad activity portfolios but limited transfer of good practice	Most HEIs offer workshops or lectures, and many offer courses, mentoring, counselling, or competitions. The discussion suggested that good practices are not always documented and transferred systematically.	Repositories, learning from experience, and deliberate best-practice transfer could reduce duplication.
Strong regional links, weaker inter-university exchange	A total of 81.25% HEIs cooperate with public innovation centres, whereas 37.5% cooperate with another university.	External networking is widespread, but sector-wide knowledge exchange remains less developed.

Source: own elaboration of the CAWI and open-ended responses through group discussion

To sum up, Czech public HEIs show an individual effort to develop EC. They have similar sources of funding, target groups, activities, and cooperation partners. However, they differ in organisational units and staffing, and there is a considerable difference in the number of supported students. Only over a third of public HEIs cooperate with another university. These

results show the potential for systematic cooperation between HEIs based on knowledge management to increase the development of EC.

The findings highlight that many of the challenges identified by both students (GUESSS) and in the institutional findings are consistent with possible weaknesses in knowledge management structures within HEIs. Fragmented entrepreneurial activities, insufficient coordination between faculties and inconsistent communication to students reflect a lack of systematic knowledge retention and sharing, key knowledge management components (Milton & Lambe, 2019). Similarly, the limited awareness of entrepreneurship opportunities reported by students aligns with possible shortcomings in knowledge dissemination and internal networking. In this sense, the observed gaps may reflect not only organisational challenges but also weaknesses in mechanisms related to knowledge management that constrain the capacity of HEIs to consistently develop EC across study programmes and student cohorts.

Furthermore, the differences between universities may indicate degrees of formalisation of practices related to knowledge management: institutions with formal structures (e.g., entrepreneurship centres, coordinated training, centralised communication) may be better positioned to retain and share knowledge, whereas other institutions relying on individual initiatives or isolated projects may face greater continuity risks. This supports the argument that knowledge management may provide an integrative mechanism linking HEI strategy, implementation practices and student-level entrepreneurial outcomes.

4 Discussion

Entrepreneurial competence (EC) is a recognised driver of Europe's long-term competitiveness (Council of the European Union, 2018). Developing EC is crucial while studying, and HEIs are best placed to provide EC training (Antlová et al., 2024; Porkodi & Saranya, 2023; Prihandono & Utami, 2018; Sieger et al., 2024; Wang et al., 2021). The EU aims, among other things, to increase EU countries' innovation performance and retain talents, i.e. university students and researchers, to prevent a brain drain outside the EU. Therefore, it is necessary to monitor and improve the development of EC at HEIs. The Czech Republic has been selected as the median among EU countries in terms of innovation (Directorate General for Research and Innovation, 2023).

As the recently published GUESSS data shows, Czech university students are less inclined to entrepreneurship than their global peers. While 15.7% of students globally intend to start a business after graduation (Sieger et al., 2024), only 11.3% of Czech students report the same intent (Antlová et al., 2024). This supports RQ1, indicating a lower entrepreneurial drive of Czech university students belonging to the Gen Z cohort.

Given Gen Z's strong orientation towards education and skill development, HEIs have an important role in developing students' entrepreneurial potential (Wang et al., 2021). Dreyer and Stojanová (2023) found that the intention to start a business after graduation is positively influenced by the characteristics of Gen Z, who tend to be more inclined to establish their own ventures. Therefore, it is important to enhance the development of EC at HEIs.

However, students from HEIs in Central European countries view the entrepreneurial climate less favourably compared to the global perspective (Sieger et al., 2024). The Czech Republic, along with Austria and Germany, ranks among the lowest in this regard. Slovakia and

Hungary also appear in the bottom tier, landing at the 50th and 51st positions out of 57 countries worldwide (Sieger et al., 2024). These findings support our first research question, indicating that Czech Gen Z university students are less inclined toward entrepreneurship than their global peers and receive less support for entrepreneurial culture. These findings align with previous Central European research on fear of failure and limited perceived entrepreneurial opportunities (Dvouletý & Procházka, 2024; Holienka et al., 2022). This study extends the discussion by complementing the student-level evidence with an analysis of institutional support structures at Czech HEIs.

Several complementary explanations may account for the comparatively low entrepreneurial inclination of Czech Gen Z students. In the Central European context, fear of failure and risk aversion remain important barriers to entrepreneuurship (Holienka et al., 2022). Economically, a favourable graduate labour market lowers the relative attractiveness of founding a business, while the country's median innovation performance limits students' exposure to entrepreneurial role models and highly innovative firms (Directorate General for Research and Innovation, 2023; Hovořáková & Pauknerová, 2024). From an educational perspective, the low participation in entrepreneurship courses and the below-average entrepreneurial climate reported by students suggest that the university environment may not yet sufficiently offset these barriers (Antlová et al., 2024; Sieger et al., 2024). Institutionally, the fragmented support structures documented in Section 3.2 imply that even motivated students may not encounter systematic support during their studies. In this respect, our results contrast with Polish evidence portraying Gen Z as well-suited to entrepreneurial careers (Narojczyk & Nowak, 2024) and are consistent with Central European findings on persistent entrepreneurial barriers (Holienka et al., 2022).

The second research question examines the organisational arrangements, resources, activities, target groups, and cooperation patterns through which Czech HEIs support EC. According to the institutional survey and structured group discussion covering 62% of Czech public HEIs, universities differ notably in their approach. Variation in the organisational unit responsible for EC may affect how funding, staffing, communication, and inter-university cooperation are coordinated. One significant challenge that impedes effective knowledge management is the variation in organisational structures, as each university has a different unit responsible for EC development. This organisational structure not only affects funding and staffing levels but also impacts inter-university cooperation and overall knowledge management in EC development in the Czech Republic.

The most frequently reported funding source was PSSM (62.5%), while faculty and university budgets were each reported by 56.25% of HEIs. The discussion suggested that reliance on time-limited projects can complicate continuity of staffing and knowledge retention. The number of staff dedicated to EC development ranges from 0.1 to 4 FTEs. Again, there is considerable variation among HEIs. The results show considerable variation in both staffing levels and the number of supported students, but the descriptive design does not permit conclusions about the relationship between these variables. 40% of HEIs only support up to 33 students annually. On the other hand, a quarter of HEIs support more than 175 students, with one HEI reaching 500 students a year. Most HEIs support only their students; some also support secondary school students and the public.

Only one surveyed HEI reported EC development for academic staff. As the literature review stressed the university students are strongly influenced by their HEI environment and

approach. Results reveal very limited attention is given to doctoral students and academic staff. In contrast, the EU considers EC to be one of the key lifelong competencies and a key competence for young researchers (EU, 2023). HEIs mainly develop EC through lectures and workshops. Most HEIs also provide an accredited entrepreneurship programme or course, but participation in such programmes remains limited according to the published GUESSS reports. Mentoring and entrepreneurship consulting are also often used. Slightly more than half of HEIs organise entrepreneurial competitions to support the development of EC. Such competitions may be compatible with Gen Z's preference for interactive and gamified formats. Only half of the HEIs are able to develop EC in English, lacking proper support for international students.

Most HEIs in the Czech Republic cooperate with a public innovation centre. Only 37% of public HEIs cooperate with other universities. It impacts environmental and innovation environment in the country, where the Czech Republic can improve its worldwide competitiveness position. This reveals the necessity of implementing knowledge management, which also deals with the creation, organisation, distribution and development of knowledge not only inside but with external stakeholders as well. The contrast between widespread cooperation with regional innovation centres and less frequent inter-university cooperation suggests that regional ecosystem links are stronger than sector-wide knowledge exchange. This pattern is relevant to knowledge management because knowledge creation and distribution depend on connections both within and beyond the organisation. These institutional patterns complement existing single-university accounts of cross-campus entrepreneurship (Kuratko & Morris, 2024; Mele et al., 2024) by providing sector-wide evidence, and they extend research on knowledge management in higher education (de Bem Machado et al., 2022; Santos et al., 2024) by documenting patterns consistent with the limited formalisation of practices related to knowledge management across a post-transition HEI sector.

Overall, the development of EC at Czech HEIs appears diverse yet largely unsystematic, and its overall impact remains difficult to assess. No sector-wide coordination mechanism or common impact-assessment framework was identified in the questionnaire and discussion. Each HEI approaches the topic of entrepreneurship differently, and participants described limited systematic sharing of knowledge and good practices across HEIs. Many of the surveyed activities depend at least partly on project funding, which may limit their continuity. The lack of knowledge prevents up to a third of students with business ideas from starting their own company (Berková et al., 2020). Overall, the evidence presented in this section speaks directly to our second research question, indicating that while entrepreneurship education activities are widespread, they are not yet embedded in a coherent institutional strategy. Implementing knowledge management or at least more systematic knowledge management approach across the HEI sector could address some of these shortcomings. To develop HEI students' EC more effectively, it is necessary to follow a systematic approach to knowledge management, especially in networking, better knowledge retention, best practice, innovation and learning from experience (Milton & Lambe, 2019). Knowledge management principles require an active approach from all stakeholders (Rhem, 2022). Due to constant progress, it is necessary to implement knowledge management principles in today's processes (Milton & Lambe, 2019). Knowledge management can help improve relationships and responsiveness to students' needs within HEI, as well as foster talent, continuous

improvement, and innovation in the whole country. These findings provide the empirical basis for the four-pillar knowledge management framework proposed below.

Based on the integrated student- and institution-level findings, this study proposes a four-pillar knowledge management framework for strengthening EC development at HEIs. The first pillar is a coordinated institutional strategy that aligns entrepreneurship education with university goals and clearly defines organisational responsibility. The second pillar is knowledge-management-driven networking and knowledge retention across faculties, support units, and external partners, which can reduce fragmentation and the loss of institutional experience. The third pillar involves digital knowledge platforms tailored to Generation Z communication habits, including online repositories, interactive communities, and accessible information on mentoring, courses, competitions, and other support opportunities. The fourth pillar is structured inter-university knowledge sharing with regional innovation centres, businesses, and other ecosystem actors. Together, these pillars provide a practical mechanism for moving from isolated and project-based initiatives towards a more coherent and sustainable system of EC development.

This new innovative approach can improve EC development, and the basic principles of knowledge management should be applied to support the development of EC within HEIs. The example of the Czech Republic can inspire other Central European countries to improve their entrepreneurial climate.

5 Limitations

Several limitations should be acknowledged. These limitations should be considered in light of the exploratory nature of the study, which represents an initial attempt to examine EC development, institutional support at HEIs, and knowledge management within a single analytical framework. As these perspectives have rarely been addressed together in the existing literature, the study is predominantly descriptive and aims to provide a baseline for further research on this important topic.

First, the study is based on a single country with a relatively small sample providing broad coverage of the Czech public HEI sector, which limits the generalisability of the findings to other institutional contexts. Second, both GUESSS and institutional data rely on self-reported perceptions and descriptive statistics, which constrain our ability to make causal claims about the effects of specific EC or knowledge management practices. In addition, the GUESSS analysis is based on published aggregate national and international reports rather than respondent-level microdata, which limits the possibility of testing statistical significance or modelling individual-level relationships. The published GUESSS evidence and the institutional data cannot be linked at the individual or university level. They are therefore interpreted as complementary sector-level evidence rather than as directly matched datasets. Similarly, the patterns identified through the institutional cross-analysis should be regarded as indicative only because of the small number of participating HEIs. Third, voluntary participation in the HEI survey may have led to self-selection of institutions with more developed entrepreneurship support, potentially overestimating the average level of EC development. Moreover, one knowledgeable representative responded on behalf of each participating HEI, and the optional open-ended questions were not completed uniformly by all respondents. Although all representatives participated in the structured discussion, their contributions varied according to their experience and familiarity with particular topics. One

representative was also unable to estimate the annual reach of EC activities; therefore, the corresponding analysis is based on 15 rather than 16 HEIs. Fourth, we do not directly measure knowledge management maturity. Instead, we infer mechanisms related to knowledge management from reported organisational practices.

Future research should integrate direct knowledge management indicators and employ longitudinal or cross-country designs to examine how knowledge management capabilities shape EC outcomes over time. Further studies could also use respondent-level GUESSS data, include multiple representatives from each HEI, and examine how specific institutional arrangements, funding structures and knowledge-sharing practices are related to students' entrepreneurial perceptions and intentions.

Conclusion and Recommendations

This study examined how entrepreneurial competence (EC) is developed at Czech public universities and how Generation Z students perceive entrepreneurial support within the broader Czech and international entrepreneurial ecosystem. By integrating secondary data from the GUESSS project with primary institutional data from public universities, the study provides a multi-level understanding of EC development in Czechia.

Theoretical contribution

The study contributes to the literature by bridging three conceptual streams, entrepreneurial competence, knowledge management and Generation Z characteristics, into a coherent analytical framework. Unlike existing studies that typically examine these dimensions separately, this research suggests how knowledge management can act as an underlying mechanism shaping EC development at HEIs. The findings extend recent work on knowledge management in higher education (de Bem Machado et al., 2022; Santos et al., 2024) by demonstrating its role in coordinating EC-related activities and addressing fragmentation within post-transition university environments.

Empirical contribution

Empirically, the study enriches current understanding of EC development in Central Europe by combining student-level evidence with institutional perspectives. The dual-source approach reveals complementarities and tensions between student perceptions and institutional self-reports, offering insights that would not emerge from a single data source. The rich descriptive data from Czech universities also provide a detailed national mapping of EC support to date.

Practical implications

For HEIs, the findings indicate that strengthening knowledge management structures, such as knowledge retention, structured communication, inter-faculty cooperation and internal networking, may help reduce fragmentation and improve student awareness of entrepreneurial opportunities. HEI leaders should also assign clear organisational responsibility for EC development, support continuity beyond temporary projects, document effective practices, and monitor the reach and outcomes of entrepreneurship-related activities.

The four-pillar knowledge management framework introduced in the Discussion, a coordinated institutional strategy, knowledge-management-driven networking and knowledge retention, digital knowledge platforms tailored to Generation Z, and structured inter-university knowledge sharing, summarises the main practical implications of the study. Implementing these pillars can help universities move from isolated initiatives to a more coherent and sustainable EC development system.

For businesses and regional innovation centres, the framework highlights opportunities to contribute through mentoring, real-world projects, expert participation, internships, and the co-design of entrepreneurship programmes reflecting current market needs.

Policymakers can use the results to refine national entrepreneurship strategies that better reflect the needs and behaviour of Generation Z, particularly their preference for digital communication and structured support pathways. For policymakers, we suggest a coordinated nationwide strategy for entrepreneurship education that aligns with the goals and expectations of (1) educational institutions (primary schools, secondary schools, and HEIs) and (2) regional governments and their innovation centres. At the national level, such a strategy could replace the current reliance on time-limited projects by complementing them with more stable funding instruments, introduce shared indicators for evaluating the outcomes of entrepreneurship support, and institutionalise inter-university knowledge exchange, for example by building on the existing UfE network. Within public universities, the findings point to the need to assign clear organisational ownership of EC development, extend support beyond students to doctoral candidates, academic staff, and international students, and systematically document and transfer good practices.

Unique insights for Czechia

The study identifies specific ecosystem constraints that affect Czech students' entrepreneurial potential, including innovation performance, uneven digital readiness and elevated fear of failure. These factors distinguish Czechia from Western European innovation leaders and highlight the importance of context-sensitive EC development strategies.

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