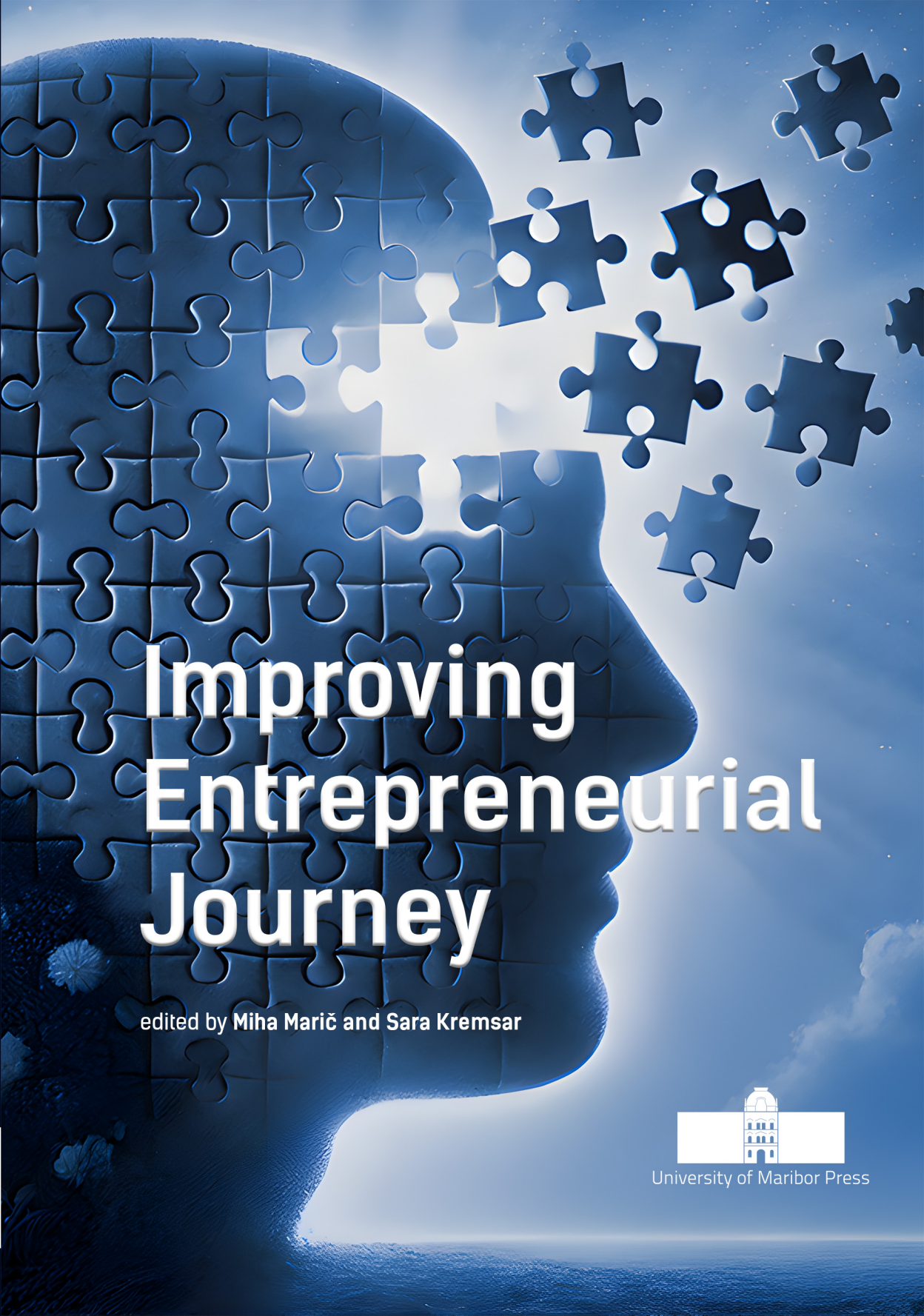
Improving Entrepreneurial Journey
edited by Miha Marič and Sara Kremsar
University of Maribor Press

University of Maribor

Faculty of Organizational Sciences

Improving Entrepreneurial Journey

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December 2025

Title **Improving Entrepreneurial Journey**
Naslov *Izboljšanje podjetniške poti*

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Oblikovanje ovitka (University of Maribor, University of Maribor Press)

Cover graphic Puzzle, Shutterstock, 2025
Grafika na ovitku

Graphic material Sources are own unless otherwise noted.
Grafične priloge Authors and Marič, Kremsar (editors), 2025

Published by **University of Maribor**
Založnik **University of Maribor Press**
Slomškov trg 15, 2000 Maribor, Slovenia
https://press.um.si, zalozba@um.si

Issued by **University of Maribor**
Izdajatelj **Faculty of Organizational Sciences**
Kidričeva cesta 55a, 4000 Kranj, Slovenia
https://www.fov.um.si, dekanat.fov@um.si

Edition
Izdaja
First edition

Publication type
Vrsta publikacije
E-book

Available at
Dostopno na
http://press.um.si/index.php/ump/catalog/book/1084

Published at
Izdano
Maribor, Slovenia, December 2025

CIP - Kataložni zapis o publikaciji
Univerzitetna knjižnica Maribor

005:334.7(082)(0.034.2)

IMPROVING entrepreneurial journey [Elektronski vir] / editors Miha Marič, Sara Kremsar. - 1st ed. - E-publikacija. - Maribor : University of Maribor, University of Maribor Press, 2025

Način dostopa (URL): https://press.um.si/index.php/ump/catalog/book/1084

ISBN 978-961-299-090-9 (PDF)
doi: 10.18690/um.fov.10.2025
COBISS.SI-ID 260392963

ISBN 978-961-299-090-9 (pdf)

DOI https://doi.org/10.18690/um.fov.10.2025

Price
Cena Free copy

For publisher
Odgovorna oseba založnika Prof. dr. Zdravko Kačič,
rector of University of Maribor

Attribution
Citiranje Marič, M., Kremsar, S. (eds.). (2025). *Improving Entrepreneurial Journey*. University of Maribor, University of Maribor Press. doi: 10.18690/um.fov.10.2025

Table of Contents

University of Maribor Press

Introduction

Miha Marič, Sara Kremsar
Editors

Miha Marič and Sara Kremsar (editors) are pleased to present this monograph, which continues the research trajectory of Optimod's *Improving Entrepreneurial Journey Initiative* (IEJI). This publication brings together five chapters that collectively offer a comprehensive view of the contemporary entrepreneurial ecosystem in Central and Southeastern Europe. The authors integrate theoretical foundations, empirical research, and practical case studies, highlighting the human, organizational, and institutional dimensions of entrepreneurship.

In the first chapter, Sara Kremsar and Miha Marič introduce Optimod's *Improving Entrepreneurial Journey Initiative* (IEJI), which bridges global entrepreneurial experience with academic inquiry. By analyzing three consecutive research cycles (2022–2024), the authors demonstrate how mindset development, leadership, emotional intelligence, and sustainability-oriented thinking contribute to building resilient and human-centered entrepreneurial ecosystems. This chapter thus establishes the conceptual and methodological framework for the entire monograph.

The second chapter, authored by Lea Ulčar and Miha Marič, focuses on the psychological dimension of entrepreneurship, specifically, the Dunning-Kruger effect in the early stages of the entrepreneurial process. Using the PONI LUR program as a case study, the authors reveal how overconfidence in one's abilities can hinder the development of entrepreneurial ideas. They propose the introduction of reflective practices, structured mentoring, and extended post-training support as ways to foster realistic self-assessment and more effective learning of entrepreneurial competencies.

In the third chapter, Črtomir Raspor Josipovič, Damir Josipovič, and Dejan Marinčič examine the role of support mechanisms in the Ljubljana Urban Region. Based on a quantitative analysis of the PONI LUR program, they show that access to mentoring, practical workshops, and networking opportunities significantly increases the rate of new business creation. The authors emphasize the importance of knowledge access, social capital, and trust within the entrepreneurial community, portraying entrepreneurship as both a personal and societal experience situated within a regional ecosystem.

The fourth chapter, by Darko Lacmanović, Andrej Raspor, and Jelena Lacmanović, adds an international dimension with a case study of business incubators in Montenegro. Research conducted among young entrepreneurs confirms that structured mentoring, networking, and financial support within incubation environments enhance confidence, problem-solving skills, and long-term entrepreneurial perseverance. This chapter provides valuable insights into regional practices for developing entrepreneurial ideas and business plans across Southeastern Europe.

In the fifth and final chapter, László Radácsi presents the Hungarian start-up ecosystem as a model of systemic innovation development. The chapter offers a historical overview and an analysis of government policies, funding mechanisms, cultural factors, and educational practices that shape Hungary's entrepreneurial environment. Using comparative models developed by Isenberg, the World Economic Forum (WEF), and the Aspen Network of Development Entrepreneurs (ANDE), the author identifies key challenges faced by European start-ups, such as limited access to finance, regulatory constraints, and talent retention, and proposes recommendations for overcoming them.

This monograph, by integrating theory, research, and practice, makes a significant contribution to understanding of entrepreneurial ecosystems in the region. It bridges global trends with local realities and encourages reflection on how collaboration among academia, public institutions, and entrepreneurs can foster sustainable, inclusive, and innovation-driven entrepreneurship.

We hope this publication will inspire researchers, policymakers, mentors, and entrepreneurs to co-create a competitive, connected, and resilient entrepreneurial environment.

DOI
https://doi.org/10.18690/um.fov.10.2025.1

ISBN
978-961-299-090-9

Optimod's Improving Entrepreneurial Journey Initiative (IEJI): Bridging the Gap between Theory and Practice in Entrepreneurial Ecosystem Development

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The Optimod Improving Entrepreneurial Journey Initiative (IEJI) is a continuous research-based project developed and led by Optimod since 2022 to explore the relationship between theoretical entrepreneurship studies and practical experience. Conducted annually, the initiative gathers insights from more than one hundred global founders, CEOs, and leaders, highlighting their real-world experiences and strategic reflections that reveal the complexities of entrepreneurship. Its purpose is to establish a structured framework for understanding how knowledge transfer, leadership development, and collaborative learning contribute to entrepreneurial success. Using a mixed-methods approach that combines surveys, expert interviews, and case studies, the research identifies key factors influencing entrepreneurial growth, including mindset development, innovation, and resilience. Each year, the findings are synthesized into a comprehensive publication that merges academic reflection with practical guidance. The results highlight the importance of human-centric and ecosystem-based approaches that connect education, practice, and sustainable business development. The initiative contributes to the academic field of entrepreneurship by providing a long-term, replicable model that bridges theory and practice while supporting inclusive, adaptive, and innovation-driven entrepreneurial ecosystems.

Keywords:
entrepreneurial ecosystem, entrepreneurship education, human-centric innovation, knowledge transfer, leadership development, Optimod Initiative

University of Maribor Press

1 Introduction

Entrepreneurship represents one of the most dynamic and complex forces shaping modern economies and societies. It drives innovation, creates employment, and promotes sustainable development (Coad & Srhoj, 2023; Hess et al., 2025). Yet, despite its recognized importance, entrepreneurship remains an area where theory and practice often diverge. Theoretical frameworks provide structured knowledge and analytical understanding (Coad et al., 2025), while practical experience reveals the unpredictable realities entrepreneurs face in rapidly changing environments (van Dijk et al., 2025). Bridging this divide is essential for advancing entrepreneurial education, policy, and ecosystem development (Hess et al., 2025).

For many entrepreneurs, especially those just beginning their journey, the path forward can be daunting. Each entrepreneurial experience is unique, and there is no universal formula for success. While books and online resources offer a wealth of theoretical knowledge, the realities of entrepreneurship often differ greatly from what one reads. As the saying goes, learning about swimming is not the same as diving into the water.

To address this gap between theory and practice, Optimod, founded by Sara Kremsar, MSc, established the Improving Entrepreneurial Journey Initiative (IEJI) in 2022 as a continuous, research-based project. The initiative reflects Optimod's mission to provide clear, actionable insights by directly engaging with individuals who have firsthand entrepreneurial experience. Conducted annually, the IEJI gathers insights from more than one hundred global founders, CEOs, and business leaders who share practical lessons and strategies derived from their own entrepreneurial journeys. These contributions not only shed light on the diverse challenges entrepreneurs face but also celebrate the individuality and adaptability that define their paths.

Optimod plays a vital role in supporting entrepreneurs by providing resources, fostering collaboration, and offering structured guidance to navigate the complexities of building and sustaining businesses. Each December, the annual Collection of Brochures compiles key insights and global trends from the initiative, serving as an accessible source of inspiration and evidence-based knowledge for the entrepreneurial community.

At the core of these efforts, the IEJI advances a human-centric and ecosystem-oriented approach, combining academic reflection with real-world application. By systematically collecting and analyzing insights from global experts, it strengthens understanding of how knowledge transfer, leadership development, and innovation contribute to sustainable entrepreneurship.

This monograph examines the methodologies, findings, and broader implications of the IEJI. It highlights the challenges and opportunities that shape entrepreneurial journeys and offers an evidence-based perspective on how theory and practice can jointly foster resilient, innovative, and sustainable businesses worldwide.

2 Literature Review

In the contemporary global landscape, entrepreneurship is widely recognized as a key mechanism for addressing complex social and economic challenges. Entrepreneurs stimulate innovation, generate employment, and drive structural change across sectors (Coad & Srhoj, 2023; Hess et al., 2025). Businesses function as the backbone of economic systems, acting both as creators of value and as enablers of sustainable development (van Dijk et al., 2025).

Entrepreneurship is inherently multidimensional. It connects economics, psychology, and management science while focusing on opportunity recognition, innovation, and adaptive decision-making (Du & Vanino, 2025). The literature consistently emphasizes that entrepreneurial success depends on an interplay of cognitive, institutional, and cultural factors (Coad & Srhoj, 2023). These interconnections shape what is now conceptualized as entrepreneurial ecosystems, networks of actors, resources, and institutions that together influence business creation and growth (Hess et al., 2025).

The Improving Entrepreneurial Journey Initiative (IEJI) developed by Optimod builds directly upon these theoretical perspectives. Through annual research cycles, it investigates how mindset development, leadership, and collaboration contribute to entrepreneurial sustainability. The following subsections analyze the evolution of this initiative through its first three volumes, each reflecting a distinct stage in the theoretical and empirical understanding of entrepreneurship: foundational identity

formation (2022), capability development (2023), and ecosystem empowerment (2024).

2.1 Brochure Vol. 1 (2022): Embarking on the Entrepreneurial Journey

The inaugural volume of the Improving Entrepreneurial Journey Initiative establishes the analytical foundation for the entire research program. The 2022 edition, titled Embarking on the Entrepreneurial Journey, explores entrepreneurship as an evolving human process characterized by personal transformation, experiential learning, and identity formation (Optimod, 2022). Its primary objective is to understand how entrepreneurs interpret and navigate the initial stages of their careers and how these formative experiences shape long-term behavior and decision-making.

The publication is structured around three thematic chapters: Decoding the Entrepreneurial Journey, Mindset, Problem-Solving and Work Ethics, and Day-to-Day Obstacles and Struggles. Each section examines a specific set of competencies and challenges that influence entrepreneurial success.

The first chapter, Decoding the Entrepreneurial Journey, introduces entrepreneurship as a distinct socio-economic environment that functions through continuous interaction between personal initiative and structural opportunity. The text presents the entrepreneurial ecosystem as a self-reinforcing system in which creative individuals, institutions, and networks co-evolve. By situating the entrepreneur within this interconnected system, the chapter extends the ecosystem theory of entrepreneurship, emphasizing interdependence between human agency and environmental factors.

The second chapter, Mindset, Problem-Solving and Work Ethics, focuses on cognitive and behavioral determinants of entrepreneurial performance. It highlights adaptability, self-awareness, and moral responsibility as key components of decision-making in uncertain contexts. The discussion connects entrepreneurial success to psychological theories of growth mindset and self-efficacy, suggesting that long-term resilience depends on an individual's capacity for reflection and constructive learning. Ethical responsibility is treated as an integral aspect of entrepreneurial

conduct, reinforcing the view that sustainable entrepreneurship requires both competence and conscience.

The third chapter, Day-to-Day Obstacles and Struggles, expands the analytical framework by incorporating the emotional and temporal dimensions of entrepreneurship. It addresses time management, prioritization, and the role of mental health in sustaining productivity and innovation. The inclusion of mental well-being reflects an important shift in entrepreneurship research, which increasingly acknowledges emotional balance and self-regulation as essential elements of long-term entrepreneurial effectiveness.

Taken together, the 2022 brochure defines entrepreneurship as a multidimensional process that merges personal development, ethical reflection, and systemic interaction. It establishes the IEJI's initial research hypothesis: that entrepreneurship should be understood not only as an economic activity but as a process of continuous human development situated within social, institutional, and cultural ecosystems.

2.2 Brochure Vol. 2 (2023): Elevating Entrepreneurial Potential

The 2023 volume, Elevating Entrepreneurial Potential, builds upon the foundational concepts of the previous edition by examining how entrepreneurs develop strategic, organizational, and ethical capacities during business growth (Optimod, 2023). Whereas the first brochure focuses on individual cognition and early-stage adaptation, the second broadens the analytical perspective to include leadership, strategic foresight, and organizational learning.

The brochure is divided into three comprehensive chapters: Vision and Strategy, Leadership and Innovation, and Diversity, Equity, and Inclusion (DEI).

The first chapter, Vision and Strategy, treats vision as the central organizing principle of entrepreneurial activity. Vision defines purpose, provides coherence, and enables entrepreneurs to balance short-term action with long-term orientation. Strategy is presented as the operational expression of vision that transforms abstract goals into adaptive structures. This conceptualization resonates with cognitive and strategic

management theories that link entrepreneurial foresight to the capacity for dynamic adjustment in volatile environments.

The second chapter, Leadership and Innovation, examines the relational dimension of entrepreneurship. Leadership is defined as a social and transformational process that enables others to engage in collective problem-solving and creativity. The text highlights the distinction between leadership and management, asserting that entrepreneurship demands both inspiration and structure. The discussion identifies communication, trust, and participatory culture as prerequisites for innovation. Innovation, in this framework, is not an isolated act but an outcome of shared vision, experimentation, and learning. The argument corresponds with the dynamic capabilities theory, which connects organizational adaptability with long-term competitiveness.

The third chapter, Diversity, Equity and Inclusion (DEI), introduces a normative and ethical dimension into the understanding of entrepreneurship. It emphasizes the relationship between inclusivity and sustainable innovation. Diversity enhances creative thinking, equity ensures fairness in access to opportunity, and inclusion strengthens team cohesion and social legitimacy. This theoretical orientation corresponds with emerging literature on social entrepreneurship, which conceptualizes DEI as both a moral responsibility and a source of strategic advantage.

Through these three chapters, the 2023 brochure presents entrepreneurship as a structured system of growth driven by reflection, adaptability, and ethical integrity. It proposes that entrepreneurial potential is not innate but cultivated through continuous learning and relational engagement. The text thus extends the IEJI's analytical framework by demonstrating how leadership and strategic capability evolve from individual self-awareness toward collective and systemic competence.

2.3 Brochure Vol. 3 (2024): Empowering the Future of Entrepreneurship

The 2024 edition, Empowering the Future of Entrepreneurship, expands the scope of inquiry toward global trends that redefine the entrepreneurial landscape (Optimod, 2024). The focus moves from capability development to systemic

transformation, incorporating sustainability, digitalization, and emotional intelligence as core dimensions of modern entrepreneurship.

The publication is divided into three major chapters: The Modern Entrepreneurial Landscape, Purpose-Driven Entrepreneurship, and Resilience and Adaptability.

The first chapter, The Modern Entrepreneurial Landscape, contextualizes entrepreneurship within global technological and economic shifts. It argues that digital transformation has altered both the logic of competition and the structure of entrepreneurial ecosystems. Entrepreneurs are now required to balance technological innovation with ethical responsibility and social awareness. The text presents digital entrepreneurship as an ecosystemic activity where technology, creativity, and human-centered values converge.

The second chapter, Purpose-Driven Entrepreneurship, extends the conceptual framework by introducing sustainability as a central element of strategic orientation. The discussion applies the triple-bottom-line model—people, planet, profit—to entrepreneurship, emphasizing that purpose provides direction beyond economic success. Ethical accountability and environmental consciousness are presented as long-term drivers of value creation. The entrepreneur is positioned as a steward of sustainable development rather than solely as a profit-seeking agent.

The third chapter, Resilience and Adaptability, integrates psychological and organizational perspectives on entrepreneurship under uncertainty. It interprets resilience as a dynamic capacity that enables individuals and organizations to recover, learn, and adapt through experience. Adaptability is treated as a learned competence developed through reflection, experimentation, and community engagement. The chapter highlights empathy, emotional intelligence, and interpersonal trust as essential components of sustainable leadership. This focus reflects the growing academic recognition that emotional and social skills are integral to innovation and long-term performance.

The 2024 brochure consolidates the IEJI's research trajectory by combining digital transformation, sustainability, and human-centric leadership into a unified model of empowerment. It conceptualizes entrepreneurship as a multi-layered process where

technological progress, ethical purpose, and psychological well-being reinforce one another.

3 Research

The Improving Entrepreneurial Journey Initiative (IEJI) was established as a longitudinal research framework to explore the evolving realities of entrepreneurship through systematic annual observation. Its primary objective is to generate evidence-based insights that illuminate how entrepreneurs develop, adapt, and sustain their ventures within diverse and rapidly changing environments. Building upon the theoretical foundations discussed in the previous chapter, this section presents the empirical dimension of the initiative, outlining the research approach, data structure, and key patterns that have emerged between 2022 and 2024.

The IEJI research process follows a mixed-methods design that integrates both quantitative and qualitative inquiry. The quantitative component captures the demographic and sectoral distribution of participants, including country of origin, industry affiliation, and thematic focus of their contributions. This information provides a structural overview of the entrepreneurial population engaged in the initiative. The qualitative component analyzes participants' narratives, advice, and reflections to identify recurring themes related to mindset, leadership, innovation, and resilience. Together, these complementary methods enable a comprehensive examination of entrepreneurship as both an individual and systemic process.

The initiative's participants include founders, chief executive officers, and business leaders from a wide spectrum of industries and regions. Each year, over one hundred contributors share insights based on lived entrepreneurial experience. Their perspectives are analyzed not as isolated testimonies but as part of a broader collective pattern reflecting the evolution of entrepreneurial thinking and practice across time.

This chapter presents the results of the empirical analysis of the IEJI datasets for 2022, 2023, and 2024. Each subsection provides a structured overview of the participants, their industries, geographic distribution, and main thematic emphases. The discussion connects these findings to the broader theoretical constructs of entrepreneurial ecosystems and human-centric innovation, demonstrating how

Optimod's initiative operationalizes complex academic concepts through large-scale, practice-based research.

3.1 Purpose and Design of the IEJI

The research design of the Improving Entrepreneurial Journey Initiative (IEJI) reflects a long-term commitment to understanding entrepreneurship as a human-centered and systemically embedded phenomenon. Its primary purpose is to examine how entrepreneurs evolve over time through learning, collaboration, and reflection. Rather than focusing solely on business outcomes, the initiative explores the psychological, cognitive, and contextual dimensions that shape entrepreneurial decision-making and resilience. Following a longitudinal mixed-methods approach, it combines structured quantitative data with qualitative narrative analysis, providing both empirical breadth and interpretive depth. The quantitative component captures measurable aspects of the entrepreneurial population such as demographic structure, geographic reach, and sectoral distribution, while the qualitative component focuses on thematic interpretation, analyzing how entrepreneurs articulate their challenges, learning processes, and strategic approaches to uncertainty.

Participants are selected through purposive expert sampling to represent diverse sectors, company sizes, and geographic contexts. Identification typically occurs through professional networking platforms such as LinkedIn, where publicly available professional data enable verification of entrepreneurial background. After initial screening, potential participants receive a formal invitation describing the purpose of the research and a structured input form containing eight guiding points that capture demographic and experiential information as well as a reflective statement on key entrepreneurial advice. The inclusion criteria emphasize verified entrepreneurial experience and leadership responsibility to ensure that all contributions derive from authentic, practice-based knowledge.

Data are collected through three complementary channels. The first consists of structured questionnaires that gather demographic, sectoral, and contextual information. The second involves written reflections and semi-structured exchanges that allow participants to elaborate on strategic insights and leadership experiences. The third includes open narrative submissions in which selected contributors describe pivotal moments and lessons from their entrepreneurial journeys. This

integrated design enables triangulation between quantitative and qualitative evidence, increasing validity and interpretive richness. Analyses are supported by collaboration with educational institutions, business accelerators, and incubators, which contribute to comparative review and validation of findings.

The longitudinal structure of the initiative makes it possible to trace the evolution of entrepreneurial thinking between 2022 and 2024. Over this period, emphasis has shifted from individual mindset formation toward leadership development and ecosystem engagement. These changes parallel global trends in entrepreneurship research, where attention has moved from isolated venture creation toward collaboration, sustainability, and social impact. The following sections present year-by-year analyses of IEJI participant data, illustrating how Optimod's research practice operationalizes theoretical constructs through large-scale, evidence-based engagement with the global entrepreneurial community.

3.2 Methodology

The methodological framework of the Improving Entrepreneurial Journey Initiative (IEJI) is grounded in a mixed-methods approach that combines quantitative and qualitative techniques to ensure comprehensive coverage of the entrepreneurial experience. The integration of structured participant data with narrative insights enables both statistical analysis and interpretive understanding of entrepreneurial dynamics. This design reflects the initiative's overarching aim: to transform real-world experiences into empirical evidence capable of informing both academic theory and applied entrepreneurship practice.

The study population consists of founders, chief executive officers, and senior business leaders representing a wide range of industries, geographic regions, and organizational sizes. Participant identification follows a purposive sampling strategy focused on expertise, leadership experience, and demonstrated entrepreneurial engagement. The recruitment process begins with the assessment of publicly available professional data through networking platforms such as LinkedIn. Profiles are reviewed for indicators of active entrepreneurial involvement, including company ownership, executive roles, or leadership within innovation-oriented organizations. Once eligibility is established, potential participants receive a

personalized invitation by email, which provides a detailed description of the initiative, its objectives, and participation guidelines.

Each invitation includes an eight-point data collection form that functions as a standardized instrument across research cycles. The form gathers essential participant information such as name, surname, company, title, and country, and requests a short-written reflection on the advice the individual would give to their earlier entrepreneurial self, along with key insights regarding business challenges, mindset development, and leadership principles. Responses are returned directly to the research team for verification and inclusion in the annual database. All participants provide informed consent for the use of their anonymized contributions in academic and public dissemination materials.

The collected data are organized and processed in two complementary streams. The quantitative stream categorizes participant data into variables such as year of participation, geographic origin, sector, and thematic focus of advice. These variables enable the generation of descriptive statistics and cross-year comparisons. The qualitative stream involves content and thematic analysis of narrative responses to identify patterns related to leadership, innovation, resilience, and ecosystem engagement. Data are coded using an inductive approach, where recurring concepts are grouped into thematic categories that reflect the evolving nature of entrepreneurial learning.

Analytical triangulation strengthens the validity of findings. Quantitative trends are compared against qualitative narratives to identify convergences and discrepancies between measurable attributes and expressed perceptions. Cross-validation is further supported through collaboration with external partners, including business accelerators, educational institutions, and entrepreneurship development organizations. These partners contribute to the interpretation and contextualization of data, ensuring that the analysis captures both micro-level (individual) and macro-level (systemic) perspectives on entrepreneurship.

The methodological rigor of the IEJI lies in its consistency and replicability across research cycles. Each annual iteration applies the same selection criteria, data-collection instruments, and analytical procedures, which allows for longitudinal comparison over time. The design thus provides a robust framework for examining

how entrepreneurial thinking and behavior evolve in response to changing economic, technological, and societal contexts. The following sections present the empirical results of this process through an analysis of participant data for 2022, 2023, and 2024, highlighting variations across industries, regions, and thematic priorities.

3.3 Comparative Analysis of IEJI Editions

This section presents the descriptive results of the Improving Entrepreneurial Journey Initiative (IEJI) across its three annual editions from 2022 to 2024. Each edition is summarized in terms of participant composition, geographic distribution, industry representation, and the main thematic clusters derived from qualitative data. The objective is to report the empirical characteristics of each dataset, which serve as the foundation for the interpretive discussion in Chapter 4.

The presentation follows a chronological sequence. Section 3.3.1 outlines the 2022 edition, which established the initial research framework and provided the baseline for subsequent analyses. Section 3.3.2 describes the 2023 edition, which expanded the sample size and introduced greater sectoral and geographic diversity. Section 3.3.3 presents the 2024 edition, representing the most recent and comprehensive dataset in the series.

Together, these subsections provide a coherent empirical overview of the Initiative's development and dataset evolution. Interpretation of patterns and theoretical implications is addressed separately in Chapter 4.

3.3.1 IEJI 2022: Embarking on the Entrepreneurial Journey

The 2022 research cycle marked the inaugural stage of the Improving Entrepreneurial Journey Initiative (IEJI) and established the empirical foundation for all subsequent editions. This first dataset focused on early-stage entrepreneurship and examined how individual mindset, motivation, and self-perception influence entrepreneurs' capacity to navigate uncertainty, manage complexity, and build sustainable ventures. The analysis of IEJI 2022 provides a window into how founders conceptualize their early challenges, construct meaning around their roles,

and translate cognitive, emotional, and ethical dimensions into strategic decision-making.

A total of 127 participants contributed to the 2022 initiative, representing founders, executives, and innovation leaders from diverse industries and national contexts. The data were collected through a structured online questionnaire and verified through cross-referencing with publicly available professional profiles. This dataset forms both the quantitative and qualitative basis for longitudinal comparisons in subsequent years.

Gender Distribution of IEJI 2022 Participants

The gender distribution (Table 1) revealed that 102 participants (80.31 percent) were male, and 25 participants (19.69 percent) were female. While male representation remains dominant, the share of female participants aligns with global entrepreneurship trends, where women constitute one-fifth of startup founders and senior executives.

Table 1: Gender Distribution of IEJI 2022 Participants

Gender	Count	Percentage of Total (N=127)
Male	102	80.31%
Female	25	19.69%

Source: Optimod (2022). Improving Entrepreneurial Journey Initiative, IEJI 2022 dataset.

Geographic Representation of IEJI 2022 Participants

The geographic representation of the 2022 IEJI participant group (Table 2) demonstrates both the initiative's strong regional foundation and its expanding international engagement. A total of 127 participants represented 34 different countries, reflecting a wide range of entrepreneurial perspectives, operational contexts, and cultural approaches to innovation. This geographic diversity strengthens the empirical reliability of the dataset by integrating voices from mature markets, emerging economies, and transitional business environments.

Table 2: Geographic Representation of IEJI 2022 Participants

Country	Number of Participants	Percentage (%)	Cumulative Percentage (%)
Slovenia	49	38.58%	38.58%
USA	20	15.75%	54.33%
UK	7	5.51%	59.84%
Austria	5	3.94%	63.78%
Germany	4	3.15%	66.93%
Switzerland	4	3.15%	70.08%
Australia	3	2.36%	72.44%
Canada	2	1.57%	74.02%
Finland	2	1.57%	75.59%
France	2	1.57%	77.17%
Norway	2	1.57%	78.74%
Serbia	2	1.57%	80.31%
South Africa	2	1.57%	81.89%
Spain	2	1.57%	83.46%
Sweden	2	1.57%	85.04%
BIH(Bosnia and Herzegovina)	1	0.79%	85.83%
Bangladesh	1	0.79%	86.61%
Croatia	1	0.79%	87.40%
Cyprus	1	0.79%	88.19%
Greece	1	0.79%	88.98%
India	1	0.79%	89.76%
Ireland	1	0.79%	90.55%
Italy	1	0.79%	91.34%
Jordan	1	0.79%	92.13%
Kenya	1	0.79%	92.91%
Korea	1	0.79%	93.70%
Luxembourg	1	0.79%	94.49%
Macedonia	1	0.79%	95.28%
Montenegro	1	0.79%	96.06%
Nigeria	1	0.79%	96.85%
Pakistan	1	0.79%	97.64%
Portugal	1	0.79%	98.43%
Rwanda	1	0.79%	99.21%
UAE	1	0.79%	100.00%
Total	**127**	**100.00%**	

Source: Optimod (2022). Improving Entrepreneurial Journey Initiative, IEJI 2022 dataset.

Slovenia accounted for the largest share, with 49 participants (38.58 percent) originating from its entrepreneurial and managerial landscape. This concentration reflects the initiative's origin and institutional base in Central Europe, where Optimod's research network is most deeply embedded. The United States, with 20 participants (15.75 percent), represented the second-largest national group, providing perspectives from one of the world's most dynamic entrepreneurial

ecosystems. The United Kingdom followed with five participants, while Austria, Germany, Switzerland, and Australia each contributed multiple representatives, underscoring the project's engagement with advanced innovation-driven economies.

Other regions, including Northern and Southern Europe, Africa, and Asia, were represented through smaller but analytically significant contributions. For instance, participants from Nigeria, Kenya, Rwanda, Jordan, and India offered insights into the specific challenges faced by entrepreneurs in emerging ecosystems, including limited access to finance, regulatory uncertainty, and skill gaps. Similarly, entrepreneurs from Norway and Finland emphasized the importance of digitalization, sustainability, and welfare-aligned entrepreneurship, aligning with contemporary trends in responsible innovation.

Industry Composition of IEJI 2022 Participants

The industrial composition of the 2022 IEJI participant group (Table 3) offers a comprehensive view of structural diversity within the entrepreneurial ecosystem. Founders and executives operate across a wide spectrum of sectors, from advanced technology and digital innovation to manufacturing, media, education, and health. This dataset captures both the high-technology industries driving global innovation and traditional sectors that continue to anchor economic resilience and employment.

Technology-oriented industries represent the largest share of the participant base, encompassing information technology, software development, artificial intelligence, and cybersecurity. Together these account for 39 participants (30.71 percent). Their prominence underscores the leading role of digitalization and technological capability as cornerstones of modern entrepreneurship.

A second major segment includes consulting, professional services, and education (28 participants, 22.05 percent). These entrepreneurs operate in management consulting, leadership training, and academic ventures, illustrating the rising importance of knowledge-based services and human-capital development as core drivers of entrepreneurial ecosystems.

Industrial and manufacturing ventures (11 participants, 8.66 percent) demonstrate the continued significance of production and engineering in an increasingly digital economy. Related fields in energy, mobility, and sustainability (9 participants, 7.09 percent) reflect the global transition toward green innovation and environmentally responsible business models.

Creative industries (media, fashion, marketing, and entertainment) account for 14 participants (11.04 percent), illustrating how creativity and digital technologies increasingly intersect in cultural entrepreneurship. Health, wellness, and life sciences (6 participants, 4.72 percent) embody the industry 5.0 principles of well-being and ethical business practice. Finally, finance and real estate (8 participants, 6.30 percent) represent the structural foundation for ecosystem capital and strategic growth financing.

Table 3: Industry Composition of IEJI 2022 Participants

Sector Group	Example Industries	Number of Participants	Percentage (%)
Technology-Oriented	IT, Software, AI, Cybersecurity	39	30.71%
Consulting, Professional Services, and Education	Management, Coaching, Academia	28	22.05 %
Creative and Cultural	Media, Fashion, Entertainment, Marketing	14	11.02%
Other or Cross-Disciplinary	Mixed sectors (e.g., Travel, Logistics, Social Impact)	12	9.45%
Industrial and Manufacturing	Engineering, Automation, Materials	11	8.66%
Energy, Mobility, and Sustainability	Clean Tech, Climate Tech, Green Energy	9	7.09%
Finance and Real Estate	Investment, Banking, Property	8	6.30%
Health and Wellness	Healthcare, Life Sciences, Fitness	6	4.72%
Total		**127**	**100.0%**

Source: Optimod (2022). Improving Entrepreneurial Journey Initiative, IEJI 2022 dataset.

In addition to these defined sector groups, the dataset also includes 12 participants (9.45 percent) operating in cross-disciplinary or mixed sectors. These participants represent organizations that do not fall within a single traditional industry but work across multiple domains, such as travel innovation, logistics, and social-impact ventures. Their presence highlights the growing emergence of hybrid business

models and reflects how contemporary entrepreneurship increasingly transcends conventional sector boundaries.

Thematic Analysis of Entrepreneurial Advice from IEJI 2022 Participants

The qualitative core of the IEJI 2022 dataset lies in the curated advice from 127 global leaders. Presented as retrospective counsel to their younger selves, this collection provides a rich empirical foundation for understanding critical success factors, common pitfalls, and mindset transformations that shape entrepreneurial growth. A systematic thematic analysis of these reflections reveals recurring, interconnected themes that transcend industry, geography, and company size.

Table 4: Thematic Clusters of Entrepreneurial Advice from IEJI 2022 Participants

Thematic Cluster	Core Concept
1. Mindset & Personal Foundation	The primacy of internal fortitude, self-belief, authenticity, and continuous personal development as the bedrock of entrepreneurial success.
2. Team Building & Leadership	The critical importance of assembling a complementary team, delegating effectively, fostering trust, and evolving from a doer to a leader.
3. Strategic Focus & Execution	The necessity of a clear vision, rigorous prioritization, disciplined execution, and understanding that entrepreneurship is a marathon.
4. Networking & Relationships	The strategic value of building a robust professional network, seeking mentorship, and fostering community long before it is urgently needed.
5. Learning, Adaptability & Resilience	The embrace of failure as a learning tool, the importance of agility, continuous learning, and the resilience to endure challenges.
6. Sales, Marketing & Customer Centricity	The fundamental driver of early-stage survival and growth is a relentless focus on revenue generation, marketing, and deep customer understanding.
7. Self-Awareness & Balance	The recognition of personal limits, the critical importance of mental health, self-care, and the pursuit of a sustainable work-life integration.
8. Financial & Operational Discipline	The importance of financial literacy, prudent cash flow management, strategic planning, and building solid operational foundations.

Source: Optimod (2022). Improving Entrepreneurial Journey Initiative, IEJI 2022 dataset.

The analysis was conducted using a hybrid inductive and deductive coding approach, combining open coding with theoretical frameworks from entrepreneurial cognition and effectuation research. Codes were validated through double coding by

independent researchers on a 15 percent subset of responses, achieving intercoder agreement above 90 percent. Ambiguities were resolved through consensus discussion. To minimize self-selection bias, qualitative data were triangulated with participant demographics and sectoral representation.

Thematic clustering produced eight dominant categories that collectively define the modern entrepreneurial experience. These are summarized in Table 4 and examined in detail in the following section, supported by direct quotations from the IEJI 2022 Brochure (pp. 20–112).

3.3.2 IEJI 2023: Elevating Entrepreneurial Potential

The 2023 research cycle builds on the IEJI baseline established in 2022 and focuses on how founders move from starting to scaling. It examines the shift from individual identity formation toward collective capability elevation. Framed by the brochure's triad of Vision and Strategy, Leadership and Innovation, and Diversity, Equity, and Inclusion (DEI) (Kremsar, 2023), the 2023 dataset explores how entrepreneurs refine strategic clarity, institutionalize leadership practices, and professionalize culture as their ventures mature.

Methodologically, the 2023 wave maintains the structured questionnaire and documentary verification used in 2022, which enables longitudinal comparison while expanding the qualitative corpus of expert insights to 179 participants.

Gender Distribution of IEJI 2023 Participants

Table 5: Gender Distribution of IEJI 2023 Participants

Gender	Count	Percentage of Total (N=179)
Male	141	78.77%
Female	38	21.23%

Source: Optimod (2023). Improving Entrepreneurial Journey Initiative, IEJI 2023 dataset.

The gender distribution (Table 5) revealed that 141 participants (78.77 percent) were male, and 38 participants (21.23 percent) were female. Compared with the previous year, the share of female participants increased slightly relative to 2022, reflecting a continued movement toward greater gender inclusivity within the entrepreneurial ecosystem.

Geographic Representation of IEJI 2023 Participants

The geographic distribution of the IEJI 2023 participant group (Table 6) reflects a marked expansion in scope and diversity compared to the previous year. A total of 179 participants represented 48 countries, confirming the Initiative's transition from a regionally anchored project to a globally integrated platform for entrepreneurial research and leadership insight. This broad representation illustrates the growing recognition of IEJI as a bridge connecting mature and emerging entrepreneurial ecosystems, combining voices from high-innovation economies with perspectives from developing and transitional markets. Such diversity strengthens the Initiative's analytical depth and supports its mission to understand how geography and context influence entrepreneurial thinking, collaboration, and resilience.

The United States remained the largest national contributor with 34 participants (18.99 percent), reflecting its leading role in global innovation and venture creation. The United Kingdom followed with 21 participants (11.73 percent), continuing to serve as a leading European hub for technology-driven and service-oriented businesses. Slovenia, as the host country and research base, ranked third with 19 participants (10.61 percent), maintaining a strong national presence that anchors IEJI's Central European identity while reinforcing its international reach. Mid-level representation included the Netherlands with 8 participants (4.47 percent), Denmark with 7 participants (3.91 percent), and Poland with 6 participants (3.35 percent). Canada, Germany, and Ukraine contributed 5 participants each (2.79 percent), followed by Bulgaria, Spain, and the United Arab Emirates, each with 4 participants (2.23 percent). Together, these countries form the core of IEJI's transatlantic and pan-European network.

A further group of countries contributed 3 participants each (1.68 percent), including Australia, Croatia, Estonia, France, Israel, Italy, Norway, and Switzerland. These contributions extend IEJI's footprint across multiple regions and economic models, underscoring the universal relevance of entrepreneurial leadership. Additional engagement came from Austria, Malta, Nigeria, Serbia, and Sweden, each with 2 participants (1.12 percent).

The long-tail distribution includes single participants from 31 countries, spanning Africa, Asia, the Middle East, and Latin America. These include, among others, Argentina, India, Mauritius, Singapore, South Africa, Mexico, Tunisia, and the Republic of Seychelles. Their participation reinforces IEJI's commitment to global inclusivity and ensures that the 2023 dataset captures a broad spectrum of entrepreneurial realities across diverse institutional and socioeconomic contexts.

Collectively, this international representation strengthens the analytical depth of the Initiative and confirms that entrepreneurial insight is not confined to a specific geography but emerges across a wide range of cultural, economic, and developmental settings.

Table 6: Geographic Representation of IEJI 2023 Participants

Country	Number of Participants	Percentage (%)	Cumulative Percentage (%)
USA	34	18.99%	18.99%
UK	21	11.73%	30.73%
Slovenia	19	10.61%	41.34%
Netherlands	8	4.47%	45.81%
Denmark	7	3.91%	49.72%
Poland	6	3.35%	53.07%
Canada	5	2.79%	55.87%
Germany	5	2.79%	58.66%
Ukraine	5	2.79%	61.45%
Bulgaria	4	2.23%	63.69%
Spain	4	2.23%	65.92%
UAE	4	2.23%	68.16%
Australia	3	1.68%	69.83%
Croatia	3	1.68%	71.51%
Estonia	3	1.68%	73.18%
France	3	1.68%	74.86%
Israel	3	1.68%	76.54%
Italy	3	1.68%	78.21%
Norway	3	1.68%	79.89%
Switzerland	3	1.68%	81.56%
Austria	2	1.12%	82.68%
Malta	2	1.12%	83.80%
Nigeria	2	1.12%	84.92%
Serbia	2	1.12%	86.03%
Sweden	2	1.12%	87.15%
Argentina	1	0.56%	87.71%
Azerbaijan	1	0.56%	88.27%
BIH(Bosnia and Herzegovina)	1	0.56%	88.83%

Country	Number of Participants	Percentage (%)	Cumulative Percentage (%)
Belgium	1	0.56%	89.39%
China	1	0.56%	89.94%
Colombia	1	0.56%	90.50%
Cyprus	1	0.56%	91.06%
Ethiopia	1	0.56%	91.62%
Georgia	1	0.56%	92.18%
Greece	1	0.56%	92.74%
India	1	0.56%	93.30%
Latvia	1	0.56%	93.85%
Luxembourg	1	0.56%	94.41%
Mauritius	1	0.56%	94.97%
Mexico	1	0.56%	95.53%
Monaco	1	0.56%	96.09%
Northern Ireland	1	0.56%	96.65%
Portugal	1	0.56%	97.21%
Romania	1	0.56%	97.77%
Singapore	1	0.56%	98.32%
South Africa	1	0.56%	98.88%
The Republic of Seychelles	1	0.56%	99.44%
Tunisia	1	0.56%	100.00%
Total	**179**	**100.00%**	

Source: Optimod (2023). Improving Entrepreneurial Journey Initiative, IEJI 2023 dataset.

Industry Composition of IEJI 2023 Participants

The industrial composition of the 2023 IEJI participant group (Table 7) provides a comprehensive overview of the structural diversity represented within the global entrepreneurial ecosystem. Founders and executives operate across a wide spectrum of industries, ranging from advanced digital technologies and creative marketing to manufacturing, health, and finance. This diversity highlights the growing interconnectedness of technological innovation, professional expertise, and sustainable development as defining pillars of contemporary entrepreneurship.

Technology-oriented industries form the largest segment of the participant base, encompassing software development, artificial intelligence, IT services, blockchain solutions, and educational technologies. Together, these 66 participants (36.87 percent) illustrate how digital capability, automation, and data-driven decision-making remain central to entrepreneurial competitiveness and innovation.

A substantial second segment consists of consulting, coaching, and professional services (40 participants, 22.35 percent). These ventures focus on leadership development, management consulting, accounting, legal, and HR services, showing the importance of knowledge-based industries in enabling organizational growth and strategic transformation. Their prominence also reflects the growing demand for advisory expertise in a rapidly changing technological environment.

The creative and media sector, including marketing, PR, SEO, and digital content (24 participants, 13.41 percent), represents a strong expression of the connection between creativity and analytics. Entrepreneurs in this group play a crucial role in shaping brand narratives, consumer engagement, and digital identity, which have become essential competencies in the global attention economy.

Finance, investment, and real estate (15 participants, 8.34 percent) form the financial foundation of the ecosystem, providing the capital flows, mergers and acquisitions expertise, and strategic financing necessary for scaling ventures. Industrial, manufacturing, and energy ventures (10 participants, 5.59 percent) demonstrate the continued relevance of production and engineering in the entrepreneurial landscape, integrating sustainability and innovation into traditional industries.

Table 7: Industry Composition of IEJI 2023 Participants

Sector Group	Example Industries	Number of Participants	Percentage (%)
Technology-Oriented	Software, AI, IT Services, Blockchain, EdTech	66	36.87%
Consulting, Coaching & Professional Services	Business Coaching, Consulting, Legal, Accounting, HR	40	22.35%
Marketing, Media & Creative	Digital Marketing, PR, SEO, Content, Advertising Agencies	24	13.41%
Finance, Investment & Real Estate	Venture Capital, M&A, Banking, Lending, PropTech	15	8.38%
Industrial, Manufacturing & Energy	Engineering, Manufacturing, Clean Tech, Energy, Mining	10	5.59%
Health, Wellness & Biotechnology	Healthcare, Pharma, Biotech, Fitness	9	5.03%
Consumer Goods & Retail	Food & Beverage, Apparel, Fashion, E-commerce	9	5.03%
Other & Cross-Disciplinary	Education, Travel, Sports, Government, Philanthropy	6	3.35%
Total		**179**	**100.0%**

Source: Optimod (2023). Improving Entrepreneurial Journey Initiative, IEJI 2023 dataset.

Health, wellness, and biotechnology (9 participants, 5.03 percent) highlight the human-centered dimension of Industry 5.0, connecting science, ethics, and well-being. Similarly, consumer goods and retail (9 participants, 5.03 percent) show a growing intersection between lifestyle, design, and technology, particularly in food, fashion, and e-commerce. Finally, cross-disciplinary sectors such as education, travel, sports, government, and philanthropy (6 participants, 3.35 percent) reflect the social and civic dimensions of entrepreneurship, where innovation serves broader cultural and community objectives.

Thematic Analysis of Entrepreneurial Advice from IEJI 2023 Participants

The qualitative core of the IEJI 2023 dataset lies in the distilled reflections of 179 global leaders. Presented as advice to their younger entrepreneurial selves, these insights form a rich empirical basis for understanding the evolving nature of leadership, resilience, and decision-making in the entrepreneurial process. The 2023 corpus reflects a pronounced shift from the introspective themes of the previous year toward more execution-oriented and people-centric perspectives that align with the realities of post-crisis business building.

The analysis was conducted using a hybrid inductive and deductive coding approach, combining grounded open coding with established frameworks from entrepreneurial cognition, behavioral strategy, and effectuation theory. Independent double-coding was performed on a 15 percent subset of responses, achieving intercoder agreement above 90 percent. Ambiguities were resolved through consensus review. To minimize self-selection bias, the qualitative data were cross-referenced with participant demographics and industry representation.

Thematic clustering produced five dominant categories that together articulate a pragmatic and human-centered model of entrepreneurship. These clusters are summarized in Table 8 and explored in detail in the subsequent section, supported by direct quotations from the IEJI 2023 Brochure (pp. 22-164).

Table 8: Thematic Clusters of Entrepreneurial Advice from IEJI 2023 Participants

Thematic Cluster	Core Concept
1. The People Imperative	Selecting, empowering, and trusting the right people as the cornerstone of sustainable success.
2. The Resilient Mindset	Cultivating endurance, patience, and confidence to navigate uncertainty and failure.
3. The Action Bias	Prioritizing clarity, decisiveness, and execution over excessive planning.
4. The Network Effect	Building genuine, long-term relationship capital and mentorship support.
5. The Customer-First Reality	Grounding strategy in customer understanding, validation, and revenue generation.

Source: Optimod (2023). Improving Entrepreneurial Journey Initiative, IEJI 2023 dataset.

3.3.3 IEJI 2024: Empowering the Future of Entrepreneurship

The 2024 research cycle represents the third longitudinal wave of the Improving Entrepreneurial Journey Initiative (IEJI), capturing the evolving narratives of a global cohort of entrepreneurs. Building on the foundations of identity formation (2022) and strategic elevation (2023), the 2024 dataset examines the challenges and imperatives of scaling impact.

Methodologically, the 2024 wave maintains consistency with the structured questionnaire and verification processes of previous years, ensuring robust longitudinal comparability. The participant base for 2024 consists of 149 founders, executives, and innovation leaders, providing a rich qualitative and quantitative corpus for analysis.

Gender Distribution of IEJI 2024 Participants

The gender distribution (Table 9) revealed that 97 participants (65.10 percent) were male, and 52 participants (34.9 percent) were female. While male representation remains higher, the proportion of female participants marks a notable increase compared with previous years, reflecting a continued and accelerating trend toward gender inclusivity within the entrepreneurial ecosystem.

Table 9: Gender Distribution of IEJI 2024 Participants

Gender	Count	Percentage of Total (N=149)
Male	97	65.10%
Female	52	34.90%

Source: Optimod (2024). Improving Entrepreneurial Journey Initiative, IEJI 2024 dataset.

Geographic Representation of IEJI 2024 Participants

The geographic representation of the IEJI 2024 participant group (Table 10) reflects both the Initiative's expanding global presence and its growing role as a connector between diverse entrepreneurial ecosystems. A total of 149 participants represented 37 countries, marking a significant increase in geographic reach compared with previous years. This broadened distribution highlights IEJI's transformation from a regionally anchored platform into a globally recognized community for founders, executives, and ecosystem leaders.

Slovenia accounted for the largest share, with 25 participants (16.78 percent), demonstrating the Initiative's strong Central European foundation and the continued influence of Slovenia's entrepreneurial ecosystem within the program. The United Arab Emirates followed with 22 participants (14.77 percent), reflecting its rapidly growing position as a global hub for innovation, investment, and cross-border venture activity. The United States ranked third with 15 participants (10.07 percent), confirming its ongoing role as a leading source of entrepreneurial expertise and technological advancement.

The United Kingdom contributed 11 participants (7.38 percent), maintaining its position as one of Europe's primary centers for technology and service-based startups. Germany followed with 8 participants (5.37 percent), while Poland and Spain each contributed 6 participants (4.03 percent), strengthening representation from both Central and Southern Europe. Croatia contributed 4 participants (2.68 percent), and Canada, Denmark, Italy, Latvia, the Netherlands, and South Africa each recorded 3 participants (2.01 percent), demonstrating balanced engagement across multiple regions.

Table 10: Geographic Representation of IEJI 2024 Participants

Country	Number of Participants	Percentage (%)	Cumulative Percentage (%)
Slovenia	25	16.78%	16.78%
UAE	22	14.77%	31.54%
USA	15	10.07%	41.61%
UK	11	7.38%	48.99%
Germany	8	5.37%	54.36%
Poland	6	4.03%	58.39%
Spain	6	4.03%	62.42%
Croatia	4	2.68%	65.10%
Canada	3	2.01%	67.11%
Denmark	3	2.01%	69.13%
Italy	3	2.01%	71.14%
Latvia	3	2.01%	73.15%
Netherlands	3	2.01%	75.17%
South Africa	3	2.01%	77.18%
Australia	2	1.34%	78.52%
Bulgaria	2	1.34%	79.87%
Egypt	2	1.34%	81.21%
India	2	1.34%	82.55%
Israel	2	1.34%	83.89%
Nigeria	2	1.34%	85.23%
Norway	2	1.34%	86.58%
Romania	2	1.34%	87.92%
Singapore	2	1.34%	89.26%
Sweden	2	1.34%	90.60%
Switzerland	2	1.34%	91.95%
Austria	1	0.67%	92.62%
Belgium	1	0.67%	93.29%
Brazil	1	0.67%	93.96%
China	1	0.67%	94.63%
Ireland	1	0.67%	95.30%
Monaco	1	0.67%	95.97%
Pakistan	1	0.67%	96.64%
Rwanda	1	0.67%	97.32%
Saudi Arabia	1	0.67%	97.99%
Tunisia	1	0.67%	98.66%
Ukraine	1	0.67%	99.33%
Vietnam	1	0.67%	100.00%
Total	**149**	**100.00%**	

Source: Optimod (2024). Improving Entrepreneurial Journey Initiative, IEJI 2024 dataset.

Broader representation included Australia, Bulgaria, Egypt, India, Israel, Nigeria, Norway, Romania, Singapore, Sweden, and Switzerland, each with 2 participants (1.34 percent). These countries reflect a mix of advanced economies and fast-growing innovation environments. An additional 22 countries were represented by

a single participant, including Austria, Belgium, Brazil, China, Ireland, Monaco, Pakistan, Rwanda, Saudi Arabia, Tunisia, Ukraine, Vietnam, and others. Their inclusion underscores IEJI's commitment to global diversity and ensures that perspectives from emerging and smaller markets remain visible within the dataset.

Collectively, the IEJI 2024 geographic distribution confirms that entrepreneurial insight is not concentrated in any single region but emerges across a wide spectrum of economic, cultural, and institutional contexts.

Industry Composition of IEJI 2024 Participants

The industrial composition of the IEJI 2024 participant group (Table 11) reflects an extensive diversity of sectors represented by founders, executives, and innovators across global entrepreneurial ecosystems. Participants operate in industries spanning advanced technology, consulting, finance, creative services, manufacturing, consumer goods, and health. This distribution demonstrates a balanced interplay between high-technology ventures driving digital transformation and traditional sectors that provide stability, tangible products, and employment continuity.

Technology-oriented ventures form the largest segment, encompassing software development, artificial intelligence, blockchain, and cybersecurity. Collectively, 88 participants (36.91 percent) belong to this category, underscoring the dominant role of technological capability and digital infrastructure in shaping contemporary entrepreneurship. These enterprises represent the operational backbone of innovation-driven economies, integrating automation, analytics, and connectivity across sectors.

The second major category consists of consulting, coaching, and professional services, with 41 participants (27.52 percent). These ventures focus on business transformation, leadership development, and organizational growth, highlighting the rising demand for human-capital expertise and strategic advisory within evolving corporate structures. They illustrate how knowledge-intensive industries serve as a bridge between innovation and implementation, enabling companies to scale sustainably.

Marketing, media, and creative industries represent a significant portion of the participant base, with 19 participants (12.75 percent). This group embodies the convergence of digital storytelling, branding, and technology, showcasing how creative entrepreneurship contributes to differentiation, emotional engagement, and long-term market visibility.

Finance, investment, and real estate ventures account for another 16 participants (10.74 percent), reflecting the importance of financial literacy, venture capital, and asset management as foundational enablers of startup growth and ecosystem liquidity. Industrial, manufacturing, and energy ventures (6 participants, 4.03 percent) continue to demonstrate the essential role of engineering and production in an increasingly digitized global economy.

Table 11: Industry Composition of IEJI 2024 Participants

Sector Group	Example Industries	Number of Participants	Percentage (%)
Technology-Oriented	Software, AI, IT Services, Blockchain, Cybersecurity, EdTech	55	36.91%
Consulting, Professional Services, and Coaching	Management, Coaching, HR, Financial Advisory	41	27.52%
Marketing, Media & Creative	Digital Marketing, PR, SEO, Content, Advertising, Design	19	1275%
Finance, Investment & Real Estate	Venture Capital, Asset Management, FinTech, PropTech	16	10.74%
Health, Wellness & Biotechnology	Health Tech, Pharma, Biotech, Fitness, Well-being	8	5.37%
Industrial, Manufacturing & Energy	Engineering, Manufacturing, Clean Tech, Energy	6	4.03%
Consumer Goods & Retail	Food & Beverage, Apparel, E-commerce, Luxury Services	5	3.36%
Other & Cross-Disciplinary	Social Impact, Non-Profit, Unique Services	5	3.36%
Total		**149**	**100.0%**

Source: Optimod (2024). Improving Entrepreneurial Journey Initiative, IEJI 2024 dataset.

Health, wellness, and biotechnology (8 participants, 5.37 percent) represent the integration of ethical business, well-being, and technological innovation, a hallmark of the industry 5.0 paradigm. Consumer goods and retail (5 participants, 3.36

percent) capture the enduring influence of lifestyle and product-based entrepreneurship, while cross-disciplinary initiatives (5 participants, 3.36 percent) bridge multiple domains such as education, social impact, and sustainability.

Thematic Analysis of Entrepreneurial Advice from IEJI 2024 Participants

The 2024 IEJI dataset captures the reflections and advice of 149 founders, executives, and investors from across 44 countries, representing one of the most diverse and mature editions of the initiative to date. Presented as reflections to their younger entrepreneurial selves, the responses reveal an evolved understanding of leadership that integrates personal consciousness, sustainability, and strategic clarity.

The analysis was conducted using a hybrid inductive and deductive coding process that combined open thematic coding with existing frameworks from entrepreneurial cognition and leadership development. All advice statements were independently coded and validated for consistency across a representative subset of responses, with intercoder agreement exceeding 90 percent. Qualitative saturation was confirmed through iterative review cycles.

Table 12: Thematic Clusters of Entrepreneurial Advice from IEJI 2022 Participants

Thematic Cluster	Core Concept
1. Conscious Leadership & Emotional Intelligence	Leading with authenticity, empathy, and awareness; balancing decisiveness with compassion.
2. Self-Awareness, Purpose & Alignment	Anchoring entrepreneurship in personal clarity, values, and long-term purpose.
3. Team Dynamics & Trust-Building	Prioritizing people who complement, challenge, and strengthen the founder's vision.
4. Courage, Risk & Experimentation	Embracing discomfort, calculated risk-taking, and continuous experimentation.
5. Adaptability, Resilience & Growth Mindset	Turning adversity into insight and maintaining flexibility through uncertainty.
6. Sustainable Growth & Societal Value	Integrating social impact, environmental sustainability, and ethical practice into business strategy.
7. Learning, Curiosity & Innovation	Continuous self-development and openness to new knowledge as drivers of innovation.
8. Networking, Mentorship & Collaboration	Building strategic communities and engaging with mentors and ecosystems early.
9. Balance, Well-being & Longevity	Protecting health, relationships, and mental energy as key resources for long-term success.

Source: Optimod (2024). Improving Entrepreneurial Journey Initiative, IEJI 2024 dataset.

Thematic clustering produced nine dominant categories that collectively define the contemporary entrepreneurial mindset and behavior observed in the 2024 participant group. These are summarized in Table 12 and analyzed in detail in the following section, supported by direct quotations and interpretive references from the IEJI 2024 Brochure (pp. 22-134).

4 Discussion

The comparative analysis of the Improving Entrepreneurial Journey Initiative provides a coherent foundation for understanding how entrepreneurial cognition, leadership, and ecosystem maturity evolved between 2022 and 2024. Read longitudinally, the three editions move from identity work and psychological resilience toward people systems and execution, and finally toward conscious, sustainability-oriented scaling embedded in wider ecosystems. Diversity expanded in tandem with this shift. Women's participation increased from 19.7 percent to 34.9 percent, while geographic reach grew from 34 to 48 countries, indicating a diffusion of entrepreneurial capability and a gradual reduction of structural barriers. Industry composition remained anchored in technology while steadily incorporating consulting, coaching, and creative fields. This shift signals a turn toward knowledge intensity and human capital as dominant sources of competitive advantage. The thematic trajectory follows the same arc: in 2022 entrepreneurs speak in the language of self-belief, discipline, and agency; in 2023 the vocabulary pivots to team quality, action bias, commercial validation, and network capital; and by 2024 the discourse normalizes empathy, trust, purpose, and societal value. The cumulative evidence portrays entrepreneurship as a human-centered practice that blends technical competence with emotional intelligence and ethical intent, translating individual clarity into collective capability and systemic contribution.

Recent studies in entrepreneurship research reinforce this longitudinal pattern. Contemporary theory conceptualizes entrepreneurship as a process of dynamic learning and adaptation rather than as a linear sequence of planning and execution. Duval-Collins, Gupta, and Ruan (2022) show that startups displaying high strategic agility outperform peers in volatile environments by continuously reconfiguring resources and business models in response to emerging signals. This adaptive orientation is evident in IEJI participants who describe their journeys as cycles of experimentation, reflection, and iteration rather than a fixed plan. Similarly, Fischer,

Kuratko, and Avouyi-Dovi (2023) highlight the role of metacognition in entrepreneurial success. They find that founders who reflect on their assumptions and decision heuristics achieve higher-quality strategic outcomes. The IEJI narratives reveal this shift in real time, showing entrepreneurs advancing from instinctive action toward deliberate, reflective decision making that incorporates learning from failure.

The IEJI findings also resonate strongly with new thinking in leadership and organizational psychology. Leadership is increasingly seen not as positional authority but as relational capacity grounded in authenticity and trust. Walumbwa, Wang, Wang, Schaubroeck, and Avolio (2022) demonstrate that authentic leadership can mitigate the negative effects of narcissistic tendencies by fostering transparent communication and psychological safety. This relational orientation mirrors the shift observed among IEJI participants who emphasize empathy, openness, and empowerment as defining traits of effective leadership. Rather than leading through control, they build cultures of collaboration and shared ownership, positioning emotional intelligence as a strategic capability rather than a soft skill.

The Initiative's global expansion across three years aligns with research emphasizing interconnected entrepreneurial ecosystems. McAdam, Crowley, Bach, and Marlow (2021) describe the rise of "meta-hubs," where innovation capacity grows through interlinked regional networks instead of being concentrated in single centers. The IEJI dataset mirrors this distributed structure by engaging founders from 62 countries, reflecting the globalization and democratization of entrepreneurial learning. This diffusion of participation supports the view that innovation thrives in pluralistic networks where knowledge flows between mature and emerging ecosystems, enhancing collective resilience.

A further point of convergence with recent research concerns the integration of purpose and well-being into entrepreneurial identity. Thomson and Dey (2021) observe that modern founders often perceive entrepreneurship as a vocation guided by ethical intent and relational purpose. This is echoed in the 2024 IEJI responses, where participants describe success as alignment between values, leadership practices, and societal contribution. Lee, Lee, and Choi (2021) provide empirical support for this pattern, showing that entrepreneurs who satisfy their needs for autonomy, competence, and relatedness experience higher well-being and

sustainable business performance. The IEJI respondents articulate this integration of purpose and balance through statements such as "rest is infrastructure" and "sustainability is strategy," indicating that mental clarity and alignment are now viewed as preconditions for innovation rather than secondary considerations.

Together, these insights confirm that entrepreneurship is evolving into a reflective and ethically grounded discipline that prioritizes relational awareness and social impact alongside economic performance. The findings indicate that entrepreneurial advantage increasingly derives from the alignment of three forms of capital: human capital in the form of adaptive learning and self-awareness, social capital in the form of trust-based networks, and moral capital in the form of ethical credibility and purpose orientation. When developed in combination, these dimensions enable entrepreneurs to convert technological and organizational potential into sustainable, contextually responsible value.

The IEJI initiative thus provides a real-world laboratory for observing how contemporary entrepreneurs embody theoretical advances in leadership, organizational learning, and entrepreneurial cognition. It demonstrates that founders are not only adopting adaptive and relational behaviors but are actively reconstructing what it means to lead. This evolution sets the stage for the thematic analysis presented in the next section, which explores in greater depth how these principles manifest in practice across the three datasets.

4.1 IEJI Thematic cluster analysis across editions

The 2022 corpus concentrates on the inner architecture of the founder and the operational scaffolding required to survive uncertainty. Advice on mindset and personal foundation presents entrepreneurship as a psychological journey in which persistence, integrity, and proactive ownership outweigh raw technical skill. Frédéric Bonelli's image of pushing through a mountain of pain, Elena Baeva's call to be brave and authentic, and Thomas Klein's insistence on becoming a self-developer frame agency as the primary lever of progress. Team building and leadership then mark the transition from doer to enabler. Miha Jagodic stresses delegation to create thinking time, Olaf Kopp underscores complementary partners, Staša Kotnik argues for hiring people better than oneself, and Mikkel Wakefield normalizes permission to fail. Strategic focus and execution are repeatedly defended against diffusion of

effort, with Staša Kotnik urging a clear vision, Marc Förster Algás recommending one-thing-at-a-time discipline, and Borko Kikić invoking actions not words. Networks and mentorship are treated as antidotes to isolation. Sead Ahmetović warns against early-stage self-seclusion, Mathew Warboys advises building relationships long before they are needed, and Jure Leskovec points to coaching to navigate inflection points. Learning, adaptability, and resilience recast setbacks as raw material for growth, from Emile van Zyl's fail fast to Jason Duncan's if you are not failing, you are not living. Sales, marketing, and customer centricity anchor survival in revenue and service quality, with Nik Vene urging founders to devote most of their time to sales, Mario Aguilera prioritizing sales over investment chasing, and Romeo Nišandžić centering customer satisfaction. Self-awareness and balance elevate well-being to a strategic concern as Andrea Todorova calls for time with family and friends and Žiga Novak reflects on work-life balance learned over time. Financial and operational discipline completes the foundation, with Miha Matlievski's emphasis on financial literacy, John McGill's security before launching, and Dragan Šibanc's process organization to make strategy executable.

The 2023 dataset shifts decisively to people, execution, and market truth. The people imperative places selection, standards, and empowerment at the core. Warnings about co-founder fit from Nils Berger and David Antonijević, hiring quality from Mike Kaeding, fast correction from Thomas Schroeck, and empowerment from Jaka Klemenčič define leadership as enabling others to excel. Resilient mindset becomes endurance in practice. Mariya Zasheva counsels' patience, Denis Bornšek likens business to a tree that reveals itself over decades, and Catalina Valentino normalizes lean years, while Ashley Louise and Wen Zhang push for courage and agency. Action bias reframes strategy as disciplined doing. Miloš Čanković elevates clarity, Ariadna Masó repeats focus, and Wojtek Rokosz and Matic Broz privilege execution over-elaborate plans, with Ben Samocha warning against effort dilution. Network effect is recast as relationship capital, with Chris Williams calling an ever-growing network the best asset, Vincent Labuschagne naming competence and trust as its currency, and Robert Gauvreau and Stéphanie Lesage steering founders toward community and mentors. Customer-first reality grounds all else in problem discovery and early revenue. Sari Abdo urges falling in love with the problem, Cai Felip advocates relentless questioning, Nathan Williams recommends making it easy to buy, and multiple voices wish they had prioritized sales earlier. The 2023 theme set, read

together, converts internal resilience into team design, concentrated effort, and cash-validated learning.

The 2024 narratives extend this pragmatism into conscious leadership and systemic value. Emotional intelligence moves to the foreground as a performance capability. Rune Theill's reminder that people remember how you made them feel, Dagmar Turkova's invitation to listen and create space, and Jo Wright's assertion that empathy is strategy relocate authority from control to awareness. Purpose and alignment stabilize judgment under volatility. Alessandro Rimassa points to values as a compass, Paola Origel separates money's variability from purpose's constancy, and Michaela Tzvetanova advises knowing the why before the how. Team dynamics mature into trust-based collaboration. Jan de Jong champions surrounding oneself with people smarter than the founder, Ana Mineva favors partners who sharpen thinking, and Miha Berčič notes that trust replaces control once hiring is right. Courage, risk, and experimentation normalize imperfect action, from Sari Abdo's leap without full clarity to Hasret Smajlović's reframing of fear and Coco Thamm's fail-forward curiosity. Adaptability and growth mindset treat adversity as data. Folajimi Daodu counsels reading difficulty rather than fearing it, Andreas Gallasch warns that rigidity kills innovation, and Morenike Fajemisin defines resilience as evolution rather than endurance. Sustainable growth and societal value appear as design constraints rather than messaging. Rasha Aburas ties service to society to viability, Farha Fiona Kirubi centers impact as a metric, and Cornelia Kawann insists sustainability is strategy. Learning and curiosity become durable advantages as Robert Lee Goodman urges remaining a student, Wojtek Rokosz links curiosity to momentum, and Ana Mineva cautions that ego is innovation's enemy. Networking and mentorship return as multipliers, with Peter Sorgenfrei equating network with equity, Gali Bloch Liran favoring mentors who challenge comfort, and Tatiana Dudyez framing collaboration as value multiplication. Balance and longevity close the loop by protecting the human behind the role. Andrea Todorova calls rest infrastructure, Tracy Tilbury warns that tired founders build tired ideas, and Sonja Klopčič urges protecting health with the same discipline as the company. The 2024 clusters, taken together, depict entrepreneurship as conscious value creation that integrates empathy, experimentation, stewardship, and stamina.

4.2 Integrating implications for practice, education, and ecosystems

Read through an applied lens, the IEJI evidence suggests a practical sequence for founders, a design brief for educators and accelerators, a capacity agenda for ecosystems, and a research program that the Initiative itself can enable. For founders, the actionable arc runs from self-awareness and pacing to people choices that privilege complementary strengths and trust, then to a narrow execution wedge grounded in customer discovery and early revenue, and finally to institutionalized learning routines that convert uncertainty into information. Purpose, sustainability, and well-being should be treated as operating constraints that improve decision quality rather than as optional ideals. For educators, the findings argue for pedagogy that integrates reflective practice, emotional intelligence, and ethical reasoning with field work on problem discovery, team design, sales discipline, and relationship capital. Assessment should privilege evidence of validated learning loops and the development of durable networks, not only pitch performance. For ecosystem builders and policy actors, the data point to interventions that increase mentorship density, cross border ties, and access to human capital development for underrepresented founders, since diversity expands cognitive variety and strengthens resilience at the system level.

These implications have already been translated into practice through Optimod's programmatic pillars. The annual brochures do more than disseminate advice; they seed a portfolio of educational resources developed with universities, incubators, and individual contributors, including leadership blueprints, startup guides, entrepreneurship frameworks, whitepapers, research reports, courses, case studies, and practical toolkits. A complementary vehicle is the Founders' Off the Grid Retreat, created as a direct outgrowth of IEJI to transform dispersed insights into lived learning. Over three days in nature, founders and impact driven participants from ten countries engaged in talks on artificial intelligence, family business continuity, crisis management, and leadership identity, practiced reflective routines such as morning meditation and sound work, participated in hands on workshops designed to stretch comfort zones, shared late night conversations around a fire, and closed with shared experiences in the local environment. The program blended education, reflection, and play, yet the core value resided in the community itself. Strangers became peers, honest failure narratives surfaced, and a norm of humility and psychological safety took hold. In effect, the retreat operated as a living

laboratory where founders were simultaneously teachers and students, testing frameworks, co creating knowledge, and embodying the human centered paradigm evidenced in IEJI. It offers a replicable template for entrepreneurship education that complements classroom rigor with experiential depth and can be embedded within university and accelerator calendars as an intensive for cohort bonding, identity work, and practice of the skills that sustain ventures over time.

Looking ahead, IEJI can catalyze a cumulative research agenda that links narrative depth to measurable outcomes. First, the Initiative can support panel-based follow ups with participants to examine how changes in people systems, empowerment practices, and founder well-being relate to survival, revenue quality, hiring velocity, and governance maturation. Second, the retreat format can be formalized as an intervention study, comparing cohorts exposed to experiential reflection and peer coaching with matched controls on subsequent decision quality, pivot speed, and resilience through shocks. Third, IEJI's growing geographic reach allows ecosystem level analyses that map mentorship networks, cross border ties, and institutional density, then relate those structures to scaling outcomes and inclusion dynamics. Fourth, the thematic codings themselves can be refined into a common framework that informs leadership curricula and diagnostics, synthesizing recurring advice into teachable competencies and assessment rubrics; prior public articles and blueprints derived from IEJI already demonstrate the feasibility of turning expert reflections into structured learning sequences. Finally, mixed methods design that connect qualitative themes to behavioral telemetry and archival performance data would strengthen causal inference and illuminate when and for whom human centered practices yield the largest returns. In combination, these lines of work would allow IEJI to evolve from a descriptive observatory into an engine for evidence-based entrepreneurship education and ecosystem development, with the Founders' Off the Grid Retreat serving as a field platform where theory and practice are iteratively integrated.

4.3 Emerging Participant Profiles in the 2025 IEJI Edition

In this article, the analysis has focused on the already published editions of the Improving Entrepreneurial Journey Initiative (IEJI) from 2022, 2023, and 2024. As a continuous, annually conducted research initiative, the IEJI expands each year with a new release that builds upon prior findings. The 2025 edition will continue this

trajectory, reflecting the Initiative's evolving focus on entrepreneurial learning, leadership, and ecosystem development.

With each cycle, the participant base continues to diversify across industries, regions, and leadership perspectives. To illustrate this development, three early participants from the upcoming 2025 edition are presented below. Their backgrounds exemplify the human-centric, cross-sectoral, and globally connected orientation of the forthcoming IEJI release.

The IEJI primarily features founders and entrepreneurs, yet participation also extends to CEOs, second-generation leaders in family businesses, and other global professionals who demonstrate strong leadership capacity and commitment to sustainable, innovation-driven growth. The following profiles represent a selection of individuals who engage with the Initiative, including entrepreneurs, executives, and ecosystem leaders whose diverse experiences contribute to a broader understanding of contemporary entrepreneurship. Each of them responded to the same set of structured questions, and their answers are presented here to illustrate the range of perspectives and experiences reflected within the IEJI community.

4.3.1 IEJI 2025 Participant: Andrej Šolinc

Andrej Šolinc, CEO of CEED Slovenia (ceed.si), leads the country's largest entrepreneurial community, connecting more than 1,200 founders and business leaders who grow through peer learning, honest dialogue, and shared experience. Under his leadership, CEED Slovenia has become a key bridge between local and global entrepreneurship, offering over 120 programs, workshops, and networking events each year. Recent initiatives, such as the Next Generation Initiative launched in 2025, address the challenges of leadership and ownership transitions in small and medium-sized enterprises, while the Early Warning Slovenia program provides critical support to entrepreneurs in crisis. Beyond CEED, Andrej plays an active role in strengthening the Slovenian business ecosystem, mentoring young founders, and connecting entrepreneurs, investors, and international partners. His early experience as a co-founder of a technology company that grew into a publicly listed firm shaped his practical understanding of growth, leadership, and resilience.

Figure 1: Andrej Šolinc

In the following interview, he shares insights about CEED's mission, the value of peer-to-peer learning, and his views on how entrepreneurship in Slovenia and beyond continues to evolve.

1. To begin with, could you introduce your organization or company and explain who it is intended for?

"CEED Slovenia is the largest entrepreneurial community of founders and leaders of fast-growing companies in Slovenia. It connects more than 1,300 entrepreneurs who aim to take the next step in their growth, the breakthrough that moves them from stable operations to true expansion. The organization has been active for over 20 years and is part of the global CEED network, which includes more than 17,000 companies in 14 countries and operates in 31 countries worldwide through its partner SEAF."

2. How does your approach differ from other organizations or programs in this field?

"Our approach is quite different. We do not teach from textbooks, but from the real experiences of entrepreneurs. CEED is not a traditional educational program, but a safe and confidential environment where entrepreneurs address real topics such as how to lead a team, how to transition

from an operator to a leader, how to build sales, or how to expand internationally. Everything is based on peer-to-peer learning, the exchange of real examples, successes, and also failures.

We like to say we are "a lemon in a world of chocolate." In a world full of nice words, we focus on the sour side of business, the entrepreneurial challenges. And from those lemons, we squeeze lemonade together."

3. What are the main programs or activities you offer, and how are they designed?

"We adapt our programs to the stage of a company's development.

- *GROW is designed for early-stage companies that have moved beyond the initial phase and are looking for structure to support growth. The focus is on sales, marketing, finance, and team leadership.*
- *SCALE is the next step, aimed at companies with stable sales that want to move beyond the "founder's energy" and become organizations with structured leadership and systems. It focuses on strategic growth and leadership transformation.*

In addition to these, we run CEED Skills programs that focus on developing people as well as companies, from first-time managers to key employees. For example, the Leadership for First-Time Leaders program is designed for new managers taking responsibility for a team for the first time."

4. How do you support companies or individuals in their growth and development?

"In addition to the programs mentioned in previous question, we run CEED Skills programs that focus on developing people as well as companies, from first-time managers to key employees. For example, the Leadership for First-Time Leaders program is designed for new managers taking responsibility for a team for the first time."

5. How does your work go beyond the local level, do you also collaborate internationally?

"Through the Global Learning Initiative program, we connect Slovenian founders of globally growing companies with some of the world's leading thought leaders. We collaborate with companies such as Celtra, Outfit7, GoOpti, DHH, Nicelabel, Cosylab, and others. Our guests and mentors

include globally recognized names such as Sean Ellis (GrowthHackers), Marty Cagan (SVPG), and Jeff Hoffman (Booking.com). The goal is clear, to help entrepreneurs understand global growth, its challenges, and opportunities firsthand."

6. In what ways do you give back to society or contribute to the broader community?

"We believe that entrepreneurship is not only an economic but also a social driver. That is why we run programs such as AWE, the Academy for Women Entrepreneurs, Early Warning, which helps entrepreneurs in distress, and Kids & Youth, which promotes entrepreneurship among young people. Our impact goes beyond the business world, as we aim to build a culture of entrepreneurship and responsibility."

7. What is the core philosophy or guiding principle behind your work?

"In short, entrepreneurship is a process, not a goal. Growth does not happen on its own. It requires knowledge, connection, and courage. We help entrepreneurs learn from one another and grow together. As I like to say, every entrepreneurial problem has already been solved, we know who solved it, and we help you connect with them."

8. What are the biggest challenges entrepreneurs face today?

"Entrepreneurs today face both external and internal challenges. Markets change quickly, competition grows, and technology evolves constantly. Yet the biggest challenge is personal. Entrepreneurship is a process of self-discovery that tests resilience, focus, and mindset. Mistakes are unavoidable, but progress depends on learning from them quickly and maintaining balance along the way. Perfectionism slows growth, while experimentation drives it. Choosing the right mentors, partners, and teams is essential, as shared values matter more than skills. Above all, entrepreneurship requires continuous learning and curiosity. Every challenge is a lesson, and growth remains the true measure of success."

9. How do you see the future of entrepreneurship in Slovenia and beyond?

"Slovenia has remarkable entrepreneurial energy. I see a generation of entrepreneurs who no longer think only about the domestic market but about global opportunities. CEED will continue to be a space where these entrepreneurs build growth with honesty, openness, and courage. We believe that people with an entrepreneurial mindset are the ones who will help shape and improve the world."

10. What advice would you give to entrepreneurs who want to take the next step in their growth?

"Entrepreneurship is not only about building a business, it is about building yourself. Every challenge reveals something new about who you are and how you lead. My advice to entrepreneurs is to see mistakes as part of the process and focus on learning from them quickly rather than avoiding them. Progress happens through action, reflection, and improvement.

Trust your instincts, surround yourself with mentors who challenge you, and be deliberate about the people you work with. Shared values and trust matter more than skills alone. Stay persistent, keep your balance, and remember that resilience is not about pushing harder but about staying grounded.

Above all, keep learning. Curiosity and continuous growth are the real drivers of success. Entrepreneurship is not about reaching a final goal, it is about becoming a stronger, wiser version of yourself with every step."

4.3.2 IEJI 2025 Participant: Petra Prcač Dolinšek

Petra Prcač Dolinšek is an accomplished entrepreneur and co-owner of Veris d.o.o., with over 25 years of experience in founding, managing, and growing businesses internationally. She has worked across the USA, Canada, and Europe, gaining valuable global business insights. Her expertise spans translation and language services, project management, business consulting, and natural pet cosmetics. Petra has successfully built and sold companies, including the Otroška akademija d.o.o., and currently co-owns Biro 2000 (Birotranslations, www.birotranslations.com), Veris (www.veris.si), New Digital Life, Strategic Solutions, and EcoDogs (Loving Paw, www.lovingpaw.si). She combines a broad range of skills and interests, earning her the description of a true "multi-practitioner" in her professional endeavors.

In the following interview, she discusses the philosophy behind Veris, the company's dedication to fostering professional and linguistic development, and her perspective on how knowledge, communication, and cultural awareness shape the future of entrepreneurship.

Figure 2: Petra Prcač Dolinšek

1. To begin with, could you introduce your organization or company and explain who it is intended for?

"Veris is an established Slovenian company with more than 30 years of experience in translation, certified translation, interpreting, and language education. It is trusted by numerous national and European institutions, including the European Commission, the European Parliament, the Court of Justice of the EU, several ministries, and major companies. In addition to translation services, Veris also operates as a language school for businesses, professionals, and institutions that seek to improve their professional and business communication in Slovenian or foreign languages."

2. How does your approach differ from other organizations or programs in this field?

"Veris stands out for its combination of expertise, long-standing experience, and a personalized approach. Its services are fully tailored to each client, ranging from the translation of European Commission directives to language workshops for companies. The workshops and seminars are highly practical and are often conducted by distinguished linguists and lecturers who ensure the direct applicability of the acquired knowledge."

3. What are the main programs or activities you offer, and how are they designed?

"The company offers three main types of programs:

- *Translation and interpreting services, including certified translations, with a focus on professional and official texts.*
- *General and specialized language courses, such as those for lawyers, accountants, doctors, and foreigners.*
- *Language seminars and workshops tailored to participants' needs, addressing topics such as grammar, orthography, terminology, language updates, and business communication.*

All programs are interactive, practical, and problem-oriented, often incorporating materials and examples drawn from the client's real texts."

4. How do you support companies or individuals in their growth and development?

"Veris supports companies and individuals by:

- *improving the quality of written and spoken communication,*
- *enhancing professionalism in both internal and external documents,*
- *providing language training that strengthens confidence and efficiency in international business environments, and*
- *offering guidance on terminological consistency and the use of professional terminology.*

Through these activities, Veris directly contributes to greater business competitiveness and the personal growth of participants."

5 How does your work go beyond the local level, do you also collaborate internationally?

"Veris collaborates with European institutions, including the European Commission, the European Parliament, and the Court of Justice of the European Union, demonstrating its high level of quality and professionalism."

6. In what ways do you give back to society or contribute to the broader community?

"Veris actively contributes to improving language culture in Slovenia by:

- *organizing free Slovenian language learning programs for foreigners as part of the public tender of the Government Office for the Care and Integration of Migrants and the AMIF Fund, and*
- *providing training and workshops that enhance the use of the Slovenian language in companies and public administration."*

7. What is the core philosophy or guiding principle behind your work?

"Our guiding principle is: Professionally delivered and client-tailored service. Veris is founded on the belief that every language service, whether translation or education, must be precise, clear, and practical. The core values are quality, responsibility, reliability, and respect for language as a cultural asset."

8. What are the biggest challenges entrepreneurs face today?

"Among the biggest challenges, we highlight:

- *linguistic and cultural adaptation to the global market,*
- *lack of time and resources for systematic employee training, and*
- *the need for clear and effective communication in a multilingual business environment.*

This is where Veris provides support through language consulting, training, and translation services."

9. How do you see the future of entrepreneurship in Slovenia and beyond?

"I believe the future of entrepreneurship will be built on knowledge, intercultural understanding, and digital literacy. Successful companies will be those that can combine professional expertise with linguistic excellence, as language is the key bridge to new markets and partnerships."

10. What advice would you give to entrepreneurs who want to take the next step in their growth?

"They should invest in knowledge and communication, both in foreign languages and in the culture of clear expression. Language is not just a tool but the foundation of trust and professionalism. Therefore, we encourage entrepreneurs not to hesitate to invest in language training, as it always pays off through better relationships, greater visibility, and more effective business performance."

4.3.3 IEJI 2025 Participant: Liesa Euton

Liesa Euton, Director for the MENA region at EHP International (ehpinternational.com), brings an international perspective shaped by her roots in St. Maarten and her professional journey in Dubai. Her career has provided extensive experience in leadership, sales, and organisational development across multiple regions. At EHP International, she helps individuals and organisations perform at their best through customised programs and a Self-Learning Platform that delivers practical training in leadership, customer service, and professional skills to people around the world. Her entrepreneurial journey began with a clear vision to transform how people and organisations grow. Drawing on her cross-cultural background, she has expanded EHP International into an internationally recognised brand. Along the way, she has launched multilingual training programs, built partnerships with multinational organisations, and developed innovative learning solutions that make professional development accessible globally. Liesa is passionate about empowering entrepreneurs, professionals, and teams to unlock their potential and achieve sustainable growth.

In the following interview, she reflects on her experiences in international leadership and learning, the mission of EHP International, and her perspectives on how personal development and organisational growth intersect in a global context.

Figure 3: Liesa Euton

1. To begin with, could you introduce your organization or company and explain who it is intended for?

"At EHP International, our work is all about creating meaningful impact for individuals and organisations. We focus on developing the skills, behaviours, and mindsets that help people perform at their best and drive lasting results for their organisations. Over the years, we've had the privilege of working with a wide range of companies, including Nestle, Reuters, Sephora and Deutsche Bank.

One example I'd like to highlight is our work with Credit Suisse. We partnered with their leadership team to deliver a series of customised programs focused on communication, team collaboration, and strategic leadership. What stood out was seeing the tangible difference in how teams engaged with one another, approached challenges, and took ownership of results. This kind of transformation where learning translates into improved performance, stronger teams, and real organisational growth is what motivates us every day.

Our approach is practical and people-focused. We aim not just to deliver knowledge, but to support behavioural change and skill application, whether through interactive workshops, coaching, or our Self-Learning Platform. Across every project, our goal is the same: helping organisations and individuals grow in ways that are meaningful, measurable, and sustainable."

2. How does your approach differ from other organizations or programs in this field?

"At EHP International Ltd., what truly sets us apart is our commitment to personalization, practicality, and partnership. We don't believe in one-size-fits-all training. Every organization has its own culture, challenges, and goals, and our role is to design learning experiences that speak directly to those realities.

Our approach differs from others in several important ways. First, we design with purpose, not templates. Before developing any program, we take time to understand our client's specific business context, performance gaps, and desired outcomes. This ensures that every session, exercise, and case study directly aligns with what participants face day-to-day. Second, we focus on behavioral change, not just knowledge transfer. Our programs go beyond theory. We build practical application into every step of the learning journey so that participants leave not only knowing what to do, but how to do it, and with the confidence to apply it immediately on the job. Third, we deliver learning in multiple formats to suit today's workforce. From instructor-led workshops and virtual classrooms to self-paced e-learning, we give organizations and individuals flexible options that make learning accessible and sustainable. This blend ensures that training fits seamlessly into busy professional lives.

Fourth, we integrate cultural and regional sensitivity. Operating across Asia, the Middle East, Africa, and the Caribbean, we understand the importance of context. Our facilitators are multilingual and regionally experienced, allowing us to adapt both content and facilitation style to resonate with diverse audiences. Finally, we measure impact and follow through. Our goal is not simply to conduct a workshop, but to create lasting results. We work with clients to define clear success indicators and follow up to ensure that learning translates into measurable improvements in performance.

Our approach combines global best practices with local relevance and practical application. That balance is what helps our clients see genuine and lasting change in their people and their organizations."

3. What are the main programs or activities you offer, and how are they designed?

"Our main programs and activities include the following:

- *Leadership and Management Development: These programs are designed to help leaders at all levels manage people, drive change, and build high-performing teams. We cover topics such as leadership communication, coaching for results, emotional intelligence, and strategic thinking. Each program combines practical tools, case discussions, and role plays that reflect real workplace challenges, ensuring participants can immediately apply what they learn.*
- *Sales and Customer Service Excellence: We offer training that strengthens client relationships, improves sales effectiveness, and enhances the customer experience. Programs in this area include consultative selling, negotiation skills, key account management, and service recovery. They are designed using real business examples from our clients' industries, making every learning experience practical and relevant.*
- *Supervisory and Team Development: These workshops help supervisors and team leaders build confidence, manage performance, and motivate their teams. The focus is on developing essential skills such as delegation, feedback, coaching, and problem-solving. Programs are interactive and activity-based to encourage engagement and teamwork.*
- *Personal Effectiveness and Communication Skills: For individuals seeking to enhance their personal impact, we offer sessions on topics such as influencing skills, time management, presentation skills, and conflict resolution. These programs combine self-assessment, feedback, and guided practice to help participants grow both personally and professionally.*
- *E-learning and Self-Learning Solutions: Our self-learning platform allows individuals and organizations to access high-quality training content anytime, anywhere. Each module is interactive, concise, and designed for easy application on the job. The platform covers areas such as leadership, negotiation, change management, and customer service, offering flexibility for learners with busy schedules.*

All our programs are built around three principles: they are customized, experiential, and results-driven. We start by understanding each client's objectives, then design programs that fit their specific needs. Through engaging facilitation, real-life practice, and post-program follow-up, we ensure that learning leads to lasting behavioral change.

In short, every EHP International program is designed to do more than inform, it transforms the way people think, lead, and perform at work."

4. How do you support companies or individuals in their growth and development?

"We support companies and individuals in their growth and development by focusing on practical, results-driven learning that creates lasting impact. Our approach is holistic, combining assessment, training, and follow-up to ensure growth is meaningful and sustainable. For companies, we work closely with leaders and HR teams to identify performance gaps and align learning initiatives with strategic business goals. This includes:

- *Tailored training programs designed specifically for the organization's culture, challenges, and objectives.*
- *Workshops and coaching that build leadership, supervisory, sales, and service capabilities.*
- *Team development solutions that strengthen collaboration, problem-solving, and communication across departments.*
- *Impact measurement and follow-up to ensure training translates into improved performance and organizational results.*
- *For individuals, we provide opportunities to develop skills, enhance personal effectiveness, and advance careers. This includes:*
- *Leadership and personal development programs to build confidence, influence, and decision-making ability.*
- *Practical skill-building workshops for communication, negotiation, customer service, and other essential professional skills.*
- *Flexible e-learning solutions that allow learners to access training at their own pace, making continuous development possible even with busy schedules.*
- *Ongoing coaching and mentoring to reinforce learning and support real-world application.*

Our philosophy is that growth and development are most effective when learning is applied, measurable, and supported over time. By combining customized programs, experiential learning, and practical follow-up, we help both organizations and individuals achieve their goals, improve performance, and unlock potential."

5 How does your work go beyond the local level, do you also collaborate internationally?

"Our work extends well beyond the local level, and international collaboration is a key part of what we do. We have extensive experience supporting organisations and professionals across Asia, the Middle East, Africa, and the Caribbean, and we design programs that meet the needs of multinational teams. We go beyond local borders by combining cultural awareness, global expertise, flexible delivery, and measurable outcomes. This enables us to support both organisations and individuals in achieving growth and performance improvements on an international scale.

Here's how our international approach works:

- *We deliver training in English, Cantonese, Mandarin, Thai, and Hindi, and we tailor our content to reflect the cultural and business context of each region. This ensures that learning is relevant and easily applied, regardless of location.*
- *We combine proven international training methodologies with insights into local business environments. This allows organisations to benefit from global standards while addressing specific regional challenges.*
- *Whether through in-person workshops, virtual classrooms, or e-learning platforms, we provide seamless training experiences for teams located in different countries. Our virtual delivery solutions make it easy for multinational teams to participate and learn together.*
- *We collaborate with global companies and regional offices to support leadership development, sales excellence, customer service, and team-building initiatives. Our international partnerships allow us to bring coordinated learning solutions to complex, geographically dispersed organisations.*
- *We track and measure the results of our programs globally, ensuring that the benefits of training are consistent and tangible, no matter where participants are located."*

6 In what ways do you give back to society or contribute to the broader community?

"We believe that true success goes beyond business results. Giving back to society and contributing to the broader community is an important part of who we are.

- *We offer training and mentoring programs that support young professionals, graduates, and early-career individuals in developing workplace skills such as communication, leadership, and problem-solving. By helping them become more confident and capable, we contribute to building the future workforce.*

- *From time to time, we conduct workshops and seminars that are open to the wider community. These sessions focus on practical skills like personal effectiveness, customer service, and professional communication, helping individuals outside the corporate sphere improve their employability and life skills.*
- *We provide guidance, training, and consulting to nonprofit organizations and social enterprises to enhance their operational effectiveness. By equipping these organizations with leadership, team-building, and management skills, we help them maximize their social impact.*
- *Through our self-learning platform, we make professional development resources."*

7. What is the core philosophy or guiding principle behind your work?

"Our core philosophy is centered on the belief that people are the most important driver of organisational success. Everything we do is guided by the principle of enhancing human performance in a way that creates lasting, meaningful impact. We operate with the understanding that learning is not just about transferring knowledge. It's about developing skills, changing behaviours, and empowering individuals to perform at their best. This philosophy shapes how we design programs, deliver training, and support both organisations and individuals in their growth."

8. What are the biggest challenges entrepreneurs face today?

"Today's entrepreneurs are navigating a complex landscape that requires agility, creativity, strong leadership, and a commitment to continuous learning. At EHP International Ltd., we support business leaders and entrepreneurs by equipping them with the skills and mindset to tackle these challenges effectively. I would say that entrepreneurs today face a range of challenges that test both their business acumen and their personal resilience. Some of the most significant challenges include:

- *Rapidly Changing Markets: Consumer preferences, technology, and global trends are evolving faster than ever. Entrepreneurs must constantly adapt to stay relevant, innovate, and anticipate shifts before they impact their business.*
- *Access to Capital and Resources: Securing funding and managing cash flow remain major hurdles, especially for small or early-stage businesses. Entrepreneurs often need to balance growth ambitions with financial prudence.*
- *Competition and Differentiation: In almost every sector, competition is fierce. Entrepreneurs must find ways to differentiate their products, services, and brand while maintaining quality and value.*

- *Talent Attraction and Retention: Finding skilled employees who share the company vision is increasingly difficult. Entrepreneurs also need to create a culture that motivates and retains talent in a competitive job market.*
- *Regulatory and Compliance Challenges: Navigating legal, tax, and regulatory requirements (often varying by region or country) can be complex and time-consuming, requiring careful attention to avoid risks.*
- *Technology Integration: Digital transformation is no longer optional. Entrepreneurs must adopt the right technologies to improve operations, enhance customer experience, and remain competitive, all while managing costs and cybersecurity concerns.*
- *Personal Resilience and Leadership: Running a business is demanding and often stressful. Entrepreneurs need emotional intelligence, strong decision-making skills, and resilience to lead their teams through uncertainty and setbacks.*
- *Building and Maintaining a Strong Brand: In an age of social media and instant feedback, reputation matters more than ever. Entrepreneurs must manage branding, customer engagement, and public perception carefully."*

9. How do you see the future of entrepreneurship in Slovenia and beyond?

"I see the future of entrepreneurship in Slovenia as both promising and dynamic, with significant opportunities and challenges ahead. The future of entrepreneurship in Slovenia is bright, with a clear strategic vision, growing support for startups, and a commitment to innovation. However, addressing existing challenges will be crucial to fully realizing this potential.

- *Slovenia has set an ambitious goal to become one of the most attractive environments for startup companies by 2030. The government's strategy focuses on creating a supportive ecosystem that includes a new legal framework for startups, a startup visa to attract international talent, and a tenfold increase in venture capital investment per capita*
- *The country is embracing digitalization and artificial intelligence as key drivers of innovation. Initiatives like the GEM Slovenia 2024 report highlight the importance of these technologies in shaping the future of entrepreneurship in Slovenia. However, challenges such as administrative barriers and the need for faster implementation of digital strategies remain Support for Entrepreneurs. Programs like the P2 incentive from the Slovene Enterprise Fund provide financial support and mentorship to startups, helping them scale and access international markets. In 2025, 14 startups from Western Slovenia received this support, demonstrating the effectiveness of such initiatives*

- *Slovenia is also fostering regional collaboration through events like the PODIM conference in Maribor, which connects startups with international investors and aims to elevate the Adriatic startup ecosystem to a global level*
- *Despite these advancements, Slovenia faces challenges such as a shortage of venture capital and the need for structural reforms to support the startup ecosystem. The country is working to address these issues to ensure sustainable growth and innovation L*
- *Beyond Slovenia, the future of entrepreneurship is increasingly global. Entrepreneurs are leveraging digital platforms to reach international markets, and Slovenia's initiatives are positioning it as a competitive player in the global startup landscape."*

10. What advice would you give to entrepreneurs who want to take the next step in their growth?

"I would say that entrepreneurs who want to take the next step in their growth should focus on a combination of strategic planning, personal development, and practical action. Taking the next step in growth is about combining clarity, learning, strong teams, innovation, financial prudence, and resilience. Entrepreneurs who embrace these principles position themselves and their businesses for sustainable success."

4.4 Limitations and directions for further study

The IEJI approach relies on purposive expert sampling and reflective advice, which introduces selection and recall effects and may overweight successful trajectories and articulate narrators. The qualitative richness does not by itself establish causal mechanisms between people systems, well-being, and performance. Future work should link narrative themes to behavioral and outcome data, evaluate the effects of co-founder fit and empowerment practices on venture survival and growth, and trace how diversity in founding teams relates to adaptability during shocks. Extending cross-cohort tracking would clarify how founders' emphases shift as markets cycle and as teams professionalize. Finally, ecosystem-level analyses of mentorship networks, investor founder alignment, and cross-region collaboration would deepen understanding of how relational structures convert individual intent into collective value.

This chapter, together with the empirical synthesis in Chapter 3 and the summary in 3.4, supports a coherent view of entrepreneurial advantage as the alignment of human capital quality, social capital structure, and moral capital credibility with disciplined execution and customer truth. Read through this lens, the Improving Entrepreneurial Journey Initiative does more than document advice. It maps a developmental pathway in which inner clarity becomes organizational capability and, at maturity, stewardship of broader economic and social systems.

6 Conclusion

The Improving Entrepreneurial Journey Initiative demonstrates that entrepreneurship is best understood as a longitudinal interplay of human development, organizational design, and ecosystem participation. Read across the 2022 to 2024 editions, the evidence traces a clear progression from identity formation and psychological resilience to people systems and disciplined execution, and ultimately to purpose aligned, sustainability-oriented leadership embedded in wider networks. Diversity and geographic reach expand in step with this maturation, while sectoral patterns reveal a shift toward knowledge intensity and human capital. Together these dynamics support a human centered paradigm in which technical competence is necessary but not sufficient without emotional intelligence, ethical intent, and the social architectures that convert individual clarity into collective capability.

The Initiative's core contribution is to bridge theory and practice through a replicable model of knowledge transfer. Annual data collection and thematic synthesis generate cumulative insight, while Optimod's complementary activities translate those insights into applied tools for founders, educators, and ecosystem builders. Resources such as leadership blueprints, startup guides, and frameworks operationalize research findings for immediate use. The Founders' Off the Grid Retreat extends this translation into an experiential setting where reflection, peer learning, and community building reinforce the very capacities that the datasets identify as decisive for long term performance. In this sense, IEJI is not only an observatory of entrepreneurial behavior but also a field laboratory for human centered innovation and leadership development.

For entrepreneurship education, the results recommend an integrated pedagogy that pairs rigorous analysis with lived practice. Curricula should cultivate metacognition, ethical reasoning, and emotional skills alongside problem discovery, customer validation, sales discipline, and team design. Assessment should emphasize validated learning cycles, trust-based collaboration, and stewardship of wellbeing as infrastructure for creativity and judgment. For ecosystems and policy, the findings point to interventions that expand mentorship density, cross border ties, and inclusive access to human capital development, since these conditions strengthen adaptability and widen the pipeline of opportunity.

The Initiative also outlines a forward research agenda. Panel based follow ups can connect narrative themes to outcomes such as survival, quality of revenue, hiring velocity, and governance maturation. The retreat format can be studied as a structured intervention to assess effects on decision quality and resilience. Network mapping across IEJI's global participants can relate mentorship structures and cross regional bridges to scaling dynamics and inclusion. Finally, refining recurring advice into a common competency framework can guide diagnostics and leadership curricula, enabling consistent measurement and improvement over time.

In summary, Optimod's IEJI offers a long term, practice grounded pathway for strengthening entrepreneurial ecosystems. By aligning human capital, social capital, and moral capital with disciplined execution and customer truth, the Initiative shows how founders move from inner clarity to organizational capability and, at maturity, to responsible participation in the co creation of economic and social value. Scaling this model through partnerships with universities, incubators, and policy actors can help anchor entrepreneurship education in lived experience while sustaining a global community committed to resilient, innovative, and purpose driven growth.

Acknowledgement

This chapter was created as part of the Improving Entrepreneurial Journey Initiative (IEJI), developed and coordinated by Optimod under the leadership of Sara Kremsar, M.Sc., within the broader Optimod Initiative for Sustainable and Human-Centric Innovation Ecosystems. The project bridges academic research and real-world entrepreneurship by collecting and analyzing annual insights from more than one hundred founders, executives, and innovators worldwide. Their reflections on leadership, resilience, and innovation provide the empirical foundation for this monograph. Special acknowledgment is extended to all IEJI participants and partners whose openness, collaboration, and shared experience make this ongoing research and its practical impact possible.

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Recognizing the Dunning–Kruger Effect in the Early Stages of the Entrepreneurial Process

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The chapter discusses the phenomenon of the Dunning-Kruger effect among the participants of the PONI LUR entrepreneurial training, which is conducted by RDA LUR in the Ljubljana Urban Region. The findings show that mentors often perceive an overestimation of their own entrepreneurial skills in participants, which can have a significant impact on the development of business ideas and business decision-making. Part of the research also included an in-depth interview with the program's internal mentor, who confirmed the presence of the Dunning-Kruger effect in the participants and described the existing approaches to address this challenge. Based on the analysed findings, proposals for improvements were formulated, including structured training of mentors, the introduction of reflective tools and the development of additional support after the training.

DOI
https://doi.org/10.18690/um.fov.10.2025.2

ISBN
978-961-299-090-9

Keywords:
entrepreneurship, supportive environment, Dunning–Kruger effect, cognitive bias, entrepreneurial competencies

University of Maribor Press

1 Introduction

Entrepreneurship, as a developmental pathway for the individual, goes beyond personal satisfaction and achievement. It exerts a profound influence on a nation's economic strength and stability, primarily through innovation and the creation of new employment opportunities. It simultaneously integrates knowledge, motivational, and psychological factors that shape the entrepreneurial trajectory, positioning the entrepreneur as the central agent of entrepreneurial activity. In the contemporary entrepreneurial environment, where economic objectives constantly intersect with personal development, the psychological dimensions of decision-making are gaining increasing importance. Among these, the Dunning–Kruger effect stands out as a cognitive bias in which individuals with limited knowledge or experience tend to overestimate their own abilities.

In Slovenia, a significant role in promoting entrepreneurship and developing entrepreneurial competencies is played by the PONI project, implemented within the framework of regional development agencies. This paper focuses on the PONI LUR project, conducted by RRA LUR, and examines the presence of the Dunning–Kruger effect among its participants. The aim is to determine the extent to which this effect occurs, how it is identified by the project implementers, and how the issue is addressed. The paper further presents opportunities for the enhancement of the project that would contribute to fostering a more realistic self-perception among participants, while maintaining their engagement, motivation, and innovative entrepreneurial orientation.

2 Entrepreneurship

Before delving into the selected topic, it is essential to first define several fundamental concepts related to it. Because of its interdisciplinary nature, entrepreneurship has been defined in numerous ways that reflect its complexity. However, a lack of understanding of entrepreneurial activity, both among experts and among entrepreneurs themselves, can lead to an underestimation of its demands and to unrealistic expectations. This often results in poorly considered decisions within entrepreneurial processes.

2.1 Definition of Entrepreneurship

The Global Entrepreneurship Monitor (GEM), the largest and longest-running global study of entrepreneurship, defines entrepreneurship as any attempt by an individual, a group of individuals, or an existing company to create a new enterprise or to realize a newly emerging idea or activity (GEM, 2025). Based on this definition, Močnik and Širec (2022) describe entrepreneurship as a concept that includes the identification, evaluation, and development of opportunities, where the development of entrepreneurial opportunities is primarily associated with creating new economic or social value.

Šuštar (2011) supports this definition and adds that entrepreneurship must also consider the distribution of benefits among individuals, groups, organizations, and society. Rus, Močnik, and Crnogaj (2023) emphasize the importance of a dynamic entrepreneurial system within a country, as it brings substantial economic benefits in the form of innovation, job creation, and productivity growth. Rebernik, Tominc, Crnogaj, Širec, Bradač Hojnik, and Rus (2015) also describe entrepreneurship as the continuous search for, creation of, and use of opportunities to meet market needs, which significantly contributes to economic well-being.

When speaking of entrepreneurship, we primarily refer to the entrepreneurial process, which begins with individuals who possess certain capabilities and believe that they can realize their business ideas (Rebernik et al., 2015). Močnik and Širec (2022) add that the entrepreneurial process begins when people act and pursue specific opportunities. As Rebernik et al. (2015) note, only a fraction of those who express entrepreneurial interest progress to the stage of implementing their business idea.

2.1.1 The Entrepreneur

To better understand the entrepreneurial system, it is necessary to analyze the roles within it. Rebernik, Širec, Bradač Hojnik, Crnogaj, Rus, and Tominc (2021) identify the individual, their motives, tendencies, and actions as the central factor of entrepreneurial activity. The entire entrepreneurial experience is grounded in the individual's culture, as well as in the social and economic environment. Širec, Tominc, Bradač Hojnik, Rus, and Crnogaj (2023) also emphasize the importance of

entrepreneurial abilities as a combination of personal, character, and learning capacities that form a multilayered cultural and social context.

Rebernik et al. (2021) further state that entrepreneurial intentions are influenced by both personal traits and the perception of one's own abilities and competencies, as well as by the individual's perception of the environment in which the entrepreneurial idea is developed or implemented. Širec et al. (2023) add that attention to entrepreneurial opportunities is strongly shaped by entrepreneurial experience, including networking and indirect experience such as participation in family businesses.

2.2 Phases of the Entrepreneurial Process

Entrepreneurship is therefore a process in which new business activities and enterprises emerge, where the main elements are the entrepreneur, resources, and business opportunities that entrepreneurial individuals must recognize and take advantage of within a given environment. At this point, it is important to understand that the number of individuals who move from the initial stages of the entrepreneurial process, which include confidence in their entrepreneurial abilities, knowledge, and the perception of entrepreneurial opportunities, to the following stages, which are based on actual activities aimed at exploiting business opportunities, decreases at each stage (Rebernik, Tominc, Crnogaj, Širec, Bradač Hojnik, and Rus, 2016).

Rebernik et al. (2016), based on entrepreneurial activities as studied by GEM, summarized the key phases of the entrepreneurial process. Regular monitoring of these phases plays a significant role in shaping entrepreneurship policies. By observing the number of individuals who transition between entrepreneurial phases and identifying critical points between them, entrepreneurship policies and measures can be designed more comprehensively to adequately support each phase of the entrepreneurial process according to the needs of entrepreneurs.

Rebernik et al. (2016) define four key phases of the entrepreneurial process. The first phase, the phase of potential entrepreneurs, includes individuals who believe that they have the necessary knowledge and entrepreneurial skills to realize a business venture. In this phase, individuals recognize entrepreneurial opportunities, take on

risk, and are aware of the possibility of failure. The second phase, the phase of nascent entrepreneurs, refers to individuals who have started carrying out activities to establish a company or have established one less than three months ago. The third phase, the phase of new entrepreneurs, includes entrepreneurs whose companies have been operating for more than three months and are already paying wages but have not yet exceeded three and a half years of activity. The fourth phase, the phase of established entrepreneurs, is the final defined phase and includes entrepreneurs who have been developing their company for more than three and a half years.

To make the entrepreneurial process easier to understand, GEM (2025) introduced the TEA index (Total Early-Stage Entrepreneurial Activity), which shows entrepreneurial activity in the early stage of development. This index represents one of the key indicators examined by GEM. It refers to the phase of potential entrepreneurs and the phase of nascent entrepreneurs, who have either recognized entrepreneurial opportunities or have already begun activities leading to the establishment of a company.

2.3 The Importance of Entrepreneurship for Economic Development

It is important to recognize that the emergence of entrepreneurship extends beyond individual satisfaction and success, as it has a strong impact on a country's economic strength and stability, primarily through innovation and the creation of new jobs (Močnik and Širec, 2022). These two dimensions are closely interconnected. Innovation represents the process of creating something new, which forms the essence of the entrepreneurial process. For competitiveness in a constantly changing market, small enterprises in particular must ensure continuous innovation. This process significantly contributes to job creation, as new products and services generate new employment opportunities.

The role of entrepreneurship in economic development involves more than merely increasing the gross domestic product (GDP). It contributes to job creation, economic growth, and higher productivity, supports the continuous process of transformation within society and the economy, increases regional income, and simultaneously forms part of a broader regional structure (Šuštar, 2011).

3 Supportive Environment for Entrepreneurship Development

3.1 Definition of the Concept

Researchers and experts have long agreed that the entrepreneurial ecosystem plays a vital role in business growth. As already mentioned, this growth has positive effects on job creation, contributes to state revenues, and generates broader social benefits for the wider region. The entrepreneurial ecosystem can be defined as a network of interdependent actors and factors that enable productive entrepreneurship within a specific area. It is essential for the development of entrepreneurial ideas and potential enterprises, which is why the role of supportive entrepreneurial institutions is of vital importance (Rebernik et al., 2021).

The supportive environment emerged precisely from the recognition of the importance of entrepreneurship. According to Rebernik et al. (2015), the success of an entrepreneur should not depend solely on the individual but also on the state, which should, through appropriate entrepreneurial policy, establish a positive entrepreneurial ecosystem and thereby create the fundamental framework for successful business operations. The supportive environment is regulated by the Law on the Supportive Environment for Entrepreneurship Development (ZPOP-1), which came into force in 2007. Due to evident shortcomings, amendments were later introduced through the Law on Amendments and Supplements to the Law on the Supportive Environment for Entrepreneurship (ZPOP-1D) in 2017.

The objective of ZPOP-1D (2017) is to establish an effective supportive environment at the local, regional, and national levels, to raise awareness of the importance of entrepreneurship for economic development, and to promote the realization of the entrepreneurial potential of citizens. It is intended for potential entrepreneurs and existing enterprises in all phases of the entrepreneurial process, within which individuals can access comprehensive support services and more easily connect with research institutions, educational organizations, and the business sector.

3.2 The Role of the Supportive Environment in the Development of Entrepreneurship in Slovenia

In the framework of the global GEM research, Rebernik et al. (2021) classify Slovenia as a high-income economy with a stable economic system, while also recognizing its well-developed infrastructure and relatively well-organized supportive environment. Rus et al. (2023) observe that although the Slovenian entrepreneurial ecosystem is developing rapidly and offers numerous opportunities for enterprises in the initial stages of development and growth, there are still obstacles and weaknesses that hinder further progress. These include limited access to financing, a shortage of qualified labor, and, most notably, difficulties in attracting the right talent.

According to Rus et al. (2023), the key factors for a successful entrepreneurial path in Slovenia are a well-developed entrepreneurial culture, a strong network of incubators, accelerators, and other support institutions. They also highlight the wide range of entrepreneurship education programs and the extensive network of mentors and investors available to entrepreneurs in all stages of development. Bergman (2025) agrees with these views but expresses concern about the way entrepreneurial activities are implemented, arguing that fragmented, one-time, or disconnected forms of support will not bring the essential progress needed to improve the current situation.

For the future, Rus et al. (2023) suggest that Slovenia should enhance its entrepreneurial ecosystem primarily through the development of innovative sources of financing, the establishment of support programs for companies in the growth phase, and the promotion of new technologies. However, they emphasize that this system must be designed in a more holistic, systematic, and interconnected way. The crucial element should be the connection between the entrepreneurial ecosystem and access to financial resources, government policies, educational institutions, cultural attitudes, and social networks (Ermawati, 2023).

3.3 The Role of Entrepreneurship Policy in the Development of Entrepreneurship in Slovenia

Entrepreneurship as a driving force of economic growth, employment, innovation, and productivity has been recognized not only by analysts and economic theorists but also by national policymakers. Crnogaj and Rebernik (2013) emphasize that entrepreneurship has become central to many political initiatives due to its positive impact on the economy and society. As already mentioned, the positive contributions of entrepreneurship include the creation of new jobs, the reduction of unemployment, and the enhancement of economic growth and development at the national level. Consequently, developed economies are increasingly moving toward an entrepreneurial economy model that relies not only on knowledge but also on entrepreneurial initiative as an important complementary factor of progress.

It is important to understand that entrepreneurship, as an interdisciplinary concept, cannot be based on a single key assumption that would ensure a company's success. For this reason, GEM (2023) presented a conceptual framework of fundamental conditions that combine various aspects and dimensions of environmental factors. These include financial support (availability and accessibility), government policies (support and regulation), government programs, entrepreneurship education (primary, secondary, and post-secondary), research and development transfer, business and professional infrastructure, internal market dynamics and openness, physical infrastructure, and cultural and social norms.

Therefore, it must be recognized that the development of successful entrepreneurship is influenced not only by entrepreneurial capacities and opportunities but also by government policies and programs that are essential for ensuring a stable and supportive environment for entrepreneurs (Širec et al., 2023). In economic systems that acknowledge the crucial role of entrepreneurship in national and global development, the government plays a central role. Through appropriate policies, governmental institutions not only facilitate the establishment of new enterprises but also promote the growth of existing and established ones.

Širec and Rebernik (2013) define entrepreneurship policy as a coherent and proactive political approach that encompasses all aspects of society, not merely economic policy. It should focus on the entrepreneurial individual and the promotion of

entrepreneurship as the main driver of economic development in all phases of the entrepreneurial process. Širec et al. (2023) expand this definition by describing effective government policies and programs as those that identify and respond to the needs of companies across different stages of their life cycle, from the initial phases to mature enterprises, while also supporting innovation and technological development.

In the implementation of government policies, two main aspects can be identified as essential for supporting the development of small and medium-sized enterprises (SMEs). The first concerns the level of institutional support provided by the government to SMEs, and the second relates to the efficiency of the regulatory framework that significantly affects their operations. SMEs represent 99% of all enterprises in Slovenia, making their performance crucial for the overall economy (Ministry of the Economy, Tourism, and Sport, 2025).

A key condition for entrepreneurial development throughout all stages of a company's life cycle is access to appropriate financial resources. Since companies often face difficulties in obtaining the necessary funds, one of the fundamental tasks of the supportive environment is to provide both financial and non-financial assistance. The latter includes targeted information, training, and mentorship. Financial forms of assistance are available to entrepreneurs in Slovenia through various measures implemented by ministries, public funds, public agencies, and other institutions in the form of repayable and non-repayable resources (SPOT, 2023).

3.3.1 Obtaining Financial Resources in Slovenia

According to SPOT (2023), repayable forms of financial assistance include loans, guarantees, and recapitalization funds in the form of venture capital, with the latter being primarily intended for business expansion and internationalization. Non-repayable forms of assistance, on the other hand, mainly include subsidies for the establishment of new innovative companies and incentives for the self-employed.

Key providers of financial support, as identified by SPOT (2023), include the Slovene Enterprise Fund, the Ministry of Agriculture, Economy, and Food, the Employment Service of the Republic of Slovenia, the Slovenian Regional

Development Fund, SID Bank, Eko Fund, the Ministry of Economic Development and Technology, SPIRIT Slovenia, the Ministry of Labour, Family, Social Affairs and Equal Opportunities, the Ministry of Education, Science, and Sport, Business Angels of Slovenia, EU Funds, and the Centre for International Cooperation and Development.

A lack of financial resources represents one of the main structural barriers entrepreneurs face at different stages of business development. When personal funds are insufficient, entrepreneurs can access external sources of financing through various institutions operating at the national or regional level. However, the dispersion of these sources and the lack of institutional coordination often hinder efficient access to funding. In the context of a small and concentrated business environment such as Slovenia's, it is reasonable to question the effectiveness of such fragmentation among institutions. Although several providers offer support mechanisms for entrepreneurship, they are often poorly connected, resulting in overlapping competencies, reduced transparency, and limited accessibility to various types of financial incentives managed by individual institutions.

Among them, the Slovene Enterprise Fund stands out as the main manager of financial support for entrepreneurs. It provides start-up incentives for young companies in the first stage of development, seed capital, loans intended for companies in the second stage of development to facilitate market entry, venture capital typically aimed at global market penetration, and microcredits that co-finance smaller investments, working capital, or liquidity needs (SPOT, 2023). In the context of researching the supportive environment within Regional Development Agencies (RRA), it is also important to note the role of the Ministry of Economic Development and Technology, which offers financial incentives for research, development, and investment, as well as EU Funds, which provide resources under the cohesion policy (SPOT, 2023).

4 Types of Supportive Environments for Entrepreneurship Development

The national SPOT system provides a comprehensive framework of state support services for business entities. In the continuation of this research, the primary focus will be on how the national support system itself is structured. ZPOP-1D (2017)

identifies the key implementing bodies of the project as the Ministry of the Economy, Tourism and Sport (MGTŠ), the Ministry of Public Administration (MJU), and the Public Agency for the Promotion of Investment, Entrepreneurship, and Internationalization (SPIRIT).

The project implementers operate under the unified SPOT brand, in cooperation with chambers of commerce, development agencies, entrepreneurship centers, technology parks, and incubators, which together constitute the core supportive environment for entrepreneurship development in Slovenia (SPIRIT, 2025a). ZPOP-1D (2017) also identifies representative chambers as important institutions within the supportive environment, including the Chamber of Craft and Small Business of Slovenia and its network of regional or local chambers.

Considering the previously identified risks and weaknesses of entrepreneurial ecosystems, ZPOP-1D (2017) is primarily based on establishing a supportive environment whose general objectives include the creation of an effective support system at the local, regional, and national levels, raising awareness of the importance of entrepreneurship for economic development, realizing the entrepreneurial potential of citizens, increasing opportunities for business creation, encouraging growth, generating new jobs, and accelerating the use of entrepreneurial and innovation potential. Another key goal is to establish an environment for potential and existing entrepreneurs at all stages of their development, while promoting cooperation among research and educational organizations and the business sector for the purpose of development (ZPOP-1D, 2017).

As already described above, the supportive environment for entrepreneurship development is divided into several segments, depending on the type of support individuals require at different stages of the entrepreneurial process. Systemic support is provided by the project implementers themselves and public institutions, which, through various programs, ensure national and regional assistance for entrepreneurs, including information, consulting, and help with business establishment (SPOT, 2024).

In the following section, the paper will further analyze the supportive environments for entrepreneurship development based on the type of assistance they provide to entrepreneurs at various stages of their growth.

4.1 Key Institutions of the Supportive Environment for Entrepreneurship Development

Among the main public institutions responsible for entrepreneurship development in Slovenia, in line with the objectives defined in ZPOP-1 (2007), is the Ministry of the Economy, Tourism and Sport (MGTŠ). Within its Directorate for Industry, Entrepreneurship, and Internationalization, the Ministry designs national policies for the development of entrepreneurship and the economy and implements measures to facilitate the integration of Slovenian companies into international markets, thereby increasing economic investment in the Republic of Slovenia (Ministry of the Economy, Tourism and Sport, 2025).

When discussing the key institutions of the supportive environment, it is essential to mention the Slovenian Business Point (SPOT), which provides a comprehensive system of state support and free services for business entities. Under this unified brand, institutions are brought together to provide assistance, information, and advisory services to various types of business entities (SPOT, 2024).

Of particular importance for entrepreneurship development is the Public Agency of the Republic of Slovenia for the Promotion of Investment, Entrepreneurship, and Internationalization (SPIRIT). The agency supports the development of programs and products that assist potential entrepreneurs, newly established enterprises, and mature companies in their growth, in the creation of added value, and in strengthening international competitiveness (SPIRIT, 2020).

The Slovene Enterprise Fund (SPS) operates as a specialized developmental and financial institution aimed at promoting the growth and development of entrepreneurship in Slovenia. It provides favorable financial resources for start-ups, high-growth, innovative, and other micro, small, and medium-sized enterprises (SMEs). In addition to financial instruments, SPS also offers content-based programs for acquiring business and development competencies, as well as entrepreneurial networking opportunities in collaboration with other professional partners (Slovene Enterprise Fund, 2025).

4.2 Entities of the Innovative Environment for Entrepreneurship Development

In defining the entities of the innovative environment (SIO), reference is made to the Rules on Maintaining the Register of Innovative Environment Entities, which were introduced based on ZPOP-1 in 2008 but were repealed in 2017. The Rules contained definitions of the key terms related to the innovative environment and established the conditions that entities had to meet in order to be entered into the register (Rules, 2008). Since the Rules were repealed in 2017, the extended definitions presented here are based on descriptions found on national portals of the project's implementing institutions.

According to the Rules (2008), three types of SIO were recognized, but based on SPIRIT (2025), four main entities are considered essential in the process of promoting innovation and entrepreneurship among different target groups.

4.2.1 Business Incubator

The Rules (2008) define a business incubator as an institution that provides facilities at a designated location to enable the efficient creation and development of new enterprises. A business incubator must provide a structured business environment with the required infrastructure and a wide range of administrative and intellectual services for innovative companies.

4.2.2 University Incubator

The Rules (2008) define a university incubator as an institution connected to a university or other higher education institution that supports the development of entrepreneurial initiatives primarily among pupils, students, and professors. A university incubator must provide support to innovative technological companies that, independently or in collaboration with a university or other higher education institution, develop entrepreneurial initiatives originating from pre-incubation activities. By offering intellectual services and technology transfer offices, university incubators facilitate the transfer of knowledge and investment to the market even before the formal establishment of companies.

4.2.3 Technology Parks

A technology park is an institution that brings together research, development, and business activities of new innovative technological companies and R&D departments of existing companies within a spatially concentrated area. A technology park provides a structured business environment with a broad range of supportive, administrative, and intellectual services for enterprises (Rules, 2008). The main goal of technology parks (TP) is to stimulate the creation and growth of technological companies and to promote the transfer of knowledge from research to industry through cooperation with various stakeholders such as incubators, accelerators, universities, and chambers (Technology Park Ljubljana, 2025). The mission of a technology park can thus be described as creating a supportive ecosystem that enables the development of entrepreneurship, innovation, and internationalization for high-technology companies.

4.2.4 Start-up Accelerators

Start-up or business accelerators are a relatively recent phenomenon through which early-stage companies with strong growth potential receive systematic assistance in overcoming obstacles to achieving expansion (Pustovrh, 2019). Blakely (2021) adds that accelerators are intended for companies that already have a solid foundation for growth but require guidance or resources to scale faster. In this context, resources primarily refer to mentoring, professional support, a collaborative working environment, and access to influential businesses or potential investors.

Accelerators often acquire ownership stakes in the companies they support in exchange for providing the necessary financial or material seed investment. Blakely (2021) emphasizes that start-up accelerators are most often private organizations that obtain financial resources from both public and private sources.

4.3 List of Innovative Environment Entities in Slovenia

In the previous subsections, Slovenian innovative environment entities (SIO) were defined. Based on the derived definitions, Table 1, prepared with the help of Start:Up Slovenia (2025), provides an overview of existing SIOs, including business incubators, university incubators, start-up accelerators, and technology parks.

Table 1: List of Innovative Environment Entities in Slovenia

	List of Technology Parks in the Republic of Slovenia	General Slovenian Name
1.	Tehnološki park Ljubljana, d. o. o.	Tehnološki park Ljubljana
2.	Tehno park Celje, javni zavod za spodbujanje znanoszi, tehnologije in inovativnosti	Tehno park Celje
3.	Primorski tehnološki park, d. o. o.	Primorski tehnološki park
4.	Razvojni center za informacijske in komunikacijske tehnologije Kranj d.o.o.	RCIKT Kranj
5.	Štajerski tehnološki park d. o. o.	Štajerski tehnološki park
6.	Pomurski tehnološki park, Podjetje za pospeševanje podjetništva v Pomurju d. o. o.	Pomurski tehnološki park
	List of University Incubators in the Republic of Slovenia	
1.	Ljubljanski univerzitetni inkubator, d. o. o.	Ljubljanski univerzitetni inkubator (LUI)
2.	Inštitut za raziskovanje podjetništva Tovarna podjemov Maribor	Tovarna podjemov Maribor
	List of Business Incubators in the Republic of Slovenia	
1.	BSC, poslovno podporni center, d.o.o. Kranj	Kovačnica – podjetniški inkubator Kranj
2.	Inkubator savinjske regije, d. o. o.	Inkubator Savinjske regije
3.	Inkubator, d. o. o., ekonomske, organizacijske in tehnološke storitve, Sežana	Inkubator Sežana
4.	MPI Vrelec d. o. o., Rogaška Slatina	Mrežni podjetniški inkubator Vrelec
5.	Javni zavod Podjetniški inkubator Kočevje	Podjetniški inkubator Kočevje
6.	Razvojni center Novo mesto d. o. o.	Podjetniški inkubator Podbreznik
7.	Razvojno informacijski center Bela krajina	Podjetniški inkubator Bela krajina
8.	Regionalni center za razvoj Zasavje d. o. o.	Zasavski podjetniški inkubator
9.	Regionalna razvojna agencija za Koroško regijo, d. o. o.	Mrežni podjetniški inkubator Koroška
10.	SAŠA Inkubator, družba za podjetniško in poslovno svetovanje, d. o. o.	SAŠA inkubator
11.	Podjetniški inkubator Perspektiva	Podjetniški inkubator Perspektiva
12.	ERUDIO HUB, inovativno poslovno okolje, d. o. o.	Erudio:hub
13.	Inkubator GEA College, podjetniško in poslovno svetovanje, d. o. o.	Inkubator GEA College
14.	Center za podjetništvo in turizem Krško	Podjetniški inkubator Krško
	List of Accelerators in the Republic of Slovenia	
1.	ABC Accelerator, razvoj startupov in mladih podjetij, d. o. o.	ABC Accelerator
2.	Katapult, družba za spodbujanje podjetništva, d. o. o.	Katapult
3.	Reveris, d.o.o.	Startup pospeševalnik Reveris

4.3 Other Support Mechanisms for Entrepreneurship Development

Other supportive mechanisms also play a vital role in entrepreneurship development, providing assistance to entrepreneurs at various stages of their growth. These mechanisms include support for the creation and development of business ideas through financial or mentoring assistance, as well as networking and knowledge exchange among entrepreneurs and other professionals. This category can also include various entrepreneurial associations.

4.3.1 Other Associations of Slovenian Entrepreneurs

Supportive environments also include organizations that promote entrepreneurship in Slovenia. These are entrepreneurial associations whose main purpose is to connect entrepreneurs to facilitate networking, exchange of knowledge, mutual business support, and collective representation of entrepreneurial interests.

The Slovenian Business Club (SBC) is recognized as the first association of Slovenian entrepreneurs. It is one of the most well-known organizations whose mission is to unite business owners and successors of company founders in Slovenia. SBC promotes entrepreneurship through various club activities, networking events, and membership gatherings (Slovenian Business Club, 2022).

The American Chamber of Commerce in Slovenia (AmCham Slovenia) serves as a connecting platform between business, politics, and society, striving to improve the business environment in Slovenia. It brings together Slovenian and international small and medium-sized enterprises, fostering business networking and knowledge exchange to enhance competitiveness and innovation (AmCham Slovenia, 2025). The organization operates under four main pillars: events and networking, advocacy, AmCham Young, and international cooperation.

Another notable example is the Association of Slovenian Women Entrepreneurs, which focuses on connecting innovative women in business, society, and the international community. The association aims to foster collaboration, networking, and experience exchange through educational programs and events (Association of Slovenian Women Entrepreneurs, 2025).

4.4 Regional Development Agencies

Regional development agencies, although not formally classified among the entities of the innovative environment, represent an important part of the support infrastructure for promoting entrepreneurship. Their operation is based on the principles of sustainable and integrated regional development, taking on the role of an intermediary between state institutions, local communities, the economy, and other stakeholders within the innovation ecosystem.

To understand the role of regional development agencies, it is first necessary to define regional development policy. According to the Ministry of Cohesion and Regional Development (2023), regional development policy represents a way of promoting sustainable development in the broadest sense by realizing development potentials and removing developmental barriers in Slovenian regions. The goal of regional development policy is to preserve resources and opportunities for the development of future generations.

The general objectives of regional policy until 2030 are primarily directed toward strengthening the development capacities of regions, based on their own development potentials and perceived global opportunities. The policy, as defined by the Ministry of Cohesion and Regional Development (2024), is based on four key orientations: (1) improving the quality of life in regions through balanced economic, environmental, and social development guided by the principles of sustainability; (2) catching up with European regions in terms of development; (3) reducing regional disparities; (4) realizing development potentials and utilizing global opportunities through cooperation and networking at the international interregional level.

In each of the twelve development regions, regional development agencies have been established to perform tasks and missions under the Act on the Promotion of Balanced Regional Development (Ministry of Cohesion and Regional Development, 2023). These agencies are responsible for preparing, coordinating, monitoring, and evaluating regional development programs and regional projects. For the further analysis in this paper, the role of regional agencies within the regional development network is particularly important, as they conduct various state development tasks, including the promotion and development of entrepreneurship and a culture of innovation (Rules on Regional Development Agencies, 2013).

Within the framework of national development tasks carried out in the public interest at the regional level, the Ministry of Cohesion and Regional Development (2024) identifies the so-called regional pillar for entrepreneurship promotion. This serves as an instrument of regional policy that implements the first three general objectives of regional policy and complements instruments for promoting entrepreneurship and competitiveness at the national level.

4.4.1 List of Regional Development Agencies in Slovenia

Table 2 presents the list of regional development agencies in the Republic of Slovenia. The list is based on the register of regional development agencies for the 2021–2027 programming period, as prepared by the Ministry of the Economy, Tourism, and Sport (MGTŠ).

Table 2: List of Regional Development Agencies in the Republic of Slovenia

	Development Region	Official Name	General Name
1.	Pomurska regija	Razvojni center Murska Sobota	Razvojni center Murska Sobota
2.	Koroška regija	Regionalna razvojna agencija za Koroško regijo d.o.o.	RRA Koroška
3.	Savinjska regija	Razvojna agencija savinjske regije d.o.o.	RRA Svinjska
4.	Zasavska regija	Regionalna razvojna agencija Zasavje	RRA Zasavje
5.	Posavska regija	Regionalna razvojna agencija Posavje	RRA Posavje
6.	Jugovzhodna Slovenija	Razvojni center Novo mesto, Svetovanje in razvoj, d.o.o.	Razvojni center Novo mesto
7.	Gorenjska regija	BSC, poslovno podporni center, d.o.o., Kranj	BSC Kranj
8.	Goriška regija	Posoški razvojni center	Posoški razvojni center
9.	Primorsko-notranjska regija	Regionalna razvojna agencija Zeleni kras, d.o.o.	RRA Zeleni kras
10.	Podravska regija	Regionalna razvojna agencija za Podravje - Maribor	RRA Podravje - Maribor
11.	Obalno-kraška regija	Regionalni razvojni center Koper	Regionalni razvojni center Koper
12.	Osrednjeslovenska regija	Regionalna razvojna agencija Ljubljanske urbane regije	RRA LUR

4.4.2 Project Podjetno nad izzive (PONI)

The program Podjetno nad izzive (translated as Entrepreneurially Overcoming Challenges), hereinafter referred to as PONI, is considered one of the most important current entrepreneurial programs or training initiatives providing comprehensive support for the development of business ideas and the establishment of new enterprises. The project is co-financed by the Republic of Slovenia and the European Union through the European Regional Development Fund (ERDF) and forms part of an integrated project implemented throughout Slovenia in cooperation with Regional Development Agencies, under the Regional Pillar for Entrepreneurship Promotion as one of the instruments of regional policy (Ministry of Cohesion and Regional Development, 2024).

The main objective of the project is the creation of new enterprises by individuals with entrepreneurial ideas in the early stages of development, supported through entrepreneurial training with internal and external mentors. To ensure a smoother and more comprehensive development of business ideas, the project provides structured support activities over a four-month period, during which participants are guaranteed employment and access to a supportive entrepreneurial environment with physical infrastructure based on the co-working principle (RRA LUR, 2025).

5 Cognitive Biases in Entrepreneurship with an Emphasis on the Dunning–Kruger Effect

It can be said that people interpret ambiguous events differently depending on the positive or negative information and everyday experiences that surround them. Perceptual tendencies are often linked to susceptibility to emotional distress, where an identical situation may be perceived as positive by one person and negative by another. This subjective experience contributes to emotional reactions or disturbances that can also be observed in the business world, significantly influencing managerial and entrepreneurial decision-making (Hertel and Mathews, 2011).

In both daily and business life, individuals constantly make decisions—either consciously or unconsciously. Often, they rely on simple, unverified rules of thumb known as mental shortcuts. This occurs due to time constraints, a lack of

information, or overload from excessive data. Entrepreneurs are particularly exposed to this, as they operate in a dynamic environment full of challenges and opportunities, where decisions are frequently made irrationally and contrary to logical reasoning. Such decisions can lead to suboptimal outcomes in areas such as finance, human resources, and time management (Coutinho, Thomas, Alsuwaidi, and Couchman, 2021).

In the entrepreneurial context, cognitive biases can be described as mental simplifications that help connect information, recognize opportunities, and cope with obstacles within entrepreneurial processes. It is important to understand, however, that while cognitive biases can play a positive role in the initial stages of business formation, it remains insufficiently researched whether this also holds true for the long-term survival of enterprises (Gudmundsson and Lechner, 2013).

5.1 The Dunning Kruger Effect

Charles Darwin wrote in The Descent of Man that ignorance more frequently begets confidence than does knowledge. This observation forms the basis of the issue under discussion. The Dunning Kruger effect is a type of cognitive bias in which individuals believe they are more intelligent and capable than they actually are. In essence, the combination of poor self-awareness and limited cognitive ability leads to the overestimation of one's own competence (Cherry, 2024).

This cognitive bias, where individuals who lack expertise in a given field overrate their abilities, is known as the Dunning Kruger effect (Christopher, Padmakumari, and Herbert, 2021). Coutinho et al. (2021) confirm that people frequently overestimate their skills, knowledge, and performance levels, which results in the application of suboptimal strategies that hinder learning and long-term success. Overestimation also prevents individuals from recognizing and addressing gaps in knowledge and skills, which are essential for self-improvement.

In the field of entrepreneurship, Gudmundsson and Lechner (2013) point out that entrepreneurs are often perceived as overly confident individuals. Excessive self-confidence, while sometimes associated with ambition and success, can also lead to failure, which carries a high cost for the entrepreneur.

5.2 The Interconnection Between Cognitive Biases and the Supportive Environment

As already mentioned, entrepreneurship can be understood as a process of creating something new, different, and valuable (Ruzzier et al., 2008). At its center stands the entrepreneur, who through behavior, intuition, vision, hard work, a strong desire for success, and capital pushes the boundaries of progress. Only the combination of these characteristics can generate added value for a novelty introduced to the market (Vidic et al., 2008).

Entrepreneurship thus serves as a driving force of national progress and development, influencing individuals through financial and personal satisfaction, job creation, and overall economic growth (Rebernik et al., 2021). These features of entrepreneurship have led to the search for mechanisms to enhance entrepreneurial activity, which in turn has resulted in the establishment of a supportive entrepreneurial ecosystem.

This supportive environment is legally regulated by ZPOP-1D (2017), whose key objectives include creating an effective support system at the local, regional, and national levels, raising awareness of the importance of entrepreneurship, and realizing the entrepreneurial potential of the country. The act itself is broad in scope, describing entrepreneurship from the perspective of the state, while the implementers adapt and refine it based on the needs identified in the market.

Support institutions, through their engagement with entrepreneurs, gain insight into weaknesses, risks, and opportunities that entrepreneurs face in different stages of development. The activities and methods of support they provide should therefore be aligned with these findings.

The likelihood of achieving the defined entrepreneurial value consists of two main components: overcoming ignorance and reducing doubt (Makar, 2020). Entrepreneurial education is one of the most key factors in developing skills, attitudes, and behavior. To make more confident decisions, entrepreneurs need to recognize opportunities around them and understand how cognitive strategies influence decision-making outcomes.

Makar (2020) emphasizes the importance of cognitive flexibility within the entrepreneurial process. It enables entrepreneurs to understand information and perspectives in several ways, solve problems, and adapt to changing priorities and requirements, which is essential in a constantly evolving environment.

It should be recognized that despite the risks entrepreneurs face at all stages of business development, potential entrepreneurs and non-entrepreneurs are the most vulnerable. Mental shortcuts that allow experienced entrepreneurs to make quick decisions can make the process more difficult for beginners rather than easier. Consequently, established entrepreneurs are generally less susceptible to bias than those in the early or developmental stages (Makar, 2020).

This highlights the importance of developing effective supportive environments that help entrepreneurs at the beginning of their journey. The focus should not only be on financial resources and networking but also on comprehensive entrepreneurial education that provides a solid foundation before business idea implementation.

Here the role of support institutions becomes particularly important, especially comprehensive entrepreneurial programs that equip potential entrepreneurs with all the necessary components for development. The key elements are knowledge acquisition and continuous mentorship, which help entrepreneurs assess their own abilities, gain a realistic understanding of their knowledge, and identify areas that require improvement, thereby reducing the risk of cognitive simplifications that can lead to poor decisions.

5.2.1 The Risks of Excessive Rationalization in Entrepreneurship

At this point, it can be confirmed that the entrepreneurial support environment represents one of the key mechanisms for promoting the development of entrepreneurship in Slovenia. The essential question that arises is the extent to which an entrepreneur should actually utilize the available support resources. On one hand, there is financial support, which is almost indispensable for entrepreneurs in an ever-changing and competitive global market since underutilization of financial resources can increase the risk of stagnation. On the other hand, entrepreneurs have access to various forms of mentoring, educational programs, and training that cover key areas of entrepreneurial activity. In this context, it is also important to highlight the active

role of entrepreneurs themselves, as their engagement in acquiring knowledge is essential for the successful operation of a business. Crnogaj and Rebernik (2013) emphasize that training is one of the fundamental conditions for effective business functioning.

However, when discussing the reduction of cognitive biases, the question increasingly arises as to whether excessive learning and the continuous pursuit of rational thinking might pose a potential threat to entrepreneurial development. Processes such as self-regulation and self-reflection are indeed key factors in helping entrepreneurs understand and adapt to conditions in the global market (Bastian and Zucchella, 2022). Yet, their excessive use can lead to decreased decisiveness and limited innovation. Bastian and Zucchella (2022) underline the importance of understanding the balance between reflection and action, as excessive analysis may hinder entrepreneurial progress.

Similarly, Xo, Zhao, and Hou (2023) point out that cognitive flexibility and a deeper understanding of information undoubtedly enhance adaptability to changing circumstances, but they also warn that over-analysis can negatively affect the speed and efficiency of decision-making, which are crucial for entrepreneurial success in dynamic environments. Marx and Turner (2022) add that regular analysis of one's thought processes is beneficial for better understanding of cognitive mechanisms, but excessive emphasis on such reflection can suppress spontaneity, innovation, and willingness to take risks, which are the fundamental characteristics of entrepreneurial activity.

In the rapidly changing world of entrepreneurship, balance, agility, and decisiveness remain invaluable attributes.

6 Research

6.1 Purpose of the Research

The purpose of the research is to examine the occurrence of the Dunning-Kruger effect among participants of the PONI project and to assess how the entrepreneurial support environment, with an emphasis on the RRA LUR, influences the reduction of cognitive bias. Cognitive bias particularly affects individuals at the beginning of

their entrepreneurial journey, therefore the focus of this research is on the PONI LUR project environment, as the project itself is based on the idea of establishing new companies through comprehensive entrepreneurial training.

The research was conducted from the perspective of stakeholders within the supporting institution RRA LUR, who are in daily contact with emerging entrepreneurs. The aim was to determine how support institutions can enhance their role in providing a realistic insight into individuals' knowledge and capabilities. The final goal is to develop guidelines for improving project implementation and to provide recommendations for more effective support for entrepreneurs in developing competencies, thereby reducing the presence of cognitive bias.

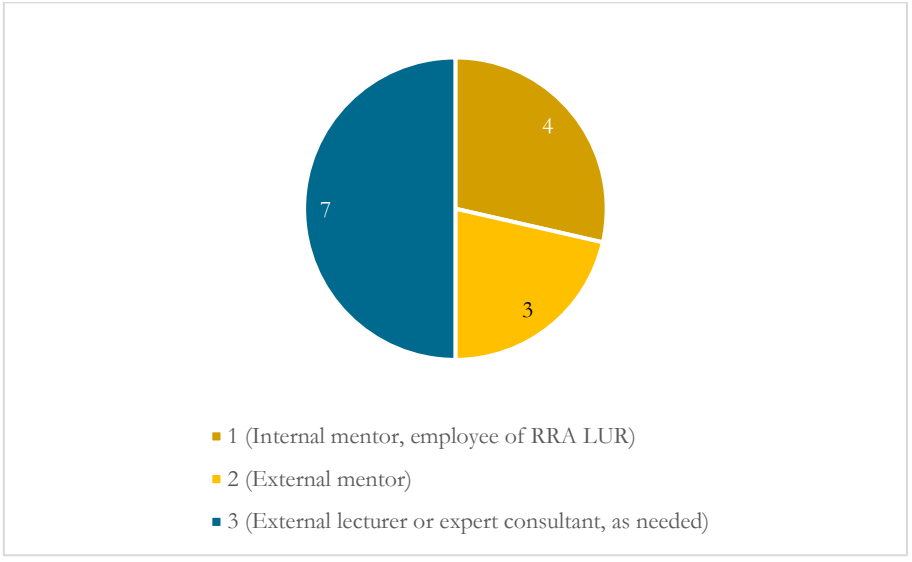
6.2 Research Procedure

Due to the highly interdisciplinary nature of the topic, the empirical part of the research employed a mixed-method approach, combining both quantitative and qualitative methods. In the first phase, data were collected using a structured questionnaire, which served as a foundation for further analysis. Based on the analyzed survey results, targeted questions were developed and later used in the second phase of data collection, carried out through a semi-structured interview with the internal mentor of PONI LUR at the Regional Development Agency of the Ljubljana Urban Region.

Using descriptive methods and comparative analysis, supported by inferential reasoning that allows generalization from the sample to the broader population, the research aimed to determine whether potential entrepreneurs participating in the PONI LUR project enter the entrepreneurial process with an appropriate assessment of their knowledge and competencies, or whether signs of the Dunning-Kruger effect appear in the early stages of business formation. Based on the collected responses, the study sought to identify areas of entrepreneurial activity where cognitive biases, particularly the Dunning-Kruger effect, are most evident. Furthermore, the research aimed to determine to what extent the support environment within the PONI project functions to mitigate these biases and their influence on entrepreneurial decision-making.

The central objective of the research is to establish whether the Dunning-Kruger effect is present among participants of the PONI LUR project, to what extent it is perceived by the project implementers, how they respond to it, and how competent they are in recognizing and managing cognitive biases. Based on the findings, concrete guidelines will be proposed for effectively addressing the Dunning-Kruger effect, both within the PONI LUR project and more broadly across the entrepreneurial support environment. Attention will also be given to the assumption of how to effectively manage this phenomenon without suppressing entrepreneurial mindset and initiative.

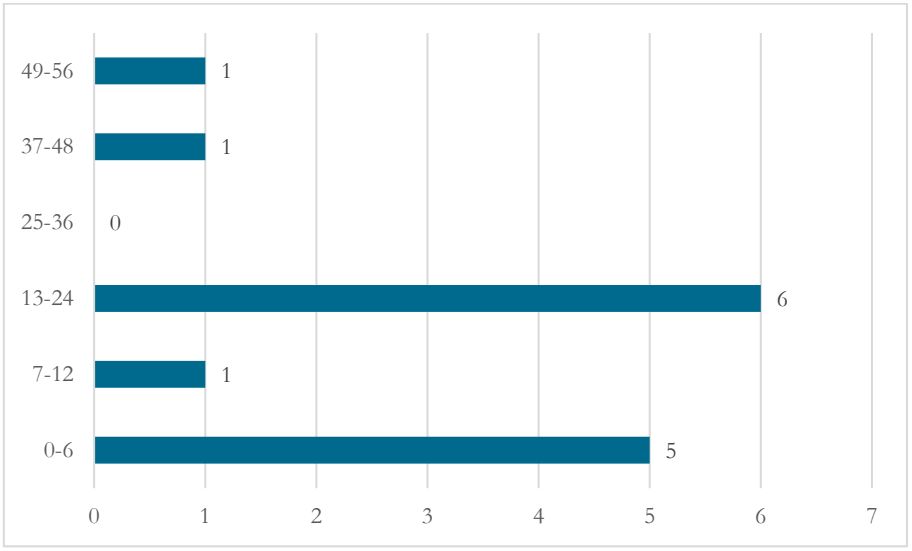
6.3 Results of the Quantitative Part of the Research



Graph 1: Role in the PONI LUR Project
Source: Author's own

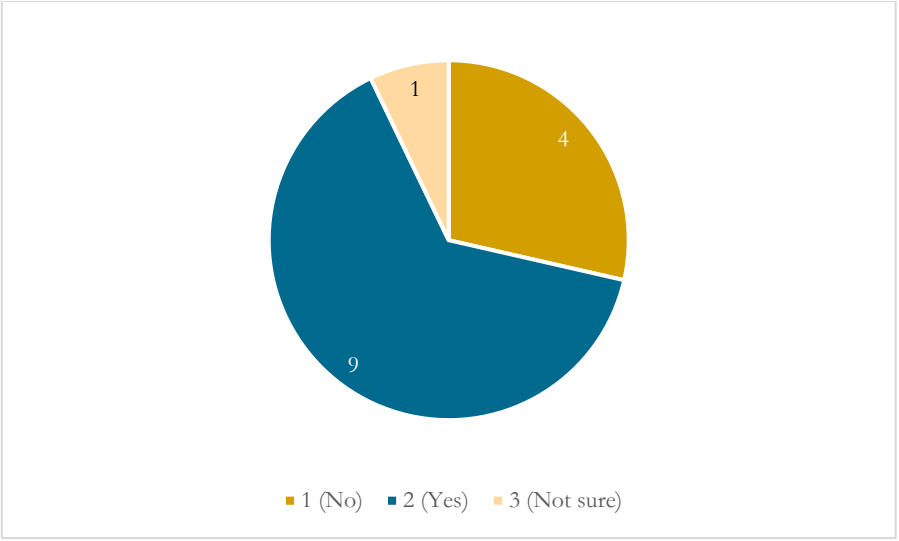
Graph 1 presents the roles of the implementers involved in the PONI LUR project. Three main groups of implementers are included in the analysis: internal mentors, external mentors who regularly collaborate with participants through lectures and mentoring sessions, and external lecturers or expert consultants who participate in the project on a contractual basis, depending on content-related needs.

The largest share of respondents, 7 (50%) of all participants, identified themselves as external lecturers or, when needed, expert consultants. This is followed by internal mentors with 4 responses (29%). The smallest group consists of external mentors, 3 (21%), which corresponds to the smaller number of such implementers engaged in the program.



Graph 2: Participation in the PONI LUR Project (in months)
Source: Author's own

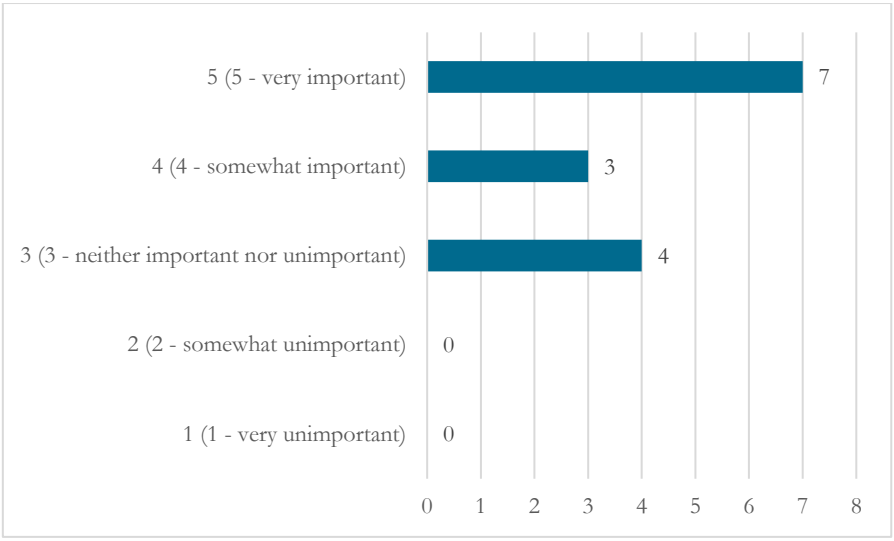
Graph 2 shows the duration of implementers' participation in the PONI LUR project. Participation was recorded in months and later divided into six time categories. Most implementers, 6 (43%), have been involved in the project between 13 and 24 months, corresponding to one to two years of active work with participants. This is followed by 5 implementers (36%) who have participated for up to 6 months. One implementer (7%) reported participation in each of the other time categories — up to one year, between 3–4 years, and more than 4 years. The results indicate that most participants are active in the project on a medium-term basis, with an average participation time of 16.7 months, or approximately a year and a half.



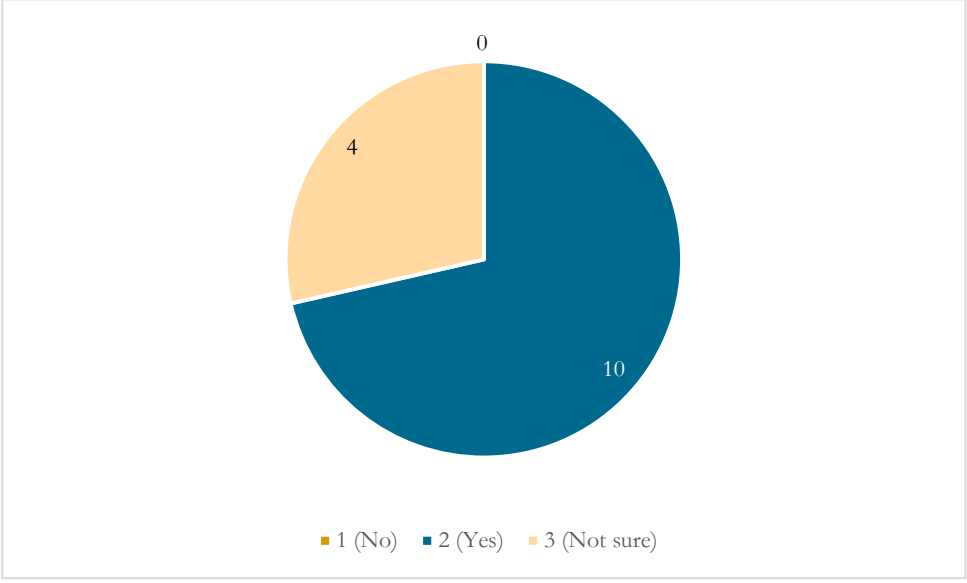
Graph 3: Awareness of the Dunning-Kruger Effect among Implementers
Source: Author's own

Graph 3 illustrates the level of awareness of the Dunning-Kruger effect among project implementers. The majority, 9 implementers (64%), stated that they had already heard of the Dunning-Kruger effect. Four implementers (29%) were not familiar with the concept, while one implementer (7%) was uncertain about their level of understanding. The results show that most participants possess at least a basic awareness of this phenomenon.

Graph 4 presents how important implementers consider understanding the Dunning-Kruger effect when supporting project participants. A total of 14 implementers responded. Most of them, 7 (50%), rated understanding as very important; 3 (21%) rated it as somewhat important; and 4 (29%) chose the mid-value, indicating that they consider it neither important nor unimportant. The mean score is 4.2, with a standard deviation of 0.9, which reflects a relatively high level of agreement among implementers regarding the importance of this understanding in the mentoring process.



Graph 4: Importance of Understanding the Effect When Supporting Participants
Source: Author's own



Graph 5: Opinions on the Impact of the Dunning-Kruger Effect on Participants' Decisions
Source: Author's own

Graph 5 shows the opinions of implementers on the influence of the Dunning-Kruger effect on participants' decision-making within the PONI LUR project. Out of 14 respondents, 10 (71%) believe that the effect influences participants' decisions, while 4 (29%) stated that they were uncertain. The standard deviation of 0.5 indicates a relatively high level of agreement among implementers regarding the effect's impact on participants' decision-making.

Table 3: Frequency of Observing Behavior Typical of the Dunning-Kruger Effect

How often do you agree with the following observations (1 - never, 5 - always)			
		How often do you observe that participants overestimate their abilities?	How often do participants show high confidence despite a lack of experience or knowledge?
n	Valid	5	5
	Missing	1	1
Mean		2,6	2,6
Median		3	2
Mode		0[a]	0
Std. Deviation		2,074	2,793
Minimum		0	0
Maximum		5	6
Sum		13	13
a. Multiple modes exist. The smallest value is shown			

Source: Author's own

Table 3 shows how frequently the mentors (13 respondents) observe behaviors characteristic of the Dunning–Kruger effect among participants. Regarding the first statement, which refers to the overestimation of one's own abilities, most mentors, 5 (38%), answered that this occurs often. This is followed by 4 responses (31%) indicating occasional occurrence of such behavior and 3 responses (23%) indicating it happens rarely. Only one mentor (8%) selected "always," while none indicated that it never occurs.

For the second statement, which concerns how often participants display high self-confidence despite lacking knowledge, 6 mentors (46%) responded that this happens often, 5 mentors (38%) occasionally, and 2 mentors (15%) rarely. Again, no one selected "never" or "always."

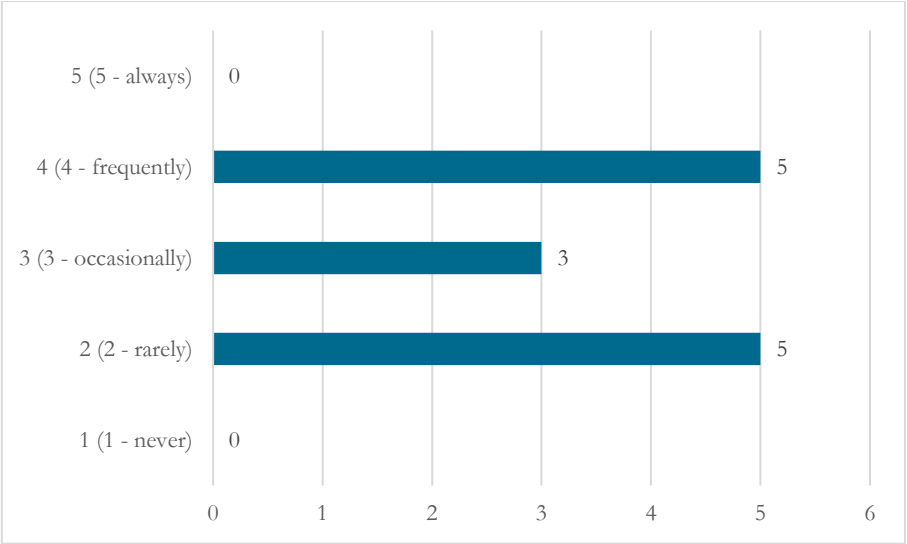
The results indicate that most mentors frequently observe displays of confidence not supported by actual knowledge and that overestimation is a relatively common behavior within the PONI LUR project.

Table 4: Perception of the Main Reasons for Overestimating Entrepreneurial Abilities

The main reason for overestimating entrepreneurial abilities is:						
		previously acquired personal experiences	feedback received from friends, family, and acquaintances	opinions of others who are not experts in the field	lack of knowledge or objective data possessed by participants	lack of self-awareness of one's own knowledge
n	Valid	5	5	5	5	5
	Missing	15	15	15	15	15
Mean		2,6	2,6	2,6	2,6	2,6
Median		2	2	3	2	0
Mode		0[a]	0[a]	3	0	0
Std. Deviation		2,702	2,702	2,302	3,286	4,775
Minimum		0	0	0	0	0
Maximum		7	7	6	8	11
Sum		13	13	13	13	13
a. Multiple modes exist. The smallest value is shown						

Source: Author

Table 4 shows which factors the mentors identify as the main reasons for overestimating entrepreneurial abilities among participants. The mentors least agree with the statement that previously acquired personal experiences are the main reason for overestimating one's own abilities. This statement has the lowest average score of 3.4. Slightly higher scores were given to feedback received from participants' close contacts, with an average of 3.9. This is followed by the statement linking overestimation to opinions of others who are not experts in the field (average 3.8). The mentors agree that the two most important reasons for overestimating abilities are the lack of knowledge or other objective data, with an average value of 4.5, and the lack of self-awareness of one's own knowledge, which has an average score of 4.8 and a standard deviation of 0.38, indicating a high level of agreement among mentors.

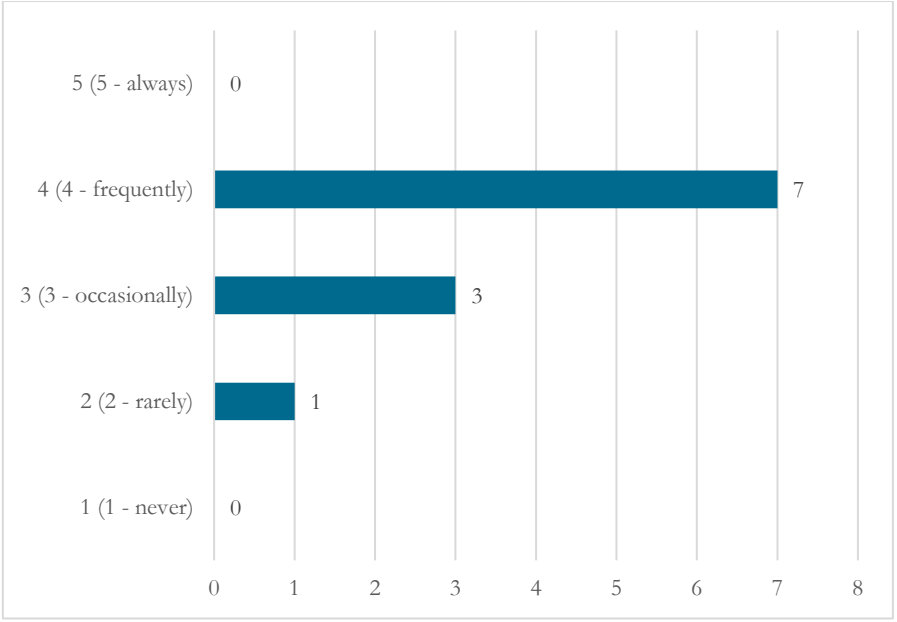


Graph 6: Frequency of Rejecting Feedback Among Participants
Source: Author

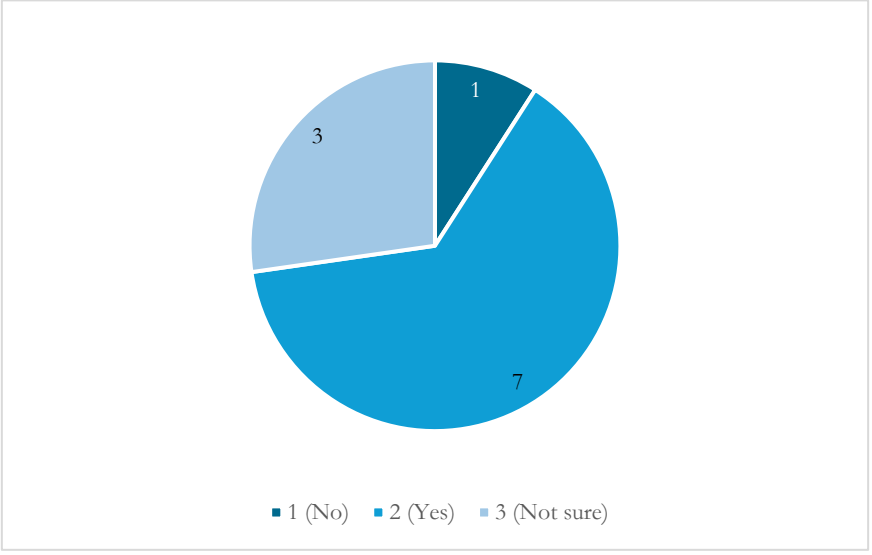
Graph 6 illustrates how often participants reject feedback that contradicts their beliefs. The total number of responses is 13. Most respondents, 5 (36%), assessed that this behavior occurs frequently, while the same number, 5 (36%), believe it occurs rarely. Three mentors (21%) evaluated participants' rejection of feedback as occasional.

The average score is 3.0, with a standard deviation of 0.9, indicating a moderate dispersion of opinions. The results suggest that rejecting feedback is a fairly common behavior, though not an overwhelmingly dominant one.

Graph 7 shows how often mentors believe that the Dunning–Kruger effect influences the quality of participants' business decisions. Eleven mentors responded to this question. Most mentors, 7 (64%), believe the effect often influences decision quality, while 3 mentors (27%) think it occurs occasionally. One mentor (9%) believes it happens rarely. The average score is 3.5, indicating a general agreement that the effect impacts the quality of participants' business decision-making.

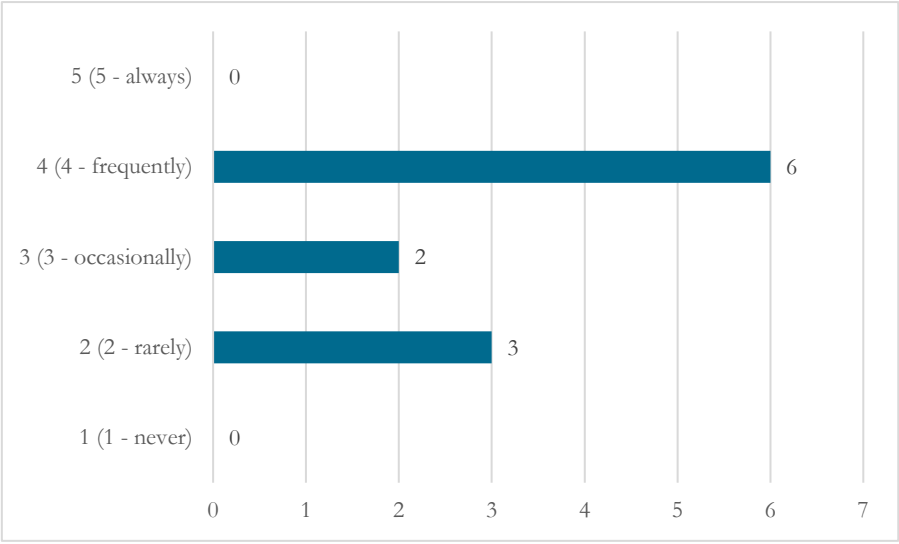


Graph 7: Assessment of the Dunning- Kruger Effect's Impact on the Quality of Business Decisions (Source: Author)



Graph 8: Opinions on the Dunning–Kruger Effect's Influence on Risky Decision-Making
Source: Author

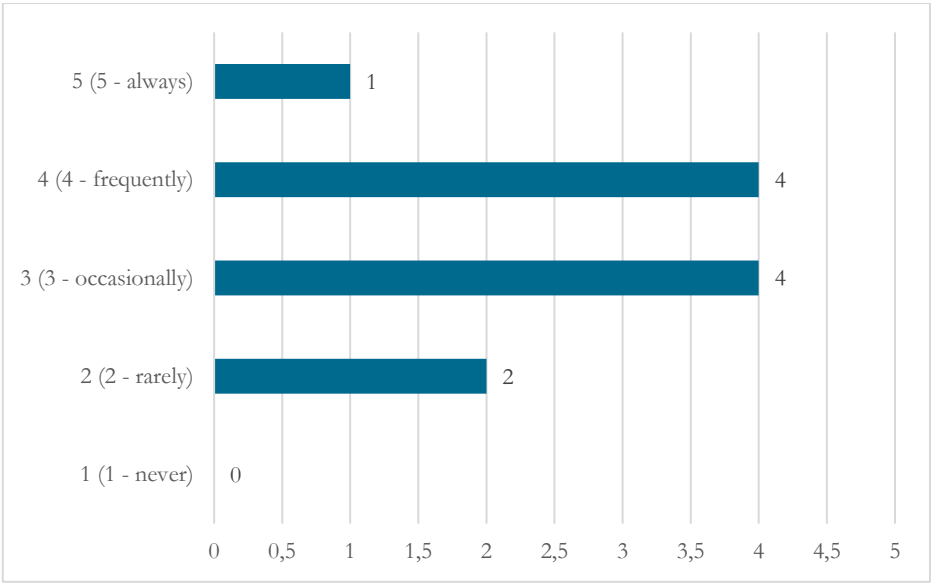
Graph 8 presents mentors' opinions on whether the Dunning–Kruger effect leads participants to make risky decisions. Seven mentors (64%) believe the effect influences risky decision-making, 3 mentors (27%) are unsure, and 1 mentor (9%) sees no connection between the effect and risky decisions.



Graph 9: Assessment of the Dunning–Kruger Effect's Influence on Excessively Risky Decisions
Source: Author

Graph 9 shows how often mentors believe that the Dunning–Kruger effect leads participants to make excessively risky decisions. A total of 11 mentors responded. Six mentors (55%) believe this happens often, three (27%) believe it happens rarely, and two mentors (18%) believe it occurs only occasionally.

Graph 10 illustrates how often participants, according to mentors, underestimate the complexity of their entrepreneurial tasks. Most mentors, 4 (36%), believe this occurs occasionally or frequently, followed by 2 mentors (18%) who think it happens rarely, and 1 mentor (9%) who states it always occurs. The average score of 3.4 indicates a frequent perception of participants' tendency to underestimate the complexity of their entrepreneurial tasks.



Graph 10: Frequency of Underestimating the Complexity of Entrepreneurial Tasks
Source: Author

Table 5: Methods of Identifying the Dunning–Kruger Effect Among Participants

The Dunning–Kruger effect among participants is identified:					
		participants are identified: by asking questions that challenge their beliefs	through the analysis of their business decisions	during individual consultations	during the implementation of practical entrepreneurial exercises
n	Valid	5	5	5	5
	Missing	10	10	10	10
Mean		2,2	2,2	2,2	2,2
Median		2	2	1	1
Mode		0[a]	0[a]	1	0
Std. Deviation		1,924	2,864	2,775	2,683
Minimum		0	0	0	0
Maximum		5	7	7	6
Sum		11	11	11	11
a. Multiple modes exist. The smallest value is shown					

Source: Author

Table 5 shows the extent to which mentors agree with the statements on how they identify the Dunning–Kruger effect among participants. Eleven mentors responded to the questions. The highest average score of 4.5 was recorded for the statement

that the effect is most easily recognized during practical entrepreneurial exercises, where 55% of mentors completely agreed and an additional 36% partially agreed. This is followed by recognition during individual consultations, with an average of 4.3, and by asking questions that challenge participants' beliefs, with an average of 4.1. The lowest, yet still high, rating was recorded for the analysis of business decisions, with an average score of 3.8.

Table 6: Participants' Responses When Confronted with Their Own Limitations

How often do participants:			
		accept help when shown that they overestimate their abilities?	ask for feedback or opinions on their decisions?
n	Valid	5	5
	Missing	0	0
Mean		2,2	2,2
Median		2	2
Mode		1[a]	1[a]
Std. Deviation		1,643	1,643
Minimum		1	1
Maximum		5	5
Sum		11	11
a. Multiple modes exist. The smallest value is shown			

Source: Author

Table 6 shows how often participants, according to mentors, accept help or seek feedback when confronted with their own limitations. Eleven mentors responded to both statements, with the average value for each being 3.3. Regarding the statement on how often participants accept help when it becomes apparent that they overestimate their abilities, 5 mentors (45%) answered "occasionally," followed by 18% who selected "often" and 18% "always." The same pattern appears in the question of whether participants ask for feedback, where most responses indicate a moderate frequency of participants confronting their limitations.

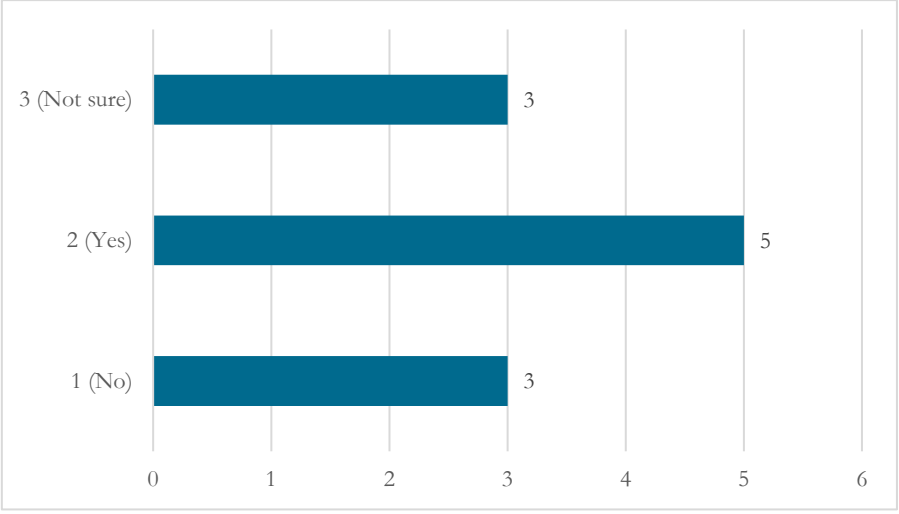
Table 7 shows the extent to which mentors apply various strategies to reduce the Dunning–Kruger effect among participants. Eleven mentors responded to the questions. The highest average score (4.5) was recorded for the statement encouraging objective self-assessment of one's abilities. This is followed by two strategies, active seeking of feedback by participants and emphasizing the importance of long-term learning, both with an average score of 4.3. The lowest,

though still relatively high, average score (3.8) was recorded for constant guidance in decision-making. The results therefore indicate that the most common strategies include encouraging self-reflection and continuous learning, while direct guidance in decision-making is less prevalent.

Table 7: Strategies for Reducing the Dunning–Kruger Effect Among Participants

To reduce the Dunning–Kruger effect among participants, we use the strategy of:					
		active seeking of feedback by participants	encouraging objective self-assessment of one's abilities	emphasizing the importance of long-term learning	constant guidance toward decision-making
n	Valid	5	5	5	5
	Missing	0	0	0	0
Mean		2,2	2,2	2,2	2,2
Median		1	1	1	2
Mode		0	0	0[a]	0
Std. Deviation		2,683	2,95	2,588	2,28
Minimum		0	0	0	0
Maximum		6	7	5	5
Sum		11	11	11	11
a. Multiple modes exist. The smallest value is shown					

(Source: Author)



Graph 11: Inclusion of Topics Such as the Dunning–Kruger Effect in Educational Content
Source: Author

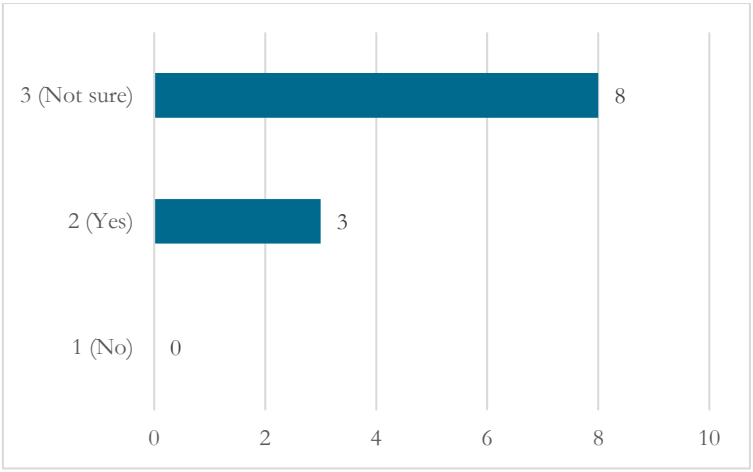
Graph 11 illustrates whether mentors include the topic of the Dunning–Kruger effect in the educational content for PONI LUR participants. Eleven mentors responded to the question. Five mentors (45%) believe they include the topic in the educational materials, three mentors (27%) disagree, and the remaining three mentors (27%) are unsure. The average score is 2.0, with a standard deviation of 0.8, indicating a low level of systematic inclusion of the topic. The results show that although awareness of the effect exists, it is not consistently reflected in the structure of the educational content.

Table 8: Main Challenges When Working with Participants Influenced by the Dunning–Kruger Effect

The most significant challenge when working with participants influenced by the Dunning–Kruger effect is:					
		their resistance to feedback	their excessive self-confidence	their lack of willingness to change	recognition of reality
n	Valid	5	5	5	5
	Missing	0	0	0	0
Mean		2,2	2,2	2,2	2,2
Median		1	2	1	3
Mode		0[a]	0[a]	0[a]	0[a]
Std. Deviation		2,588	2,864	2,588	2,168
Minimum		0	0	0	0
Maximum		5	7	5	5
Sum		11	11	11	11
a. Multiple modes exist. The smallest value is shown					

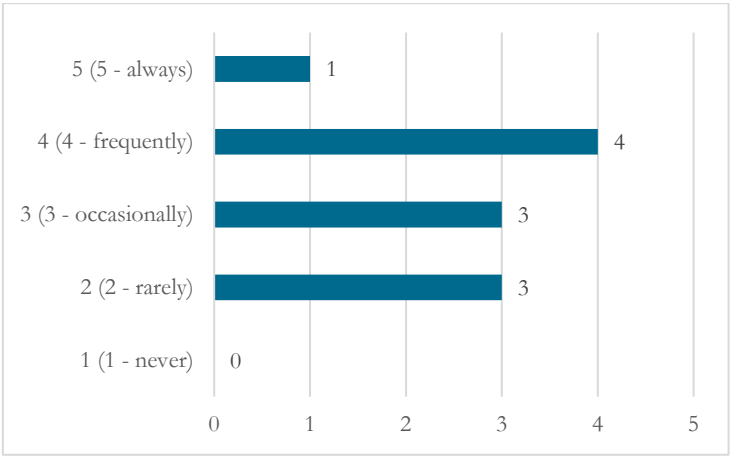
Source: Author

Table 8 shows which challenges mentors identify when working with participants who display the presence of the Dunning–Kruger effect. Eleven mentors responded to the statements. The highest average score was recorded for the statement concerning excessive self-confidence, with 7 mentors (64%) expressing complete agreement. This is followed by resistance to feedback, with an average of 4.4, while the lowest-rated challenge was recognition of reality, with an average score of 4.0. The results indicate that mentors most frequently recognize high self-confidence, resistance to feedback, and low willingness to change as the main challenges when working with participants affected by the Dunning–Kruger effect.



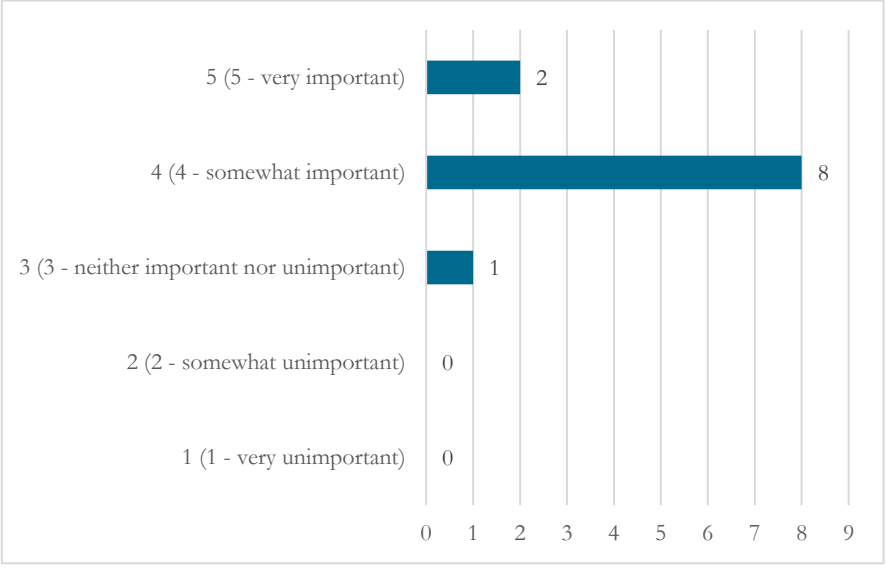
Graph 12: Opinions on the Negative Impact of the Dunning–Kruger Effect on Long-Term Business Results
Source: Author

Graph 12 presents mentors' opinions on whether participants who overestimate their abilities due to the Dunning–Kruger effect achieve poorer long-term business results. Eleven mentors responded to the question. Eight mentors (73%) were unsure about the negative impact, while three mentors (27%) believed that overestimation leads to worse long-term outcomes. None of the respondents stated that the effect has no impact.



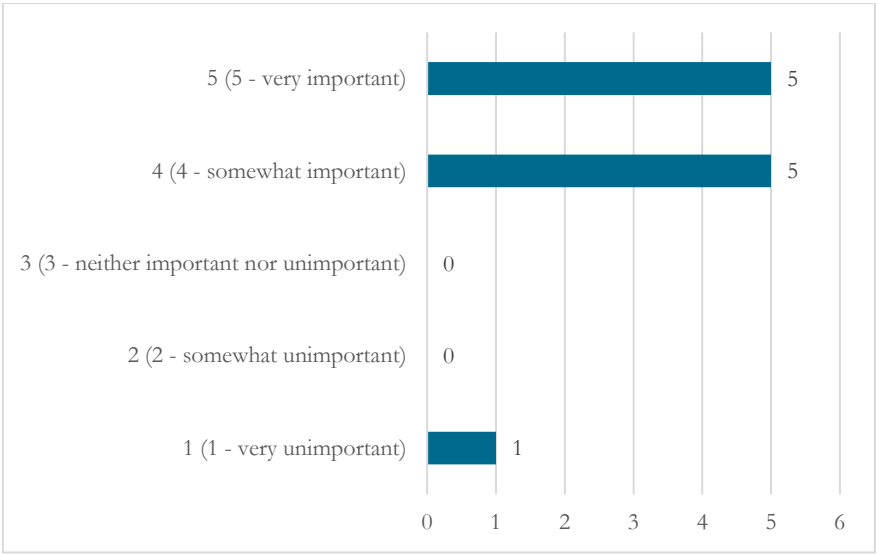
Graph 13: Frequency of Underestimating One's Own Strengths
Source: Author

Graph 13 illustrates how often mentors observe participants underestimating their own strengths that could help them achieve success. Eleven mentors responded to the question. Four mentors (36%) stated that this happens often, while three mentors (27%) believe it occurs occasionally and another three (27%) rarely. Only one mentor (9%) indicated that it happens always. The average score is 3.3, with a standard deviation of 1.0, indicating moderate agreement. The results show that mentors often notice participants underestimating their positive qualities, which may affect their entrepreneurial self-confidence.



Graph 14: The Role of Awareness of the Dunning-Kruger Effect in Long-Term Success
Source: Author

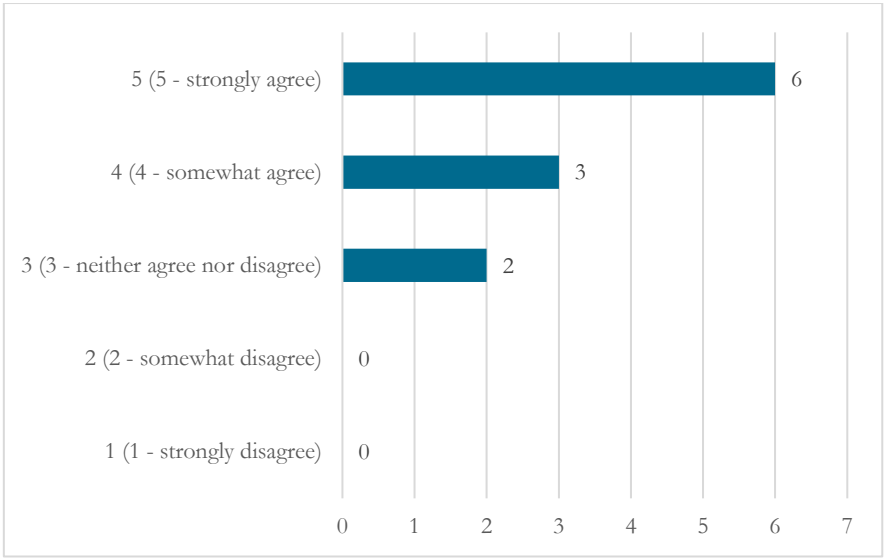
Graph 14 shows the extent to which mentors agree that understanding the Dunning-Kruger effect is crucial for the long-term success of entrepreneurs. Eleven mentors responded to the question. The majority, 8 mentors (73%), partially agree with the statement, 2 mentors (18%) fully agree, and 1 mentor (9%) selected the neutral option, indicating neither agreement nor disagreement. None of the respondents partially or completely disagreed. The average rating is 4.1, with a standard deviation of 0.5, indicating a high level of consensus among mentors regarding the importance of understanding the effect for entrepreneurial success.



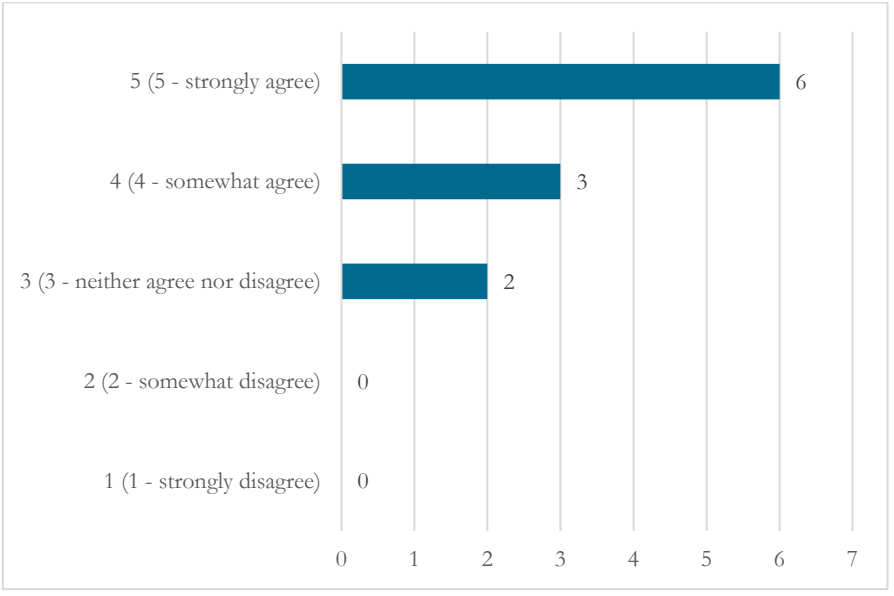
Graph 15: Assessment of the Need to Include the Dunning-Kruger Topic in the PONI LUR Project
Source: Author

Graph 15 illustrates how mentors assess the need for greater inclusion of topics such as the Dunning-Kruger effect in the PONI LUR project. A total of 11 mentors responded. Five mentors (45%) rated the topic as important, and another five mentors (45%) as partially important, while one mentor (9%) considered the topic not important. The average score is 4.2, with a standard deviation of 1.2, which, despite minor dispersion, indicates a prevailing belief that the inclusion of content on cognitive biases is meaningful and necessary within the program.

Graph 16 shows the extent to which mentors agree with the statement that a higher level of awareness of the Dunning-Kruger effect among mentors and advisors would positively influence its management among participants in the PONI LUR project. A total of 11 mentors responded. Six mentors (55%) completely agreed with the statement, three (27%) partially agreed, and two (18%) selected a neutral rating, indicating they neither agreed nor disagreed. None of the respondents disagreed. The average score is 4.4, with a standard deviation of 0.8, indicating a prevailing belief that greater mentor awareness could significantly contribute to reducing the effect's impact among participants.

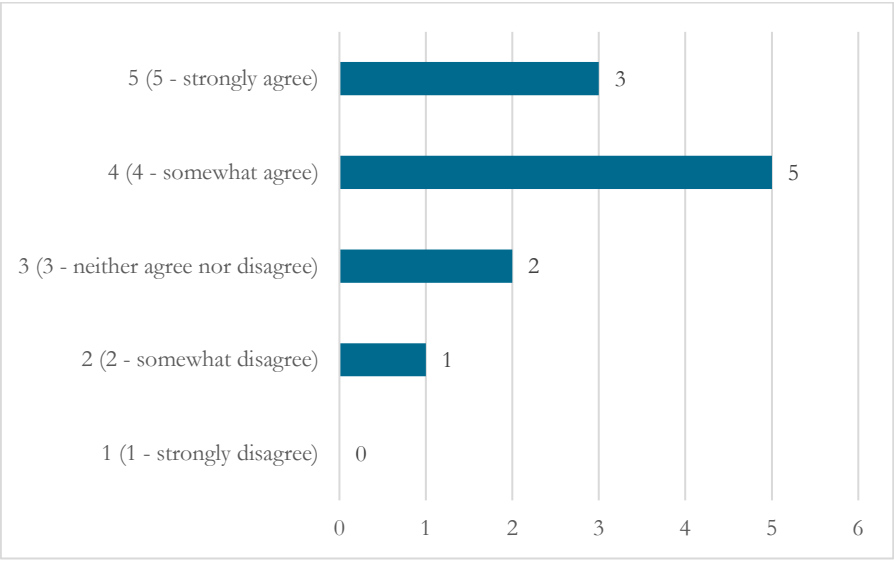


Graph 16: Opinion on the Impact of Mentors' Awareness on Managing the Dunning-Kruger Effect
Source: Author



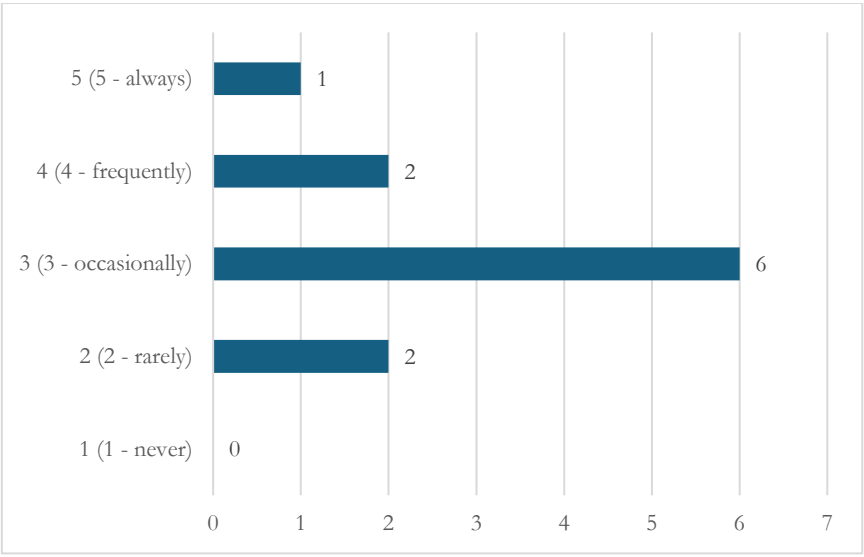
Graph 17: The Role of Professional Competence in Managing Cognitive Effects among Participants
Source: Author

Graph 17 shows the extent to which mentors agree with the statement that improved professional competence of mentors and advisors in the field of cognitive biases would positively influence the management of the Dunning-Kruger effect within the PONI LUR project. A total of 11 mentors responded. Six mentors (55%) completely agreed with the statement, three (27%) partially agreed, and two (18%) selected a neutral rating of 3. No respondents disagreed. The average score is 4.4, indicating a strong consensus among mentors that additional professional training would significantly contribute to more effective work with participants.



Graph 18: Opinion on the Impact of Analytical Tools on Managing the Dunning-Kruger Effect
Source: Author

Graph 18 illustrates the extent to which mentors agree with the statement that integrating analytical tools to support objective decision-making would contribute to managing the Dunning-Kruger effect. A total of 11 mentors responded. Five mentors (45%) rated the statement with a score of 4, three (27%) with a score of 5, two (18%) with a neutral score of 3, and one mentor (9%) rated it 2. No one selected the lowest rating (1). The average score is 3.9, with a standard deviation of 0.9, indicating that the use of analytical tools is generally perceived as a valuable approach that could enhance participants' decision-making and reduce the influence of cognitive biases.



Graph 19: Opinion on the Potential Positive Effects of Overestimating One's Knowledge
Source: Author

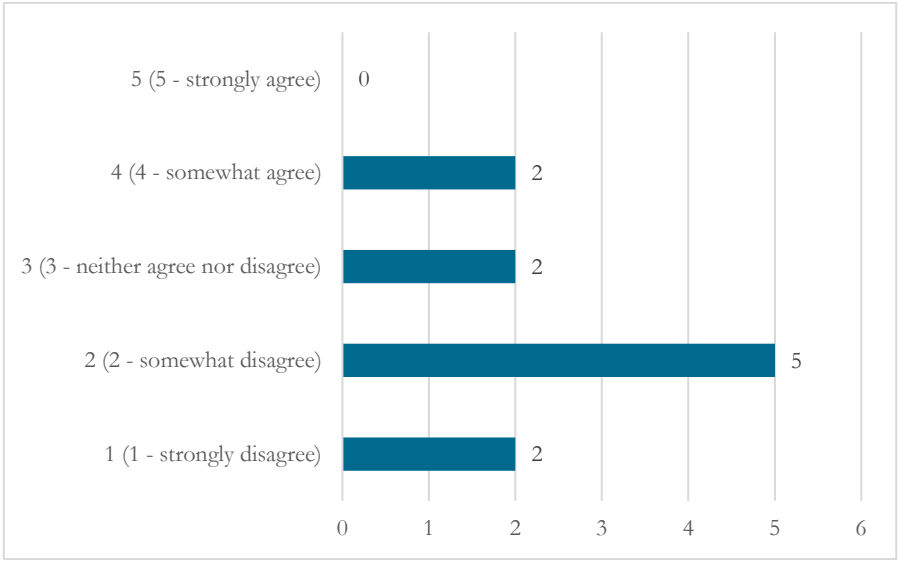
Graph 19 presents the mentors' opinions on whether overestimating one's own knowledge can sometimes lead to positive outcomes among participants. A total of 11 mentors responded. Six mentors (55%) believe this can occur occasionally, while two (18%) think it happens rarely and another two (18%) often. Only one mentor (9%) stated that positive outcomes always occur as a result of overestimation. The average score is 3.2, with a standard deviation of 0.9, suggesting that mentors recognize the possibility of positive effects from overconfidence, though not as a general or dominant pattern.

Table 9 shows how the mentors perceive the potential positive consequences of the Dunning-Kruger effect among participants. They most strongly agree with the statement that the effect encourages a quick start of entrepreneurial projects without excessive doubt, reflected in the high average score of 4.3, followed by increased self-confidence that fosters innovation with an average of 4.1. Slightly lower, with an average of 3.9, is the perceived impact on courage to take risks, while the lowest rated, with an average of 2.9, is the willingness to explore new areas, where opinions were the most dispersed.

Table 9: Positive Consequences of the Dunning-Kruger Effect among Participants

Positive benefit arising from the Dunning-Kruger effect among participants					
		increased self-confidence that encourages entrepreneurial innovation	a quick start of an entrepreneurial project without excessive doubt	a high level of courage to take risks and seize new opportunities	increased willingness to explore new areas
n	Valid	5	5	5	5
	Missing	0	0	0	0
Mean		2,2	2,2	2,2	2,2
Median		1	1	2	2
Mode		0	0[a]	4	1
Std. Deviation		3,347	2,588	1,789	1,304
Minimum		0	0	0	1
Maximum		8	5	4	4
Sum		11	11	11	11
a. Multiple modes exist. The smallest value is shown					

Source: Author



Graph 20: The correlation between participants' overestimation of abilities and their persistence

Source: Author

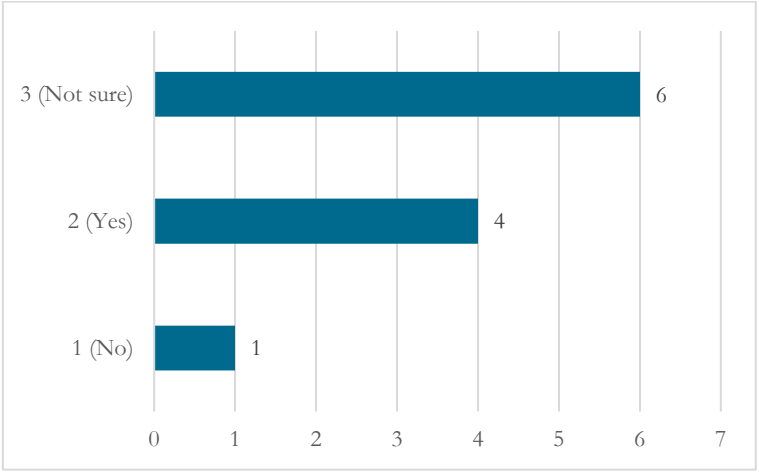
Graph 20 illustrates the extent to which mentors agree with the statement that participants who overestimate their abilities demonstrate greater persistence in overcoming obstacles. Five mentors (45%) somewhat disagree with the statement,

two (18%) completely disagree, and an equal number selected the neutral option, indicating they neither agree nor disagree. None of the respondents agreed with the statement. With an average score of 2.4 and a standard deviation of 1.0, the results indicate that mentors generally do not believe that overestimation contributes to participants' persistence.

Table 10: Positive effects of self-confidence in the entrepreneurial context

Overestimation of one's knowledge has a positive impact on the participant when:			
		they do not have an excessive fear of failure	they do not underestimate their own abilities, allowing them to act with greater entrepreneurial ambition
n	Valid	5	5
	Missing	0	0
Mean		2	2,2
Median		3	3
Mode		3	0[a]
Std. Deviation		1,414	2,168
Minimum		0	0
Maximum		3	5
Sum		10	11
a. Multiple modes exist. The smallest value is shown			

Source: Author



Graph 21: Opinion on the influence of the Dunning–Kruger effect on creativity at the beginning of the entrepreneurial journey
Source: Author

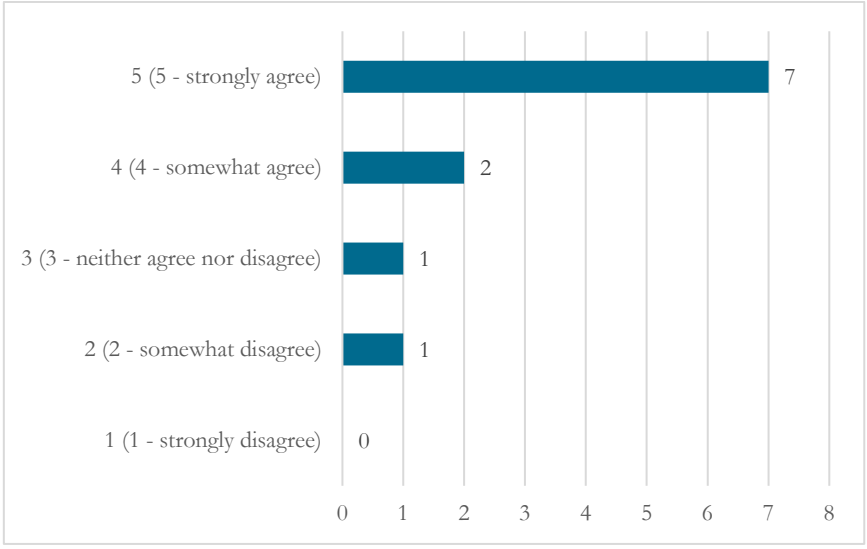
Table 10 illustrates the extent to which mentors agree that overestimating one's own knowledge can have a positive impact on participants. For the statement "they do not have an excessive fear of failure," the average score is 3.6, with most responses ranging between 3 and 5, indicating that most respondents at least partially agree. For the statement "they do not underestimate their own abilities, allowing them to act with greater entrepreneurial ambition," the average score is 4.0, suggesting stronger agreement. Overall, the results show that mentors moderately to strongly agree that overestimation, in certain circumstances, can contribute to greater entrepreneurial self-confidence and ambition.

Graph 21 shows whether the mentors believe that the Dunning–Kruger effect among participants at the start of their entrepreneurial process can stimulate creativity. Out of 11 respondents, 6 mentors (55%) expressed uncertainty, 4 mentors (36%) believe that the effect encourages creativity, and 1 mentor (9%) disagrees with this statement. The results indicate that opinions are divided, but a notable portion of mentors recognize that a moderate level of overconfidence associated with the Dunning–Kruger effect may initially stimulate creative thinking and experimentation in early-stage entrepreneurs.

Table 11: Perception of the influence of the Dunning–Kruger effect in the entrepreneurial world

The Dunning–Kruger effect:					
		has a more negative connotation in the entrepreneurial world	positively influences participants by encouraging decisiveness and quick action	positively influences participants by increasing the likelihood of taking risks	positively influences participants by strengthening confidence in their own abilities, thereby fostering innovation
n	Valid	5	5	5	5
	Missing	0	0	0	0
Mean		2,2	2,2	2,2	2,2
Median		1	0	2	1
Mode		0	0	1	1
Std. Deviation		2,683	3,033	1,304	2,775
Minimum		0	0	1	0
Maximum		6	6	4	7
Sum		11	11	11	11

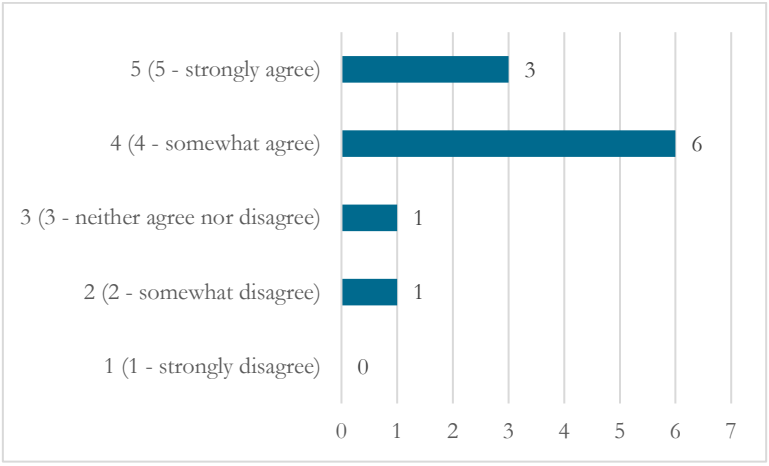
Table 11 shows how the facilitators perceive the impact of the Dunning–Kruger effect in the entrepreneurial world. All 11 respondents evaluated four statements. The highest average score of 3.5 was recorded for the statement that the effect encourages decisiveness and the ability to act quickly, with 5 respondents (45%) agreeing. This is followed by the statement on confidence in one's abilities and the promotion of innovation, with an average score of 3.4. The statement that the effect has a more negative connotation in entrepreneurship also shows an average score of 3.5, indicating a mixed perception. The lowest average score, 2.9, was given to the statement that the effect increases the likelihood of taking risks, where opinions were the most diverse. The results indicate that the facilitators recognize both positive and negative aspects of the effect, with positive influences such as decisiveness and self-confidence standing out somewhat more prominently.



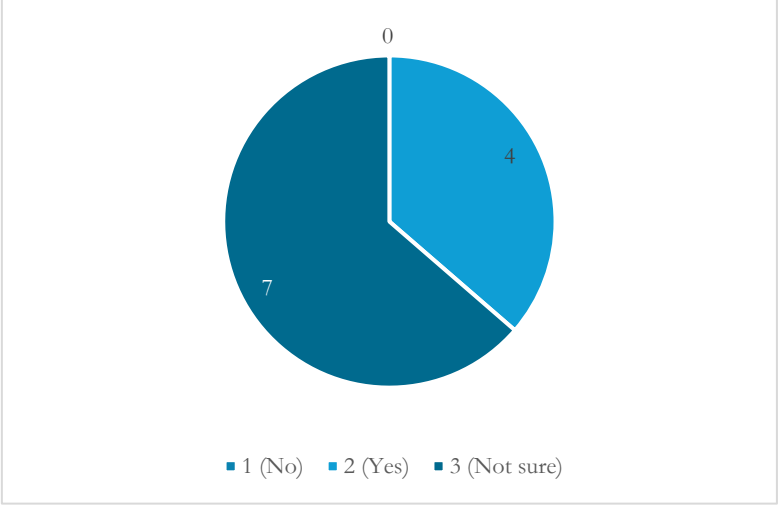
Graph 22: Importance of Regularly Addressing the Dunning–Kruger Effect
Source: Author

Graph 22 illustrates the extent to which facilitators agree that it is important to regularly emphasize the management of the Dunning Kruger effect when working with participants, in order to promote realistic self-assessment. A total of 11 facilitators responded. Seven (64%) fully agreed with the statement, two (18%) partly agreed, and two (18%) selected lower ratings, indicating partial disagreement. The average score was 4.4, which, regardless of the standard deviation, indicates strong

overall agreement among facilitators that regularly addressing this effect is essential for developing a realistic self-image among participants.



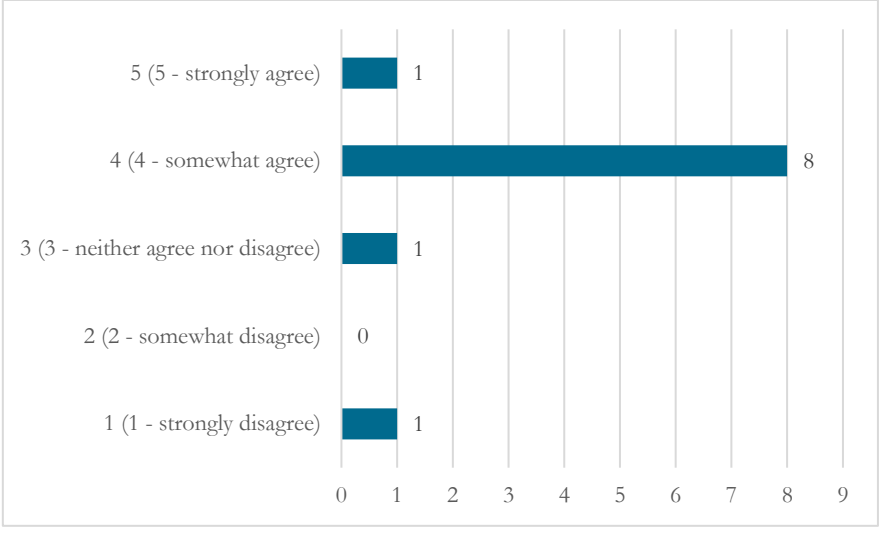
Graph 23: Agreement Scale Regarding the Positive Impact of Excessive Self-Confidence Despite Risk
Source: Author



Graph 24: Opinion on the Impact of Early Awareness of the Dunning-Kruger Effect on Participant Success
Source: Author

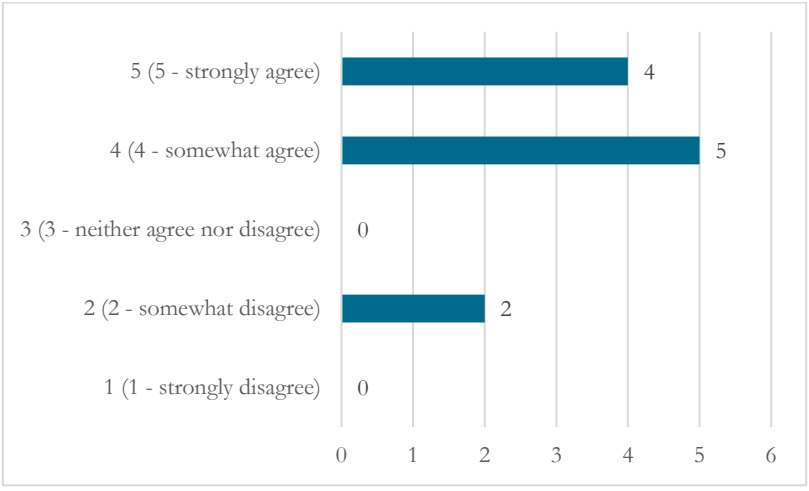
Graph 23 illustrates the extent to which facilitators agree with the statement that excessive self-confidence can lead participants to discover new and interesting opportunities despite higher risks. A total of 11 facilitators responded. Six facilitators (55%) partly agreed with the statement, three (27%) fully agreed, and two (18%) selected lower ratings (scores 2 and 3). The average score was 4.0, with a standard deviation of 0.9, indicating a generally favorable attitude among facilitators that self-confidence, even when accompanied by higher risk, can stimulate entrepreneurial activity.

Graph 24 presents the facilitators' opinions on whether participants would have a higher chance of success if they were informed about the Dunning-Kruger effect early on and knew how to manage its influence. A total of 11 facilitators responded. Four facilitators (36%) believe that such awareness would contribute to greater success, while seven (64%) stated that they are uncertain. None explicitly disagreed with the statement. The average score and standard deviation indicate caution and reservation among facilitators when assessing the direct impact of early awareness on entrepreneurial success.



Graph 25: Agreement on the Importance of Training Participants to Recognize Cognitive Biases
Source: Author

Graph 25 illustrates the extent to which facilitators agree that participants in the program should be trained to recognize and manage cognitive biases, including the Dunning-Kruger effect, with the aim of improving their entrepreneurial abilities. Eleven facilitators responded to the question. Eight facilitators (73%) partially agreed with the statement, one (9%) completely agreed, while two (18%) gave lower ratings, where one neither agreed nor disagreed, and the other disagreed. The average score is 3.7, indicating a considerable consensus that such training is important, although not entirely embraced.

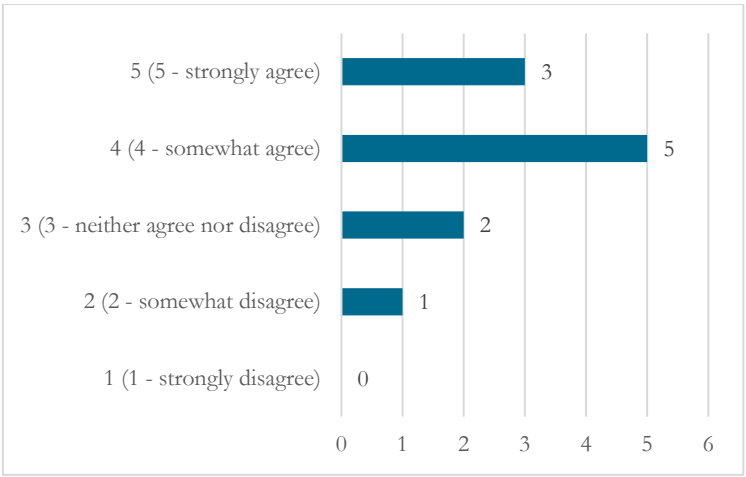


Graph 26: Agreement with the Statement on the Relationship Between Emphasizing Limitations and Participant Innovativeness
Source: Author

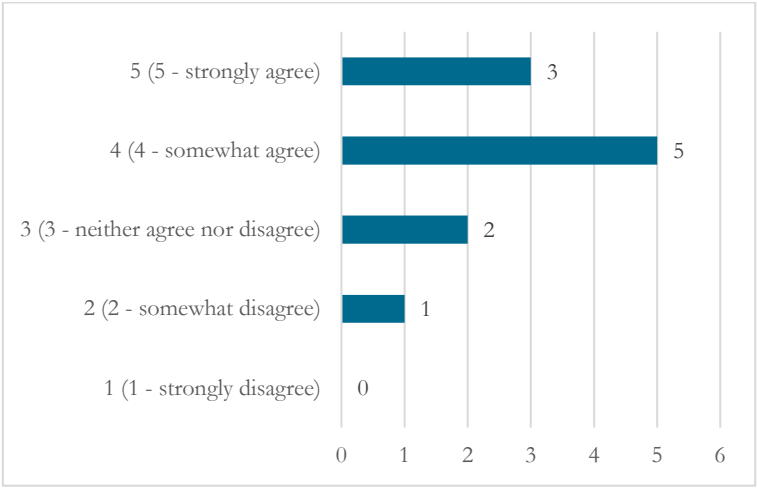
Graph 26 shows the extent to which facilitators agree with the statement that excessive focus on participants' limitations can reduce their potential to generate innovative ideas. Eleven facilitators responded to the question. Five (36%) partially agreed with the statement, four (29%) fully agreed, while two (18%) expressed lower levels of agreement. None explicitly disagreed. The average score is 4.0, with a standard deviation of 1.1, indicating partial support for the view that overemphasizing limitations can hinder participants' creative potential.

Graph 27 shows the extent to which facilitators agree with the statement that excessive analysis of one's own abilities can prevent participants from making bold decisions. Eleven facilitators responded to the question. Three (27%) completely

agreed, four (36%) partially agreed, two (18%) neither agreed nor disagreed, and one (9%) partially disagreed. The average score is 3.9, with a standard deviation of 0.9. The results indicate partial agreement that excessive self-reflection can hinder participants' decisiveness.

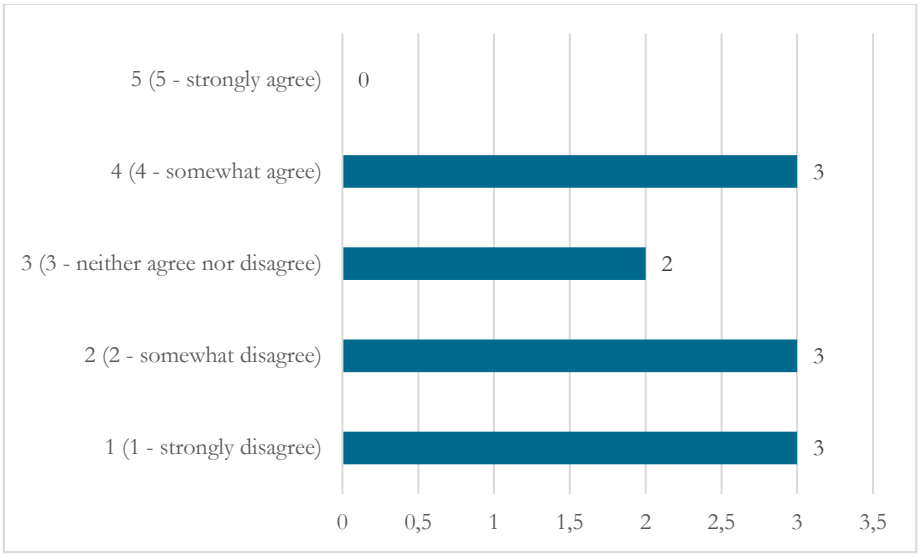


Graph 27: Agreement with the Statement on the Inhibiting Effect of Excessive Self-Analysis on Bold Decision-Making
Source: Author



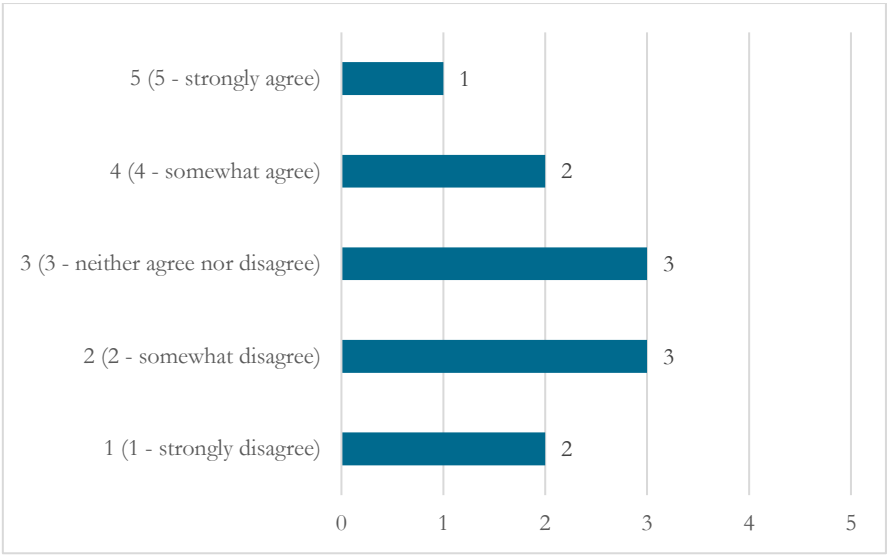
Graph 28: Agreement with the Statement on the Inhibiting Effect of Focusing on Weaknesses on Innovation
Source: Author

Graph 28 shows the extent to which facilitators agree with the statement that focusing on weaknesses can hinder creativity and innovation. Eleven facilitators responded to the question. Five (45%) partially agreed, three (27%) completely agreed, two (18%) chose a neutral response, and one (9%) partially disagreed. The average score is 3.9, with a standard deviation of 0.9. The results indicate that most facilitators agree that a negative focus on weaknesses can limit participants' innovative thinking.



Graph 29: Agreement with the Statement on the Impact of Mentoring Guidance on Reducing Participants' Independence
Source: Author

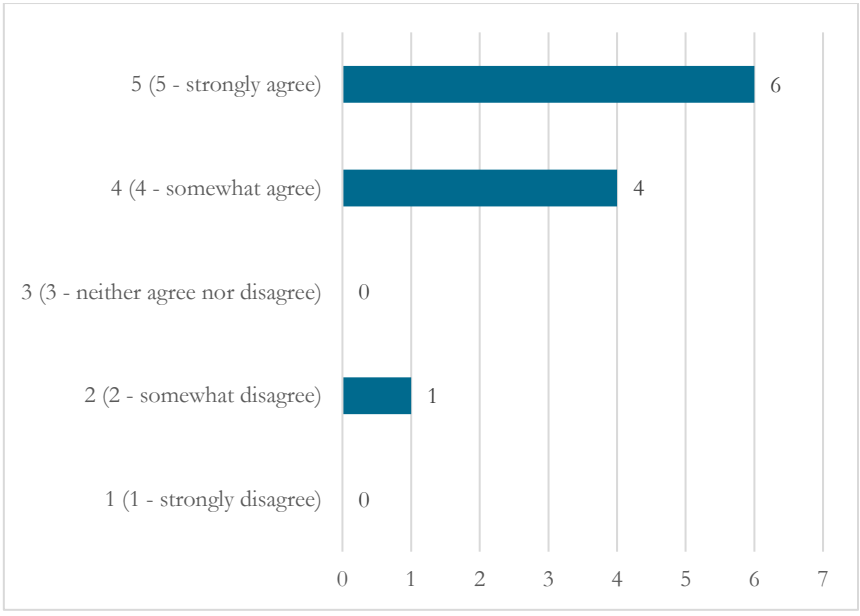
Graph 29 shows the extent to which facilitators agree with the statement that mentoring guidance can reduce participants' independence. Eleven facilitators responded to the question. Three facilitators (27%) disagreed, three (27%) partially disagreed, two (18%) chose a neutral response, and three (27%) partially agreed. No one completely agreed with the statement. The average score is 2.5, with a standard deviation of 1.2, indicating diverse opinions and a cautious attitude toward the connection between mentoring and participant independence.



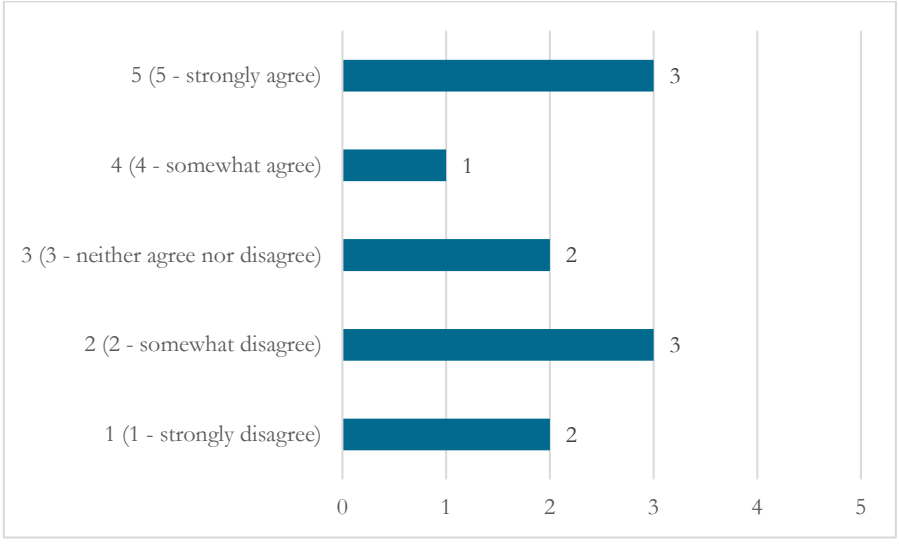
Graph 30: Agreement with the Statement on the Impact of Excessive Mentoring Support on Participants' Sense of Self-Worth
Source: Author

Graph 30 shows the extent to which facilitators agree with the statement that excessive mentoring support can reduce participants' sense of self-worth. Eleven facilitators responded to the question. Two facilitators (18%) disagreed with the statement, three (27%) partially disagreed, three (27%) chose a neutral response, two (18%) partially agreed, and one (9%) completely agreed. The average score is 2.7, with a standard deviation of 1.3, indicating dispersed opinions. Facilitators are quite divided regarding the impact of excessive mentoring on participants' sense of self-worth.

Graph 31 shows the extent to which facilitators agree with the statement that mistakes made by participants can be more instructive than warnings. Eleven facilitators responded to the question. Six facilitators (55%) completely agreed with the statement, four (36%) partially agreed, and one facilitator (9%) partially disagreed. None selected the lowest or neutral ratings. The average score is 4.4, with a standard deviation of 0.9, indicating strong agreement that learning from mistakes is a key element in the development of participants' entrepreneurial competencies.

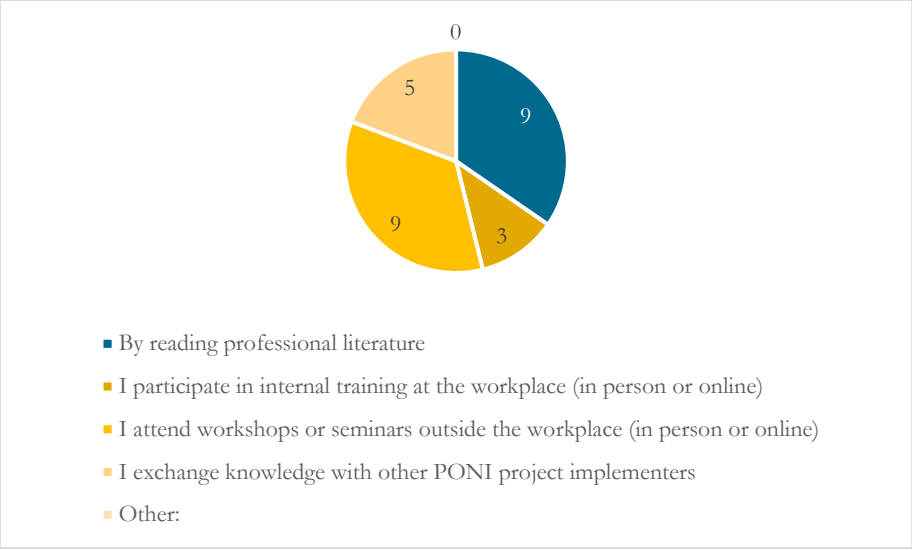


Graph 31: Agreement with the Statement that Mistakes Are a More Instructive Tool for Participants than Warnings
Source: Author



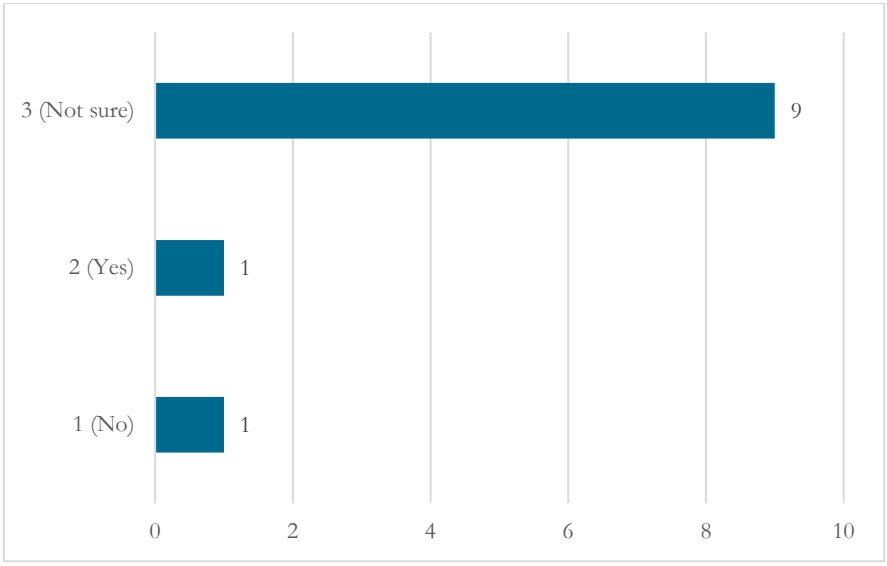
Graph 32: Agreement with the Statement about the Relationship Between Too Many Opinions and the Decrease of Participants' Self-Confidence
Source: Author

Graph 32 shows the extent to which facilitators agree with the statement that too many external opinions can reduce participants' self-confidence. Eleven facilitators responded to the question. Three facilitators (27%) completely agreed with the statement, one (9%) partially agreed, two (18%) selected the neutral option, three (27%) partially disagreed, and two (18%) disagreed. The average score is 3.0, with a standard deviation of 1.5, indicating a divided set of opinions among facilitators and a lack of consensus on the impact of external opinions on participants' confidence.



Graph 33: Methods of Enhancing Facilitators' Knowledge of Psychological Factors
Source: Author

Graph 33 illustrates the methods facilitators use to enhance their knowledge of psychological factors. Multiple responses were possible, with 11 facilitators participating. The majority, 9 out of 11 (82%), stated that they expand their knowledge by reading professional literature. This is followed by participation in workshops or seminars outside of the workplace, chosen by 5 facilitators (45%). Another 5 facilitators (36%) indicated that they exchange knowledge with other PONI project facilitators, while 3 facilitators (27%) reported improving their knowledge through internal training at work. The results show that facilitators most often seek to enhance their knowledge independently through professional sources and education, while participation within the PONI community serves as an important but less frequently utilized learning channel.



Graph 34: Facilitators' Opinions on the Use of Guidelines for Realistic Self-Assessment in Entrepreneurial Idea Development
Source: Author

Graph 34 illustrates whether facilitators follow specific guidelines and procedures to help participants conduct realistic self-assessment. A total of 11 facilitators responded. One facilitator (9%) stated that they follow such guidelines, one (9%) stated that they do not, while the majority, nine facilitators (82%), were unsure about the statement. The average score is 2.7, indicating a relatively low level of conscious use of structured approaches.

In the follow-up question (Q45), respondents who answered affirmatively were asked to specify which guidelines they apply. One facilitator mentioned using the *Guidelines of Truth and Insight into Thinking Competencies* in connection with incremental results. These findings suggest that the use of formalized guidelines is rare and most often remains at the level of individual practice or personal mentoring approach.

6.4 Results of the Qualitative Research

An in-depth interview was conducted with Dejan Marinčič, Advisor to the Director for Entrepreneurship and Innovation and an internal mentor at the Regional Development Agency of the Ljubljana Urban Region (RRA LUR), as part of the

PONI LUR project. His responsibilities include providing advisory support, monitoring participants' progress, and guiding them in developing their business ideas. With his extensive knowledge of the entrepreneurial ecosystem and direct work with program participants, he provides valuable insight into the practical implementation of program content and the perception of entrepreneurial challenges in practice.

How often do you notice that participants show excessive confidence in their knowledge or business ideas? What usually alerts you to this?

Interviewee: »It happens quite often that participants in the PONI LUR program display signs of overconfidence in their knowledge or business ideas, especially in the early stages of the program and particularly among those with less experience. In entrepreneurship, where individuals embark on new paths, the Dunning-Kruger effect becomes even more apparent.

Mentors are usually alerted to excessive confidence by unrealistic assessments of the market or competition, underestimation of the resources and time required for idea development (for example, attempting to develop a complex platform quickly with minimal resources), a strong resistance to constructive criticism or alternative perspectives on the business idea, and a general lack of awareness of their own knowledge gaps, which aligns with the Dunning-Kruger effect. The structured nature of the PONI LUR program, which includes the preparation of a business plan and the development of a minimum viable product (MVP), enables mentors to identify these signs when participants confront their ideas with real-world demands. For example, a participant might confidently claim that their idea has no competition or present a financial plan based on unrealistically optimistic assumptions about revenues and costs without considering actual market conditions or the necessary investments for launching the business.«

Does the overestimation of participants' abilities affect their decisions and consequently their progress in the project? How does this manifest?

Interviewee: »Overestimating one's own abilities undoubtedly affects participants' decisions and can slow down their progress. This may manifest in the wrong choice of market entry strategy, inadequate planning of time and financial resources, which

leads to delays in key project milestones such as the development of the MVP. It can also result in resistance to learning and accepting new knowledge that the PONI LUR program offers, as the participant believes they already know everything.

Consequently, this often manifests as slow progress or even stagnation of the project despite the effort invested. When reality diverges significantly from expectations, it can lead to frustration, demotivation, and avoidance of more demanding tasks. In extreme cases, persistence in unrealistic views can even lead to conflicts with mentors. The Dunning-Kruger effect further complicates the situation, as less competent individuals also struggle to accurately recognize their own knowledge gaps.«

How do you, as a mentor, respond when you recognize that a participant is overestimating their abilities? Do you use any specific approaches or questions?

Interviewee: »When a mentor recognizes that a participant is overestimating their abilities, it is crucial to respond empathetically and supportively, with the goal of encouraging growth rather than direct confrontation. The mentor should first actively listen to understand the participant's perspective, and then, instead of offering direct criticism, use questions that encourage self-reflection. Effective approaches include the Socratic method (asking guided questions such as "On what data did you base this assessment?"), evidence-based discussion (encouraging the participant to support claims with data from field research, which is part of the PONI LUR program), and scenario planning ("What if your key assumption does not hold?").

The aim of these approaches is to develop the participant's metacognitive abilities – the capacity to realistically assess their own knowledge and skills. The mentor should act as an external "metacognitive regulator," guiding the participant to independently recognize possible inconsistencies between their beliefs and reality. For example, instead of saying, "Your customer acquisition plan is unrealistic," the mentor might ask, "What concrete steps have you planned to reach such a large number of customers in the first quarter, and what are the expected costs of these activities?"«

How do participants usually react to constructive feedback that challenges their beliefs?

Interviewee: »Participants' reactions to constructive feedback that challenges their beliefs vary greatly. Some may become defensive, deny the problem, or look for excuses, especially when the Dunning-Kruger effect is present. Others are more open, ask follow-up questions, and are willing to reflect on the feedback. These are often individuals with a higher level of self-reflection or those who fit the profile of a "courageous, proactive, and curious" mentee.

Some participants may initially feel demotivated but later use the information constructively, while others may appear to accept the feedback without making any real changes. The key lies in the way the mentor delivers the feedback – with support, respect, and a focus on the idea rather than the person – and in establishing a "safe space" within the mentoring relationship, where the participant feels heard and supported. For example, if a participant insists on pursuing an idea that the mentor believes is not market-viable, it is important for the mentor to express concern through questions about the target market, competition, and testing, rather than rejecting the idea directly.«

How can entrepreneurial motivation be maintained while also addressing cognitive biases such as the Dunning-Kruger effect? In your opinion, where is the right balance between support and realism? Do you believe that excessive self-confidence helps potential entrepreneurs in realizing their business ideas?

Interviewee: »Maintaining motivation while addressing cognitive biases requires emphasizing the learning process, where challenges and mistakes are viewed as opportunities for growth. It is important to celebrate small wins and normalize obstacles, for example, by sharing stories of other entrepreneurs. The right balance between support and realism lies in transparent yet empathetic communication, where the mentor honestly points out risks while encouraging solution-finding and adaptation.

A certain degree of self-confidence is essential, but excessive confidence, typical of the Dunning-Kruger effect, is harmful in the long run, as it hinders learning, adaptation, and seeking help. The ideal approach is called realistic optimism, meaning belief in one's abilities while remaining aware of challenges. The structured PONI LUR process, with its clear milestones (developing the business model, preparing the business plan, and creating the minimum viable product), gradually confronts participants with reality and allows mentors to introduce realistic evaluations step by step without destroying motivation.«

What could the PONI LUR project improve to help participants better understand their own abilities without suppressing their creativity?

Interviewee: »PONI LUR could further enhance its support in developing a more realistic self-understanding among participants by including modules on cognitive biases within the existing training framework. The introduction of structured self-reflection exercises after key program milestones would help participants regularly assess their progress and identify gaps in their knowledge, which has been proven to improve the accuracy of self-assessment. The project could also formalize peer-to-peer feedback sessions, where participants, under the guidance of a mentor, exchange experiences and constructive criticism.

To maintain creativity, it is important to separate the idea generation phase from the evaluation phase and to promote methodologies such as Design Thinking, which channels creativity into solving real problems. Additional mentor training on delivering "difficult" feedback and emphasizing a culture of "learning from mistakes," especially during the testing of the minimum viable product (MVP), would also contribute to improved self-reflection without suppressing innovation. These measures would complement individual mentoring and systematically strengthen the metacognitive skills of participants.«

Do you believe it would be beneficial for participants to join other entities within the entrepreneurial support environment after completing the PONI LUR project? Which forms of networking would be most helpful for them

(e.g., co-working spaces, incubators, accelerators, other communities, etc.)?

Interviewee: »It is certainly extremely beneficial for participants, after completing the PONI LUR project, to actively engage with other entities within the entrepreneurial support ecosystem. However, the entrepreneurial journey is a long-term process full of challenges, where continued support and networking are essential for the growth and sustainability of a business. After finishing the program, entrepreneurs face the realities of the market, the need for funding, team expansion, and further development of their product or service, which makes ongoing support crucial.

The most useful forms of networking depend on the stage of development and the specific needs of their business. Co-working spaces are excellent for staying connected with the entrepreneurial community, sharing experiences, and reducing initial office rental costs. Business incubators, such as the Ljubljana University Incubator (LUI) or other specialized incubators, provide structured early-stage support, including continued mentorship, access to resources, and networking opportunities. For companies with higher growth potential and ambitions for rapid expansion, accelerators (for example, those operating under the Slovene Enterprise Fund or privately) are suitable, as they offer intensive programs, investment opportunities, and access to international markets. Other entrepreneurial communities and professional associations are also important, as they enable networking, knowledge exchange, and the search for potential partners or clients.«

How do you assess the competence of mentors and facilitators in the PONI LUR project regarding psychology, behavioral patterns, and cognitive biases among participants? Where do you see potential gaps and opportunities for improvement?

Interviewee: »Many experienced mentors develop strong intuition through practice for recognizing certain behavioral patterns or excessive self-confidence, but this is not necessarily supported by formal psychological education. Although mentors encourage participants, not all are systematically trained to identify and address psychological challenges such as stress, burnout, or the impact of cognitive biases (for example, optimism bias or the planning fallacy) on decision-making.

I see opportunities for improvement primarily in additional mentor training focused on entrepreneurial psychology, identifying cognitive biases, and techniques for constructive confrontation and feedback delivery in a way that does not suppress motivation. The inclusion of modules or workshops on the psychological aspects of entrepreneurship, both for mentors and participants, could contribute to better self-understanding among participants and more effective mentoring work. The program could also occasionally include supervision sessions for mentors or collaboration with psychologists specialized in entrepreneurship, which could raise the quality of support in this sensitive area.«

7 Proposals for Improvement / Solution Analysis

Based on a review of the professional literature and an analysis of the current operation of the PONI LUR project under the Regional Development Agency of the Ljubljana Urban Region (RRA LUR), we identified key areas where upgrading the content or approach could improve the recognition and management of the Dunning–Kruger effect among project participants. The importance of this issue is highlighted by Christopher et al. (2023), who describe the effect as a cognitive bias in which individuals with limited knowledge often overestimate their own abilities. In the entrepreneurial context, this can lead to poor business decisions (Gudmundsson and Lechner, 2013).

Findings indicate that project facilitators are already noticing such cases of overestimation, but there is still significant room for improvement. With more systematic approaches, the project could further strengthen participants' understanding of entrepreneurial risks, which is particularly important in the early stages of the entrepreneurial process (Rus et al., 2023). In line with the recommendations of the latest practical guidelines, we therefore propose several concrete improvement measures that would enhance participants' understanding of entrepreneurial risk in the initial phase of business development (GEM, 2025).

As opportunities for enhancement, we propose the integration of experiential learning with mentors from practice, through which, according to Bastian and Zucchella (2022), participants could easily assess their entrepreneurial skills and compare their own judgments with objective feedback from mentors. Mentors could use real-life examples to confront participants with the realities of entrepreneurship.

We also suggest introducing short self-assessment questionnaires on entrepreneurial competencies, which would allow mentors to gain a better insight into participants' understanding and progress at different stages of the project (Yu et al., 2023).

One of the most significant improvements would be additional mentor training in recognizing cognitive biases. According to Gudmundsson and Lechner (2013), such training would help mentors detect the Dunning–Kruger effect early, which is essential for providing high-quality and effective mentoring support. However, it must be noted that implementing such regular training could require additional financial resources that might not have been originally included in the project's budget.

The proposed improvements do not require a complete overhaul of the project's structure but offer a logical and feasible upgrade to the existing content. In this way, the PONI LUR project can maintain its original mission and vision by preserving participants' entrepreneurial drive while simultaneously strengthening their self-awareness, which is crucial for long-term success in the entrepreneurial world (Močnik and Širec, 2022).

8 Discussion

Understanding entrepreneurship as a complex process that goes beyond the economic dimension and includes institutional, cultural, and psychological aspects provides a solid foundation for discussing the role of support mechanisms and cognitive factors such as the Dunning Kruger effect. According to GEM (2025) and Širec et al. (2023), entrepreneurship, precisely because of its multidimensional nature, requires an adequate support environment, professional mentoring, and the development of entrepreneurial competencies.

In Slovenia, the entrepreneurial ecosystem and its support environment are structured as a diverse network of interconnected public and private institutions, professional organizations, and development programs at the local, regional, and national levels. Together, they provide infrastructural, advisory, and developmental support to individuals at various stages of their entrepreneurial journey (Matko, 2020). It is crucial to recognize that a modern support environment must, in addition to technical and financial support, also include a psychological dimension, fostering

self-awareness, self-reflection, and critical thinking as key components of entrepreneurial development.

One of the most relevant initiatives in this context is the national entrepreneurial training program PONI, designed to support individuals in developing their own business ideas and entering entrepreneurship. The program is implemented across several Slovenian regions in cooperation with regional development agencies, aiming to create an effective and safe environment for aspiring entrepreneurs (Ministry of Cohesion and Regional Development, 2023). The project emphasizes practical training, personal and business growth, and mentoring, with the goal of preparing a business plan and a minimum viable product (RRA LUR, 2025).

The presence of the Dunning Kruger effect was confirmed by findings showing that most mentors and trainers, both internal and external, observe excessive self-confidence among participants, which is often not aligned with their actual level of knowledge. Facilitators address this challenge through both individual and group approaches, which highlights the need for systematic support and standardized mentoring strategies when guiding entrepreneurs in the early stages of their journey (Yu et al., 2023). When asked how they address these challenges, respondents reported using mainly personal approaches, asking reflective questions, presenting best practices, and gradually confronting participants with the realities of entrepreneurship. At the same time, caution is needed in mentoring to avoid excessive guidance that could suppress creativity or entrepreneurial drive (Bastian and Zucchella, 2022).

A key discussion point concerns how to design guiding mechanisms that reduce cognitive biases without diminishing participants' motivation. Here, relatively simple interventions such as structured questionnaires, reflective practices, and peer exchanges with experienced entrepreneurs (Yu et al., 2023) can be introduced without major changes to project activities. Such measures could help participants see the realities of entrepreneurship while maintaining hope and resilience in the face of risk and uncertainty in a dynamic and competitive market.

Another important opportunity lies in digital tools for progress monitoring and self-evaluation. However, the research indicates that both facilitators and participants often lack the necessary competencies to use these tools effectively. This points to a

need for developing digital literacy and training in modern self-assessment methods (Blažič, 2022). As the leading institution, RRA LUR could strengthen the realism of participants' self-perception through strategic upgrades, integrating psychological aspects into mentoring, using reflective tools, providing additional mentor training, and deepening collaboration with the entrepreneurial ecosystem (Rus et al., 2023). Such measures would ultimately contribute to higher success rates of entrepreneurial ventures.

For the post-program phase, the development of a follow-up support system is recommended. This would enable continued mentoring, counseling, and access to entrepreneurial networks, helping participants maintain contact with the support environment and continue learning and reflecting on real-world challenges. Such prolonged engagement could provide sustained support and prevent early demotivation or irrational decision-making during initial business hurdles (Rebernik et al., 2021).

It is also important to highlight the role of other key actors within Slovenia's entrepreneurial support ecosystem, such as technology parks, incubators, accelerators, business angel networks, professional associations, and public agencies. These institutions can offer ongoing advisory services, investor connections, incubation programs, and access to knowledge and infrastructure, all of which enhance the competencies and long-term success of emerging entrepreneurs (SPIRIT, 2025; Start:Up Slovenia, 2025).

The interconnection between support structures, mentorship, and competency development forms the foundation of effective entrepreneurial education. When complemented with self-reflection and awareness of cognitive biases, the PONI LUR program can evolve into a model of effective entrepreneurial support that combines knowledge, psychological stability, and operational competence, creating strong foundations for business growth and fostering individuals who can realistically evaluate their skills while actively engaging in the entrepreneurial environment.

9 Conclusion

Addressing challenges such as the Dunning Kruger effect requires more than technical expertise. It demands a deep understanding of psychological processes, the development of entrepreneurial competencies, and integration into a supportive environment that not only informs but also empowers individuals. In this regard, the PONI LUR program is recognized as an important mechanism for entrepreneurial empowerment.

This research has shown that program facilitators already intuitively recognize the overestimation of abilities among participants and respond to it through individual approaches. However, achieving systematic progress requires further enhancement through structured mentor training, the inclusion of reflective tools, the promotion of digital literacy, and the establishment of a follow-up support program after completion of training.

Strengthening a realistic self-image while maintaining motivation and creativity requires a careful balance by mentors and facilitators, who must be adequately trained to address cognitive biases among participants in the early stages of their entrepreneurial journey. In this context, programs such as PONI LUR represent a valuable example and a model of entrepreneurial development at the national level. Entrepreneurial empowerment is not merely a goal, but a process that must be supported by the entire entrepreneurial ecosystem, from institutions to mentors and ultimately the individuals themselves.

Acknowledgment

This paper was prepared as part of the project "Improving the Entrepreneurial Experience through the Support Environment in the Ljubljana Urban Region", under the public call "Problem-Based Learning for Students in the Working Environment: Economy, Non-Economy and Non-Profit Sector in the Local/Regional Environment 2024–2027", co-financed by the Ministry of Higher Education, Science and Innovation of the Republic of Slovenia and the European Social Fund Plus (ESF+) of the European Union.

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Survey Questionnaire

Spoštovani,
v okviru projekta Problemsko učenje študentov v delovno okolje izvajamo raziskavo, usmerjeno v raziskovanje možnosti za izboljševanje podjetniške izkušnje s pomočjo podpornega okolja v Ljubljanski urbani regiji.

Anketni vprašalnik temelji na preučevanju kognitivnih pristranskosti, kjer smo se osredotočili predvsem na prisotnost učinka Dunning-Kruger pri potencialnih podjetnikih v okviru projekta PONI LUR.

Anketa je anonimna, zbrani podatki pa bodo uporabljeni izključno v raziskovalne namene.

Vaši odgovori bodo pomembno prispevali k boljšemu razumevanju pojava in razvoju učinkovitejših pristopov k podpori podjetnikom.

Hvala za vaš čas in sodelovanje!

Q1 - Vaša vloga v projektu PONI LUR
◌ Notranji mentor
◌ Zunanji mentor
◌ Zaposleni na RRA LUR (sodelujoč kot svetovalec ali predavatelj)
◌ Zunanji predavatelj (po potrebi tudi ekspertni svetovalec)
◌ Ekspertni svetovalec
◌ Drugo:

Q2 - Koliko mesecev sodelujete na projektu PONI LUR?
_____

Q3 - Ali ste že slišali za učinek Dunning-Kruger?
◌ Ne
◌ Da
◌ Nisem prepričan/a

Q4 - Kako pomembno se vam zdi razumevanje tega učinka pri podpori udeležencem v projektu PONI LUR? (1 - nepomembno, 5 - pomembno)

- ○ 1 - nepomembno
- ○ 2 - delno nepomembno
- ○ 3 - niti pomembno, niti nepomembno
- ○ 4 - delno pomembno
- ○ 5 - pomembno

Q5 - Ali menite, da učinek Dunning-Kruger vpliva na odločitve udeležencev v projektu PONI LUR?

- ○ Ne
- ○ Da
- ○ Nisem prepričan/a

Q6 - Kako pogosto se strinjate z naslednjimi opažanji? (1 - nikoli, 5 - vedno)

	1 - nikoli	2 - redko	3 - občasno	4 - pogosto	5 - vedno
Kako pogosto opažate, da udeleženci precenjujejo svoje sposobnosti?	○	○	○	○	○
Kako pogosto udeleženci kažejo visoko samozavest kljub pomanjkanju izkušenj ali znanja?	○	○	○	○	○

Q7 - V kolikšni meri se strinjate z naslednjimi trditvami? (1 - ne strinjam se, 5 - strinjam se) Glavni razlog za precenjevanje podjetniških sposobnosti so:

	1 - ne strinjam se	2 - delno se ne strinjam	3 - niti se strinjam, niti se ne strinjam	4 - delno se strinjam	5 - strinjam se
že pridobljene osebne izkušnje	○	○	○	○	○
pridobljene povratne informacije, ki jih dobijo od prijateljev, družine, znancev	○	○	○	○	○
mnenja drugih, ki niso strokovnjaki na področju	○	○	○	○	○
pomanjkanje znanja ali objektivnih podatkov, ki jih imajo udeleženci	○	○	○	○	○
pomanjkanje samozavedanja o lastnem znanju	○	○	○	○	○

Q8 - Kako pogosto udeleženci zavračajo pridobljene povratne informacije, ki so v nasprotju z njihovimi prepričanji? (1 - nikoli, 5 - vedno)

○ 1 - nikoli
○ 2 - redko
○ 3 - občasno
○ 4 - pogosto
○ 5 - vedno

Q9 - Kako pogosto menite, da učinek Dunning-Kruger vpliva na kakovost poslovnih odločitev udeležencev? (1 - nikoli, 5 - vedno)

○ 1 - nikoli
○ 2 - redko
○ 3 - občasno
○ 4 - pogosto
○ 5 - vedno

Q10 - Ali menite, da učinek Dunning-Kruger pri udeležencih vodi v sprejemanje tveganih odločitev?

◌ Ne
◌ Da
◌ Nisem prepričan/a

Q11 - Kako pogosto menite, da učinek Dunning-Kruger pri udeležencih vodi v sprejemanje preveč tveganih odločitev? (1 - nikoli, 5 - vedno)

◌ 1 - nikoli
◌ 2 - redko
◌ 3 - občasno
◌ 4 - pogosto
◌ 5 - vedno

Q12 - Kako pogosto udeleženci podcenjujejo kompleksnost svojih podjetniških nalog? (1 - nikoli, 5 - vedno)

◌ 1 - nikoli
◌ 2 - redko
◌ 3 - občasno
◌ 4 - pogosto
◌ 5 - vedno

Q13 - V kolikšni meri se strinjate z naslednjimi trditvami? (1 - ne strinjam se, 5 - strinjam se) Učinek Dunning-Kruger pri udeležencih prepoznamo:

	1 - ne strinjam se	2 - delno se ne strinjam	3 - niti se strinjam, niti se ne strinjam	4 - delno se strinjam	5 - strinjam se
s postavljanjem vprašanj, ki izzivajo njihova prepričanja	◌	◌	◌	◌	◌
z analizo njihovih poslovnih odločitev	◌	◌	◌	◌	◌
v okviru individualnih posvetov	◌	◌	◌	◌	◌

	1 - ne strinjam se	2 - delno se ne strinjam	3 - niti se strinjam, niti se ne strinjam	4 - delno se strinjam	5 - strinjam se
pri izvedbi praktičnih podjetniških vaj	○	○	○	○	○

Q14 - Kako pogosto se strinjate z naslednjimi opažanji? (1 - nikoli, 5 - vedno) Kako pogosto udeleženci:

	1 - nikoli	2 - redko	3 - občasno	4 - pogosto	5 - vedno
sprejmejo pomoč, ko jim pokažete, da precenjujejo svoje sposobnosti?	○	○	○	○	○
prosijo za povratne informacije ali mnenja o svojih odločitvah?	○	○	○	○	○

Q15 - V kolikšni meri se strinjate z naslednjimi trditvami? (1 - ne strinjam se, 5 - strinjam se) Za zmanjševanje učinka Dunning-Kruger pri udeležencih uporabljamo strategijo:

	1 - ne strinjam se	2 - delno se ne strinjam	3 - niti se strinjam, niti se ne strinjam	4 - delno se strinjam	5 - strinjam se
aktivnega iskanja povratnih informacij s strani udeleženca	○	○	○	○	○
spodbujanja objektivnega ocenjevanja lastnih sposobnosti	○	○	○	○	○
poudarjanja pomena dolgoročnega učenja	○	○	○	○	○
konstantnega usmerjanja k odločitvam	○	○	○	○	○

Q16 - Ali vključujete teme, kot je učinek Dunning-Kruger, v izobraževalne vsebine za udeležence v projektu PONI LUR?

◌ Ne
◌ Da
◌ Nisem prepričan/a

Q17 - V kolikšni meri se strinjate z naslednjimi trditvami? (1 - ne strinjam se, 5 - strinjam se) Najpomembnejši izziv pri delu z udeleženci, ki so pod vplivom učinka Dunning-Kruger, je:

	1 - ne strinjam se	2 - delno se ne strinjam	3 - niti se strinjam, niti se ne strinjam	4 - delno se strinjam	5 - strinjam se
njihova odpornost na povratne informacije	◌	◌	◌	◌	◌
njihova prekomerna samozavest	◌	◌	◌	◌	◌
njihovo pomanjkanje pripravljenosti na spremembe	◌	◌	◌	◌	◌
prepoznavanje realnosti	◌	◌	◌	◌	◌

Q18 - Ali menite, da udeleženci, ki precenjujejo svoje sposobnosti zaradi učinka Dunning-Kruger, dosegajo slabše poslovne rezultate v dolgem roku?

◌ Ne
◌ Da
◌ Nisem prepričan/a

Q19 - Kako pogosto opažate, da udeleženci podcenjujejo lastne vrline, ki bi jim lahko pomagale pri doseganju uspeha? (1 - nikoli, 5 - vedno)

◌ 1 - nikoli
◌ 2 - redko
◌ 3 - občasno
◌ 4 - pogosto
◌ 5 - vedno

Q20 - V kolikšni meri se strinjate z naslednjo trditvijo? (1 - ne strinjam se, 5 - strinjam se) Razumevanje učinka Dunning-Kruger je ključno za dolgoročni uspeh podjetnikov.

◯ 1 - ne strinjam se
◯ 2 - delno se ne strinjam
◯ 3 - niti se strinjam, niti se ne strinjam
◯ 4 - delno se strinjam
◯ 5 - strinjam se

Q21 - Kako ocenjujete potrebo po večjem vključevanju tem, kot je Dunning-Kruger, v projekt PONI LUR? (1 - nepomembno, 5 - pomembno)

◯ 1 - nepomembno
◯ 2 - delno nepomembno
◯ 3 - niti pomembno, niti nepomembno
◯ 4 - delno pomembno
◯ 5 - pomembno

Q22 - V kolikšni meri se strinjate z naslednjo trditvijo? (1 - ne strinjam se, 5 - strinjam se) Višja stopnja ozaveščanja o učinku Dunning-Kruger s strani mentorjev in svetovalcev bi pozitivno vplivala na obvladovanje učinka med udeleženci PONI LUR.

◯ 1 - ne strinjam se
◯ 2 - delno se ne strinjam
◯ 3 - niti se strinjam, niti se ne strinjam
◯ 4 - delno se strinjam
◯ 5 - strinjam se

Q23 - V kolikšni meri se strinjate z naslednjo trditvijo? (1 - ne strinjam se, 5 - strinjam se) Boljša usposobljenost mentorjev in svetovalcev na področju kognitivnih pristranskosti bi pozitivno vplivala na obvladovanje učinka Dunning-Kruger v okviru projekta PONI LUR.

◯ 1 - ne strinjam se
◯ 2 - delno se ne strinjam
◯ 3 - niti se strinjam, niti se ne strinjam
◯ 4 - delno se strinjam
◯ 5 - strinjam se

Q24 - V kolikšni meri se strinjate z naslednjo trditvijo? (1 - ne strinjam se, 5 - strinjam se) Vključitev analitičnih orodij za implementacijo objektivnih odločitev bi pozitivno vplivala na obvladovanje učinka Dunning-Kruger v okviru projekta PONI LUR.

◯ 1 - ne strinjam se
◯ 2 - delno se ne strinjam
◯ 3 - niti se strinjam, niti se ne strinjam
◯ 4 - delno se strinjam
◯ 5 - strinjam se

Q25 - Ali menite, da lahko precenjevanje lastnih znanj pri udeležencih vodi tudi do pozitivnih rezultatov? (1 - nikoli, 5 - vedno)

◯ 1 - nikoli
◯ 2 - redko
◯ 3 - občasno
◯ 4 - pogosto
◯ 5 - vedno

Q26 - V kolikšni meri se strinja te z naslednjimi trditvami? (1 - ne strinjam se, 5 - strinjam se) Pozitivna korist, ki izhaja iz učinka Dunning-Kruger pri udeležencih, je:

	1 - ne strinjam se	2 - delno se ne strinjam	3 - niti se stirnjam, niti se ne strinjam	4 - delno se strinjam	5 - strinjam se
povečana samozavest, ki spodbuja podjetniško inovativnost	◯	◯	◯	◯	◯
hiter začetek podjetniškega projekta brez prekomernega dvoma	◯	◯	◯	◯	◯
velika mera poguma za sprejemanje tveganj in novih priložnosti	◯	◯	◯	◯	◯
povečana pripravljenost za raziskovanje novih področij	◯	◯	◯	◯	◯

Q27 - V kolikšni meri se strinjate z naslednjo trditvijo (1 - ne strinjam se, 5 - strinjam se) Udeleženci, ki precenjujejo svoje sposobnosti, kažejo večjo vztrajnost pri reševanju težav in premagovanju ovir.

- ◯ 1 - ne strinjam se
- ◯ 2 - delno se ne strinjam
- ◯ 3 - niti se strinjam, niti se ne strinjam
- ◯ 4 - delno se strinjam
- ◯ 5 - strinjam se

Q28 - V kolikšni meri se strinjate z naslednjimi trditvami? (1 - ne strinjam se, 5 - strinjam se) Precenjevanje lastnih znanj pozitivno vpliva na udeleženca, ko:

	1 - ne strinjam se	2 - delno se ne strinjam	3 - niti se strinjam, niti se ne strinjam	4 - delno se strinjam	5 - strinjam se
nima prevelikega strahu pred neuspehom	◯	◯	◯	◯	◯
ne podcenjuje lastnih sposobnosti, saj mu omogoča podjetniško delovanje z večjimi ambicijami	◯	◯	◯	◯	◯

Q29 - Ali menite, da lahko učinek Dunning-Kruger pri udeležencih na začetku podjetniškega procesa pripomore k večji ustvarjalnosti?

- ◯ Ne
- ◯ Da
- ◯ Nisem prepričan/a

Q30 - V kolikšni meri se strinjate z naslednjimi trditvami? (1 - ne strinjam se, 5 - strinjam se) Učinek Dunning-Kruger:

	1 - ne strinjam se	2 - delno se ne strinjam	3 - niti se strinjam, niti se ne strinjam	4 - delno se strinjam	5 - strinjam se
ima v podjetniškem svetu bolj negativen prizvok	○	○	○	○	○
pozitivno vpliva na udeležence, saj spodbuja odločnost in sposobnost hitrega ukrepanja	○	○	○	○	○
pozitivno vpliva na udeležence, saj poveča verjetnost za prevzemanje tveganj	○	○	○	○	○
pozitivno vpliva na udeležence, saj krepi zaupanje v lastne sposobnosti, kar spodbuja inovacije	○	○	○	○	○

Q31 - V kolikšni meri se strinjate z naslednjo trditvijo? (1 - ne strinjam se, 5 - strinjam se) Pri delu z udeleženci je pomembno redno poudarjati obvladovanje učinka Dunning-Kruger, da bi spodbudili realistično samoocenjevanje.

○ 1 - ne strinjam se
○ 2 - delno se ne strinjam
○ 3 - niti se strinjam, niti se ne strinjam
○ 4 - delno se strinjam
○ 5 - strinjam se

Q32 - V kolikšni meri se strinjate z naslednjo trditvijo? (1 - ne strinjam se, 5 - strinjam se) Prekomerna samozavest lahko udeležence vodi do novih, zanimivih priložnosti, kljub večjemu tveganju.

- ○ 1 - ne strinjam se
- ○ 2 - delno se ne strinjam
- ○ 3 - niti se strinjam, niti se ne strinjam
- ○ 4 - delno se strinjam
- ○ 5 - strinjam se

Q33 - Ali bi imeli udeleženci večje možnosti za uspeh, če bi bili pravočasno seznanjeni z učinkom Dunning-Kruger in znali obvladovati njegov vpliv?

- ○ Ne
- ○ Da
- ○ Nisem prepričan/a

Q34 - V kolikšni meri se strinjate z naslednjo trditvijo? (1 - ne strinjam se, 5 - strinjam se) Udeleženci bi se morali v okviru projekta usposabljati za prepoznavanje in obvladovanje kognitivnih pristranskosti, vključno z učinkom Dunning-Kruger, da bi izboljšali svoje podjetniške sposobnosti.

- ○ 1 - ne strinjam se
- ○ 2 - delno se ne strinjam
- ○ 3 - niti se strinjam, niti se ne strinjam
- ○ 4 - delno se strinjam
- ○ 5 - strinjam se

Q35 - V kolikšni meri se strinjate z naslednjo trditvijo? (1 - ne strinjam se, 5 - strinjam se) Pretirano osredotočanje na omejitve udeležencev lahko zmanjša njihov potencial za ustvarjanje inovativnih idej.

- ○ 1 - ne strinjam se
- ○ 2 - delno se ne strinjam
- ○ 3 - niti se strinjam, niti se ne strinjam
- ○ 4 - delno se strinjam
- ○ 5 - strinjam se

Q36 - V kolikšni meri se strinjate z naslednjo trditvijo? (1 - ne strinjam se, 5 - strinjam se) Preveč analiziranja lastnih sposobnosti lahko ustavi udeležence pred sprejemanjem drznih odločitev.

◌ 1 - ne strinjam se
◌ 2 - delno se ne strinjam
◌ 3 - niti se strinjam, niti se ne strinjam
◌ 4 - delno se strinjam
◌ 5 - strinjam se

Q37 - V kolikšni meri se strinjate z naslednjo trditvijo? (1 - ne strinjam se, 5 - strinjam se) Osredotočenost na pomanjkljivosti lahko prepreči ustvarjalnost in inovacije.

◌ 1 - ne strinjam se
◌ 2 - delno se ne strinjam
◌ 3 - niti se strinjam, niti se ne strinjam
◌ 4 - delno se strinjam
◌ 5 - strinjam se

Q38 - V kolikšni meri se strinjate z naslednjo trditvijo? (1 - ne strinjam se, 5 - strinjam se) Mentorsko usmerjanje lahko zmanjša samostojnost udeležencev.

◌ 1 - ne strinjam se
◌ 2 - delno se ne strinjam
◌ 3 - niti se strinjam, niti se ne strinjam
◌ 4 - delno se strinjam
◌ 5 - strinjam se

Q39 - V kolikšni meri se strinjate z naslednjo trditvijo? (1 - ne strinjam se, 5 - strinjam se) Pretirana mentorska pomoč lahko zmanjša občutek lastne vrednosti.

◌ 1 - ne strinjam se
◌ 2 - delno se ne strinjam
◌ 3 - niti se strinjam, niti se ne strinjam
◌ 4 - delno se strinjam
◌ 5 - strinjam se

Q40 - V kolikšni meri se strinjate z naslednjo trditvijo? (1 - ne strinjam se, 5 - strinjam se) Napake, ki jih naredijo udeleženci, so lahko bolj poučne kot opozorila.

◯ 1 - ne strinjam se
◯ 2 - delno se ne strinjam
◯ 3 - niti se strinjam, niti se ne strinjam
◯ 4 - delno se strinjam
◯ 5 - strinjam se

Q41 - V kolikšni meri se strinjate z naslednjo trditvijo? (1 - ne strinjam se, 5 - strinjam se) Preveč mnenj drugih lahko zmanjšuje samozavest udeležencev.

◯ 1 - ne strinjam se
◯ 2 - delno se ne strinjam
◯ 3 - niti se strinjam, niti se ne strinjam
◯ 4 - delno se strinjam
◯ 5 - strinjam se

Q42 - Ali se kot izvajalec udeležujete izobraževanj s področja vedenja podjetnikov?

◯ Ne
◯ Ne, vendar bi si tega želel/a
◯ Redko (po potrebi)
◯ Redno (1-2x letno)
◯ Zelo redno (vsaj 1x v obdobju trajanja skupine PONI LUR)
◯ Drugo:

Q43 - Kako nadgrajujete svoje znanje o psiholoških dejavnikih, ki vplivajo na podjetnike? Ni nujno, da so vezani na izobraževanja na delovnem mestu (možnih je več odgovorov)

Možnih je več odgovorov
☐ Z branjem strokovne literature
☐ Udeležujem se internih usposabljanj na delovnem mestu (v živo ali online)
☐ Udeležujem se delavnic ali seminarjev izven delovnega mesta (v živo ali online)
☐ Znanja izmenjujem z drugimi izvajalci projekta PONI
☐ Drugo:

Q44 - Ali upoštevate določene smernice in postopke za pomoč udeležencem pri realnem samoocenjevanju, ko razvijajo in preverjajo podjetniške ideje?

◌ Ne
◌ Da
◌ Nisem prepričan/a

IF (1) Q44 = [2] (Da)

Q45 - Če ste odgovorili z "da" na prejšnje vprašanje, katere smernice upoštevate?

The Role of Supporting Entrepreneurial Mechanisms in the Ljubljana Urban Region: The Case of Poni Lur

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We explore the role of supportive entrepreneurial mechanisms in improving the entrepreneurial experience of participants in the PONI LUR program, implemented by the Regional Development Agency of the Ljubljana Urban Region. We analyzed the socio-demographics of the program participants and their decisions to pursue an independent entrepreneurial path and their attitudes towards it. We found that 62% of participants established their own company after completing the program, with micro-enterprises in the service sector dominating. Participants highlighted the importance of access to mentoring, financing, practical workshops, and networking, which confirms the theoretical framework of entrepreneurial ecosystems and the importance of social capital. The results of our research reveal that the success of such development programs is closely related to the creation of an inclusive supportive environment and the strengthening of entrepreneurial self-confidence. Program participants usually already develop motivations that they can implement more successfully with appropriate support, which confirms its quality.

DOI
https://doi.org/10.18690/um.fov.10.2025.3

ISBN
978-961-299-090-9

Keywords:
entrepreneurship, support environment, entrepreneurial ecosystems, regional development, RRA LUR

University of Maribor Press

1 Introduction

Entrepreneurship, within the contemporary economic and regional context, plays a vital role in generating new employment opportunities, fostering innovation, and promoting sustainable development. In the Ljubljana Urban Region (LUR), the Regional Development Agency of the Ljubljana Urban Region (RRA LUR) serves as a key driver of such progress. Through the PONI LUR program (Podjetno nad izzive – Entrepreneurially Above Challenges), the agency provides aspiring entrepreneurs with access to essential resources such as mentorship, financing, practical workshops, and networking opportunities.

This chapter explores how entrepreneurial support mechanisms, as represented by the PONI LUR program, influence participants' entrepreneurial experiences and their decisions to establish businesses. The focus is on identifying the factors that facilitate the transition from the idea-generation phase to the implementation phase, as well as understanding how social capital and access to regional resources affect the success of program participants. Special attention is devoted to recognizing the key components of an effective entrepreneurial support environment and examining how such programs can further contribute to the sustainable development of entrepreneurship in the region.

The methodological approach of this research was multifaceted. Quantitative methods, including surveys and questionnaire analyses, were combined with qualitative approaches that involved examining open-ended responses. Both inductive and deductive reasoning were applied while considering relevant theories of entrepreneurship (Ragin, 2007). The research hypotheses were formulated on the premise that support mechanisms such as mentoring, networking, financing, and access to knowledge have a positive impact on entrepreneurial self-confidence and participants' readiness to establish their own enterprises. The results confirm the hypotheses presented in the following sections, showing that the entrepreneurial support mechanisms offered by the PONI LUR program significantly contribute to participants' entrepreneurial activity and confidence, as well as to the development of a sustainable entrepreneurial ecosystem in the Ljubljana Urban Region.

2 Literature Review

2.1 Theoretical Foundations of Entrepreneurial Support Environments

Entrepreneurship is recognized within contemporary development frameworks as a central mechanism that drives innovation, job creation, and sustainable economic growth within regional development areas, including the Ljubljana Urban Region. Today, entrepreneurship represents more than an economic driver; it is increasingly understood as a broader social and systemic factor that promotes the development of open innovation environments, strengthens social capital, and contributes to the co-creation of regional identities (Bejjani et al., 2023). In academic literature, entrepreneurial systems are often described as so-called "entrepreneurial ecosystems," which connect entrepreneurs, institutions, and resources, thereby enabling the emergence and growth of enterprises (Campos-Blázquez et al., 2024).

2.1.1 Entrepreneurship as a Driver of Regional Development

Asmit et al. (2024) emphasize that the success of entrepreneurship is not solely the result of individual capabilities but rather the outcome of a broader ecosystem that includes support institutions, access to resources, and the infrastructure of the support environment. Similarly, Standaert et al. (2024) highlight that the configuration of regulatory institutions, which collectively shape access to resources, represents a key factor in high-growth entrepreneurship, since interactive combinations of institutional elements exert a stronger influence on entrepreneurial outcomes than isolated institutions.

At the level of regional policy, support mechanisms include mentorship, incubators, access to financing, and connections with research institutions such as universities. Together, these form an environment conducive to the development and implementation of entrepreneurial ideas. Ratinho et al. (2020) add that these support mechanisms are fundamental components of long-term business success, particularly when embedded within specific regional contexts that allow for synergistic interactions between institutional and supportive structures.

In the modern European business environment, strategic orientations such as smart specialization and the integration of open innovation into regional policy significantly influence access to knowledge and technology, thereby accelerating product development and iteration. Pustovrh et al. (2020) define open innovation as a strategy that connects internal and external sources of knowledge to increase innovation potential and reduce development costs. The open innovation model is closely aligned with the lean entrepreneurship approach, which relies on rapid testing of business hypotheses, iterative development cycles, and continuous incorporation of user feedback (Soetanto & Jack, 2016).

Campos-Blázquez et al. (2024) emphasize that such strategic models enable the achievement of entrepreneurial goals through open innovation and digital transformation. In this context, the growing need to include entrepreneurs as active co-creators of local development policies becomes evident, raising essential questions about participatory co-creation in entrepreneurial support environments (Stephens et al., 2022; Thees et al., 2020). Slovenia systematically follows these modern European orientations through national strategies, among which the Development Strategy of Slovenia 2030 stands out (Government of the Republic of Slovenia, 2017).

At the regional level, these directions are implemented through development strategies of individual cohesion regions, designed in accordance with European cohesion policy. A good example of contemporary approaches to entrepreneurial development is the PONI LUR program (Podjetno nad izzive v Ljubljanski urbani regiji), which functions as a structured model of entrepreneurial training. The program enables participants to develop and test their entrepreneurial ideas over a four-month period with the support of mentors, experts, and the regional entrepreneurial ecosystem. This represents a structured transition from the ideation phase to the early realization phase (Djurica et al., 2023).

Pustovrh et al. (2020) note that institutional infrastructure, such as development agencies, universities, and incubators, serves as a key instrument for place-based entrepreneurship. These actors work in coordination and synergy with national research, innovation, and regional development strategies, thereby generating multilevel effects within the entrepreneurial support system. It is also important to

acknowledge the relevance of soft factors, such as quality of life, urban infrastructure, mobility, and access to knowledge (Ratinho et al., 2020).

Thees et al. (2020) highlight the example of the city of Munich, which demonstrates the importance of balance between work, life, and leisure within dynamic coworking environments. Such conditions facilitate the emergence of so-called "entrepreneurial destinations," urban spaces that serve not only as business infrastructure but also as hubs for spontaneous networking, interdisciplinary collaboration, and the cultivation of an entrepreneurial sense of community.

An empirical study by Prencipe et al. (2020), which analyzes university spin-off companies in Italy and Spain, confirms that factors such as knowledge, infrastructure, and human capital significantly affect growth. The study further supports the thesis that entrepreneurial development does not occur in an institutional vacuum but is the result of complex interactions between the enterprise and its regional context. This confirms the usefulness of a multilevel analytical approach to understanding entrepreneurial dynamics (Hess, 2025; Fuentes et al., 2024).

A common denominator of these approaches is the recognition that regions must proactively shape entrepreneurial support environments rather than merely reacting to market trends. This includes not only financing entrepreneurship but also creating ecosystems in which entrepreneurial ideas can evolve into sustainable innovations (Bejjani et al., 2023). Fuentes et al. (2024) stress that the entrepreneurial ecosystem functions as a living system, in which the entrepreneur is not a passive recipient of services but an active co-creator of the innovation environment. Today, entrepreneurship represents more than a source of GDP or employment; it has become a key driver of structural transformation, innovation flows, and participatory approaches to regional development strategies.

2.1.2 Defining the Entrepreneurial Experience

Understanding entrepreneurship as a driver of regional development naturally leads to the question of how entrepreneurs experience their entrepreneurial journey, how their ideas are transformed into business models, and how they assess their overall experience. These processes are encompassed by the concept of the entrepreneurial

experience, which goes beyond traditional economic indicators such as profit or growth. It includes the broader spectrum of creative processes, learning, coping with uncertainty, and continuous interaction with supportive or constraining institutional infrastructures, all of which foster greater openness to change and adaptation of key business model components (Burnell et al., 2023).

Traditional approaches often define entrepreneurial experience quantitatively, as the accumulation of entrepreneurial activities, such as the number of previously established companies, team leadership experience, or market knowledge. Cha and Bae (2010) highlight the significance of prior activities as predictors of future entrepreneurial success. More recent conceptualizations, however, distinguish between objectively measurable outcomes (e.g., number of ventures, profitability) and the subjective experience of the entrepreneur, which includes perceived competence, perceived support, psychological barriers, a sense of belonging, and personal growth. Soetanto and Jack (2016) argue that psychological factors, such as self-confidence and self-efficacy, play a crucial role in shaping the entrepreneurial experience and develop through interaction with mentors, experts, and structured support programs.

The perceived experience becomes particularly important in supportive environments where entrepreneurs are not passive users of services but active co-creators of their development. In recent academic discourse, a productive analogy has emerged between entrepreneurial experience and customer experience, allowing the transfer of tools from service marketing into entrepreneurial research (Stephens et al., 2022; Fernandes et al., 2022).

Stephens et al. (2022) propose that, just as consumers navigate a customer journey, entrepreneurs experience an entrepreneurial journey composed of multiple touchpoints with their environment, including education, mentorship, financial resources, and networking opportunities. Together, these interactions shape entrepreneurs' perception of their environment and the meaning of their entrepreneurial path. This framework includes phases of entry, transition, and sustained engagement, reflecting the iterative nature of entrepreneurship (Zaheer et al., 2022).

Entrepreneurial experience is thus nonlinear, often emotional, and highly context dependent. As Kuckertz (2019) observes, entrepreneurs move through various stages, from uncertainty and doubt to confidence and achievement. Their perception of the environment significantly shapes their behavior in response to external support and barriers (Fuentes et al., 2024).

Consequently, it has become increasingly justified to treat the entrepreneur as a user of services within an ecosystem, applying methodologies from service design and behavioral psychology. For instance, experience design approaches enable a deeper understanding of how entrepreneurs navigate incubators, accelerators, workshops, or administrative procedures (Bejjani, 2023). As Fernandes (2022) points out, the value for the entrepreneur is created through a holistic experience that includes emotional, cognitive, and social dimensions.

Models of the entrepreneurial journey have therefore become valuable conceptual tools, enabling researchers to trace key milestones, barriers, and transitions between phases of entrepreneurial growth (Stephens et al., 2022). Fuentes et al. (2024) emphasize the interaction between personal characteristics and the external environment. Their perspective, based on systems theory, views the entrepreneur as part of a complex ecosystem in which experience results not only from intrinsic motivation but also from the responsiveness of the environment to individual needs.

The entrepreneurial experience thus emerges as a dynamic, multidimensional interaction between the individual and the ecosystem, within which perceptions of competence, belonging, and progress are formed, strengthened, or challenged. By incorporating interdisciplinary concepts such as user experience, design thinking, and behavioral analysis, we can better understand what constitutes a high-quality entrepreneurial experience and how this perception is shaped by services, processes, and relationships within support systems (Zaheer et al., 2022). For regions such as the Ljubljana Urban Region, this implies the need for a thoughtful design of services that offer entrepreneurs a coherent, meaningful, and sustainably oriented entrepreneurial path that transcends functional support and fosters emotional engagement with the ecosystem.

2.1.3 Entrepreneurial ecosystems as a framework for understanding the entrepreneurial experience

Understanding entrepreneurship as a driver of regional development naturally raises the question of how entrepreneurs experience their developmental path, in what context their idea evolves into a business model, and how they assess interactions with the system in which they operate. These aspects are captured by the concept of the entrepreneurial experience, which goes beyond traditional economic indicators such as profit and growth, and encompasses the complexity of creation, learning, psychological responses to uncertainty, and interactions with institutional and social environments (Kuckertz, 2019; Soetanto & Jack, 2016).

A comprehensive understanding of the entrepreneurial experience requires engagement with broader theoretical frameworks that highlight the systemic conditions for the emergence, development, and success of entrepreneurship. At the center of these approaches are the concepts of entrepreneurial and innovation ecosystems, which have become key paradigms for analyzing and designing support environments over the past two decades (Asmit et al., 2024).

An entrepreneurial ecosystem is defined as a system of interconnected actors, institutions, and resources that together enable entrepreneurial activity and value creation. These systems are always specific to their geographical, cultural, and institutional contexts. Fuentes et al. (2024) emphasize that these are dynamic and complex systems where entrepreneurial success results not only from individual decisions but also from multilevel interactions among actors, structures, and contexts that simultaneously shape institutional conditions and the entrepreneur's perception of opportunities.

Within the ecosystem approach, two core models prevail: the entrepreneurial ecosystem (EE) and the innovation ecosystem (IE). The former focuses on the development of entrepreneurship through support structures such as incubators, accelerators, mentors, and investors, while the latter highlights interactions among scientific institutions, companies, and public actors that enable knowledge flows, the commercialization of research, and systemic support for innovation (Bejjani et al., 2023; Thees et al., 2020).

Gorelova et al. (2021) conclude that digital entrepreneurial ecosystems not only facilitate the growth of entrepreneurship in smart cities but also contribute to broader social and economic development by promoting open innovation. At the same time, they encourage the emergence of new entrepreneurial opportunities and enable business model testing, allowing cities to attract talent and investment.

Pustovrh et al. (2020) analyze the specific conditions in Slovenia and demonstrate how collaboration among universities, businesses, and support structures influences the realization of innovation potential. However, they note that such collaboration is neither automatic nor linear. They stress the importance of aligning interests, standardizing communication channels, and creating shared visions, which is particularly relevant for transitional regions with limited resources and fragmented support infrastructure (Fernandes et al., 2022).

Coworking spaces, incubators, and accelerators are increasingly conceptualized as more than physical facilities. They function as co-creation platforms where formal and informal modes of learning, networking, and experimentation intersect in hybrid ways (Aumüller-Wagner & Baka, 2023). Their contribution to the entrepreneurial experience is evident in fostering a sense of belonging, identification with the community, and access to informal knowledge (Thees et al., 2020; Fernandes et al., 2022).

At the institutional level, cross-sector collaboration theories have become central to analyzing innovation environments. The Triple Helix and Quadruple Helix models provide structured frameworks for understanding interactions among universities, industry, government, and civil society. Cai (2020) expands the Quadruple Helix model by including the natural environment alongside civil society, allowing for a more comprehensive explanation of innovation ecosystems. Regions that successfully activate all pillars of the model through dialogue and joint project development are more effective at fostering stakeholder resilience and maintaining sustainable innovation ecosystems over time (Paredes-Frigolett, 2015; Shin et al., 2023).

The concept of co-creation has also become increasingly important, moving beyond passive service use toward the active involvement of entrepreneurs in shaping the support environment. In a study of Munich, Thees et al. (2020) show that the

development of entrepreneurial spaces can be understood as the result of horizontal collaboration among entrepreneurs, public actors, and residents, where space functions as a field for experimenting with new forms of work, living, and social interaction. These cases confirm that top-down management of entrepreneurship is often ineffective unless supported by local engagement and open collaborative processes.

From a methodological perspective, research on entrepreneurial ecosystems increasingly relies on multilevel approaches that allow for the analysis of interactions at the micro (individual), meso (organizational), and macro (regional, policy) levels. Prencipe et al. (2020) illustrate this by comparing the growth of university spin-offs in Italy and Spain, finding that regional context, including scientific networks, institutional support, and cultural capital, is a decisive factor for company growth. The multilevel approach reveals that entrepreneurial decisions often respond to systemic conditions such as policy measures, normative expectations, and access to social capital.

Based on these findings, it can be argued that the development of support environments must be grounded in an understanding of ecosystems as complex, adaptive, and interactive systems, where stakeholders are not merely service recipients but active co-creators. It is essential that entrepreneurial ecosystems be approached dynamically, taking into account their evolution, stakeholder interactions, and alignment with global sustainable development goals (Theodoraki et al., 2021). In regions such as the Ljubljana Urban Region, this means developing open collaboration platforms, implementing feedback systems, and designing flexible tools for experimentation and responsiveness.

2.1.4 Urbanity and the local embeddedness of entrepreneurship

In the context of entrepreneurial ecosystems, urbanity is not merely a backdrop but a key factor that structures access to resources, shapes entrepreneurs' behavioral patterns, and determines the institutional logics of operation. Urban areas function as intersections of knowledge, technology, and experimental social practices, positioning them as central locations for entrepreneurial development. Cities are not only spaces of resource concentration but also arenas of interaction, creativity, and institutional experimentation. Owing to their high population density, diversity of

competencies, access to infrastructure, and cultural as well as social dynamics, urban environments are often regarded as natural habitats for entrepreneurship (Thees et al., 2020; Theodoraki et al., 2021).

Urban centers offer numerous advantages to entrepreneurs: proximity to knowledge and universities, networking opportunities, diverse human capital, and higher levels of openness and tolerance for risk. At the same time, urban environments also present structural challenges, such as high real estate costs, limited access to growth space, infrastructural congestion, and social pressures linked to gentrification (Josipovič, 2023; Hekič & Kerbler, 2023). Thees et al. (2020) emphasize that the balance between opportunities and constraints strongly influences the structure of urban entrepreneurial ecosystems and shapes entrepreneurs' subjective perception of their entrepreneurial journey in the urban space.

The concept of the entrepreneurial destination, which integrates a location's attractiveness for living, working, and creating, is becoming an increasingly relevant framework for understanding entrepreneurship in urban regions. In Munich, for example, elements such as co-working, co-living, and co-experience serve as infrastructural nodes that connect entrepreneurs, residents, and even visitors. These spaces create conditions for social innovation and open collaboration, where a city's entrepreneurial potential is no longer measured solely by the number of startups but also by its ability to foster meaningful interactions among diverse stakeholders (Thees et al., 2020).

Across Europe, there are numerous examples of urban regions that have successfully developed dynamic support ecosystems. The Basque region of Biscay in Spain, for instance, has established the "Startup Bay" model, which connects entrepreneurs with public institutions and the academic sector while leveraging urban infrastructure to stimulate innovation. The success of such urban hubs is closely tied to their ability to create open innovation spaces that serve as inclusive platforms for transversal collaboration across sectors, groups, and levels (Campos-Blázquez et al., 2024).

Translating this into the Slovenian context, the Ljubljana Urban Region (LUR) represents a distinctive example of an area characterized by a high concentration of knowledge, access to research infrastructure, and institutional support mechanisms.

The Regional Development Agency of the Ljubljana Urban Region (RRA LUR) plays a pivotal role in this regard. Through programs such as PUŠ 2025 and initiatives like PONI LUR, it acts as a connector among entrepreneurs, municipalities, and other regional stakeholders.

The role of RRA LUR as an institutional actor extends beyond the operational implementation of support measures. Its central mission is also to foster dialogue between local authorities, entrepreneurial communities, and civil society. In doing so, the agency co-creates the conditions for an integrated entrepreneurial space that is responsive, participatory, and attuned to the specific challenges and advantages of the urban context (Djurica et al., 2023). From this, it follows that the entrepreneurial experience is neither neutral nor universal but is deeply embedded in the spatial, social, and institutional characteristics of the local environment, such as those of the Ljubljana Urban Region.

2.2 Empirical Insights into Support Environments

In understanding the entrepreneurial experience as a complex interaction between the entrepreneur and the environment, the key question is what role various types of support environments play in shaping this experience. A support environment is not a homogeneous structure but a heterogeneous system of diverse organizations, programs, and practices whose functions range from business consulting to psychological support (Ratinho et al., 2020).

2.2.1 Types and Roles of Support Environments

In their systematic review, Ratinho et al. (2020) categorize support mechanisms into four main groups: incubators, accelerators, university-based support structures, and science parks. These mechanisms differ in functional logic, target users, and institutional embeddedness. Incubators focus on the early stages of entrepreneurship, offering spatial, mentoring, and administrative support. Accelerators are typically oriented toward rapid product development and access to funding, often through intensive, time-limited programs. University-based structures provide support for the creation of spin-off companies and related initiatives, while science parks operate as managed spatial units aimed at connecting technology-oriented firms and research organizations (Ratinho et al., 2020).

Ratinho et al. (2020) note that existing empirical studies are geographically unbalanced, with a predominance of Anglo-American examples and fewer studies from Central and Eastern Europe. Moreover, most research assesses success through quantitative indicators such as business survival or revenue growth, while rarely incorporating entrepreneurs' subjective perceptions of value, which represents a significant gap in understanding the entrepreneurial experience.

Pustovrh et al. (2020) analyze accelerators as hybrid organizations that combine market logic with elements of development policy. These no longer act solely as instruments for business growth but as institutional intermediaries among investors, the state, and local communities. Soetanto and Jack (2016) emphasize the role of universities and mentors as key components of the support environment, showing in a longitudinal study that the psychological effects of mentorship, such as confidence building and a sense of competence, often have a greater impact on an entrepreneur's journey than direct business outcomes.

In more contemporary forms of support environments, such as coworking spaces, the traditional spatial function is complemented by social dynamics, knowledge exchange, and community identification. Thees et al. (2020) show in the case of Munich that coworking functions as an "urban incubator," fostering co-creation of ideas, networking, and cultural integration of entrepreneurs into city life. Similarly, the PONI LUR program in the Ljubljana Urban Region integrates these dimensions into a comprehensive support model that combines training, mentoring, consulting, and access to entrepreneurial networks. Understanding this multidimensionality is essential for designing environments that are not only functional but also conducive to horizontal and broader cultural collaboration (Aumüller-Wagner & Baka, 2023).

2.2.2 Measuring the Entrepreneurial Experience

Viewing the entrepreneurial experience as a core component of the entrepreneurial ecosystem raises an important methodological question: how can this experience be measured with sufficient validity and sensitivity to its complex nature? While objective indicators of entrepreneurial success, such as revenues, employment growth, or firm survival, are well studied, the subjective dimension of the entrepreneurial journey remains underexplored. Measuring the entrepreneurial experience requires capturing perceptions, expectations, emotions, feelings of

competence, social support, and personal growth, dimensions that quantitative approaches often overlook (Soetanto & Jack, 2016; Ratinho et al., 2020).

As Soetanto and Jack (2016) emphasize, one of the central dimensions of the entrepreneurial experience is self-confidence and self-efficacy, which develop through interactions with mentors and support structures. In their quantitative study of entrepreneurship students in incubation programs, they found that high-quality mentoring significantly influences perceived entrepreneurial competence, often more strongly than short-term business success. However, they also discovered that neither mentoring nor incubation is strongly correlated with firm survival, which challenges the common assumption that entrepreneurial support organizations directly improve long-term startup stability. Instead, these organizations primarily function as intermediaries that enable startups to access resources, mentors, and networks, thereby enhancing their problem-solving capacity and ability to reach clients and suppliers (Clayton, 2024).

Recent research increasingly focuses on methods that capture the subjective experience of entrepreneurship. Commonly used approaches include semi-structured and in-depth interviews, which provide insight into entrepreneurs' perceptions and emotions; survey questionnaires employing Likert scales to measure satisfaction with specific aspects of support; and entrepreneurial journey mapping, in which entrepreneurs visualize their paths, milestones, and critical experiences together with researchers (Bejjani, 2023; Fernandes, 2022).

Fernandes (2022) suggests approaching entrepreneurial experience in a way similar to customer experience, where value is measured through touchpoints between the entrepreneur and the support environment, for example, mentoring sessions or interactions in coworking spaces. This approach allows the identification of both positive experiences and those marked by frustration, bureaucracy, or lack of information. Stephens et al. (2022) further recommend narrative methods, in which entrepreneurs recount their stories as life arcs, revealing internal conflicts, key decisions, and the importance of mentorship and social support—elements often overlooked by quantitative approaches.

At the systemic level, Hess (2025) introduces a multi-level database model for monitoring entrepreneurial dynamics. His framework includes macro-indicators such as access to capital and regulatory stability, as well as entrepreneurs' micro-perceptions of service quality, inclusiveness, and access to knowledge. He emphasizes that modern evaluations of entrepreneurial environments must also consider cultural and emotional dimensions, since these fundamentally shape users' experiences of the support system.

When choosing methods, key considerations include validity, reliability, and contextual relevance. Interviews provide depth but limited comparability, while surveys allow for broader analysis with less contextual nuance. The most promising approach combines both: qualitative methods generate rich conceptual indicators, and quantitative methods validate and generalize them (Ratinho et al., 2020; Fuentes, 2024).

For programs such as PONI LUR, this implies that evaluation should go beyond output metrics and systematically assess participants' entrepreneurial journeys. This includes examining perceived mentorship quality, competence development, program relevance, and responses to bureaucratic or psychological challenges. Such insights could inform policy design based on user experience rather than purely economic outcomes. Measuring entrepreneurial experience therefore transcends methodological considerations and becomes a strategic tool for creating environments that not only provide services but also actively understand and co-create their users' experiences.

2.2.3 Review of Empirical Studies

An analysis of existing literature on entrepreneurial ecosystems reveals numerous studies that comparatively examine different regional contexts and forms of support. At the core of these studies are questions concerning how institutional, cultural, spatial, and infrastructural characteristics of regions influence the formation of support environments, and how entrepreneurs perceive and actively reshape these environments through their activities (Ratinho et al., 2020; Asmit et al., 2024).

A notable example of a systematically developed entrepreneurial ecosystem is the Basque region of Biscay in Spain, where the Startup Bay strategy was implemented. Campos-Blázquez et al. (2024) describe how collaboration between the regional government and stakeholders from the public, private, and academic sectors has created an ecosystem based on long-term principles of trust, cooperation, and shared identity.

A similar model has emerged in Munich, where entrepreneurship is deeply intertwined with the city's spatial and cultural structure. Thees et al. (2020) note that urban infrastructure functions not merely as a passive backdrop but as a constitutive element of entrepreneurial development.

Coworking spaces such as WERK1 are not only substitutes for expensive commercial real estate but also serve as infrastructural and social hubs that facilitate access to resources, networking, and a sense of belonging. In addition to economic accessibility, they provide psychosocial support, which is particularly crucial for entrepreneurs in the early stages of business development.

Comparative studies, such as that of Prencipe et al. (2020), which investigates the growth of university spin-offs in Italy and Spain, show that the success of regional ecosystems is not directly linked to the amount of financial investment but rather to the quality of interconnections. The key success factors of regional ecosystems therefore include the strength of scientific and research infrastructure, integration into international networks, the ability to retain talent, and institutional cohesion.

From the perspective of digital transformation, Bejjani et al. (2023) emphasize the importance of digital entrepreneurial ecosystems within the European Union. They highlight the need for data infrastructure, opportunities for experimentation in real urban environments (living labs), and the modularity and adaptability of support structures. The authors stress that entrepreneurs should not be treated as passive users but as co-creators of programs already at the design stage, which significantly enhances the user relevance of ecosystems.

Hess (2025) introduces a complex multi-level framework for measuring the performance of entrepreneurial ecosystems. This model combines quantitative indicators, such as the number of new enterprises, investment volume, and startup

survival rates, with qualitative dimensions such as perceived accessibility of support, sense of inclusion, and trust in institutions. Such a framework enables comparative analyses between regions (benchmarking) and serves as a foundation for developing data-driven, user-centered policies (Prencipe et al., 2020).

2.2.4 Identified Research Gaps

Despite the extensive body of literature on entrepreneurial ecosystems, support environments, and innovation policies, significant gaps remain, particularly in understanding the entrepreneurial experience within locally embedded contexts such as the Ljubljana Urban Region. These gaps are theoretical, empirical, and methodological in nature and often stem from neglecting the user perspective, insufficient contextualization, and the absence of participatory approaches.

The first major gap concerns the absence of entrepreneurial experience as an explicit analytical concept in most analyses of the entrepreneurial environment. Ratinho et al. (2020) emphasize that many studies are based on institutional or managerial perspectives, while entrepreneurs, as the final users, remain analytically marginalized and pushed to the periphery of analysis. The focus is on quantitative results such as the number of firms, revenue growth, business survival rates, and employment figures, while the subjective experiences of actual users are rarely considered. Consequently, a gap emerges between the institutional offer and the real needs and perceived values of entrepreneurs.

The second research gap lies in the lack of locally embedded analyses that would take into account the social structure, institutional capacity, culture of collaboration, and historical development paths of individual regions. Many models follow a one-size-fits-all logic, meaning they are transferred from globally recognized cases (for example, London, Silicon Valley, Munich) without sufficient adaptation to the specific conditions of smaller regions such as the Ljubljana Urban Region. Pustovrh et al. (2020) note that the institutional infrastructure in Slovenia operates within interlinked and relatively small networks, where there is little room for large-scale schemes, and success depends instead on sustainable, horizontal, and collaborative approaches. Pittz (2024) adds that the heterogeneity of entrepreneurial ecosystems arises from specific local cultural, historical, and economic characteristics that cannot be easily replicated elsewhere. This means that approaches attempting to

replicate successful ecosystems, such as the so-called "next Silicon Valley," often overlook the key internal features that enable success and therefore fail to achieve comparable outcomes.

The third gap relates to the absence of participatory methods in the design, implementation, and evaluation of support programs. Although the literature frequently mentions co-creation and co-design (Thees et al., 2020; Campos-Blázquez et al., 2024), actual examples of implementation are rare. Entrepreneurs are often treated as passive users rather than active co-creators of the ecosystem. Fuentes et al. (2024) clearly emphasize that in modern ecosystems, value emerges through interaction and responsiveness rather than through a one-directional transfer of services.

The measurement of entrepreneurial experience also remains largely confined to quantitative yet substantively limited indicators that overlook the emotional, cognitive, and relational dimensions of the entrepreneurial journey. Hess (2025) warns of the so-called indicator bias, referring to the predominance of metrics that are easy to collect but fail to capture subjectively important aspects. As a result, policies may appear formally effective but remain poorly aligned with user realities. These gaps open opportunities for developing methodologies based on the inclusion of entrepreneurs as dialogue partners, co-creators, and evaluators. Qualitative methods, entrepreneurial journey mapping, and the co-development of success indicators should therefore be applied.

These research gaps can be summarized as follows: (1) lack of user orientation, (2) insufficient local contextualization, and (3) absence of participatory approaches. Future research and the development of entrepreneurial ecosystems should be grounded in integrating theory with local realities and in adopting responsive and participatory approaches that go beyond formal structures and address the lived entrepreneurial experience (Ratinho et al., 2020; Thess, 2025; Pittz, 2024).

2.3 Connecting Theory with Practice

To develop a more sensitive and effective support environment for entrepreneurs, it is necessary to move beyond traditional economic models and incorporate concepts from psychology, behavioral sciences, service design, and marketing. The

entrepreneurial experience is not merely a function of access to resources but a complex and often emotionally charged journey that encompasses feelings of belonging, confidence, effort, uncertainty, and personal growth (Soetanto & Jack, 2016; Kuckertz, 2019).

2.3.1 Interdisciplinary Approaches to Understanding the Entrepreneurial Experience

Interdisciplinary approaches enable a broader understanding of the entrepreneurial journey and the integration of diverse research methodologies. These include the use of methods such as user journey mapping, design thinking, and storytelling, originating from service design and user-centered innovation. Bejjani et al. (2023) emphasize that such approaches are essential for developing personalized and flexible services within digital entrepreneurial ecosystems. Institutions, through collaboration with entrepreneurs, shape the support environment by taking into account their experiences, needs, and capabilities. Fernandes (2022) proposes an analogy between a consumer using a service and an entrepreneur engaging with the support environment, such as educational programs, mentoring sessions, or institutional digital support.

Linking this perspective with behavioral psychology also provides insight into motivational factors, perceptions of risk, attitudes toward mistakes, and the role of intrinsic motivation. Fuentes et al. (2024) advocate for a systemic view of the entrepreneur as a dynamic and reflective actor who responds to environmental stimuli while co-creating personal identity through interactions with mentors, institutions, and peers. Within this framework, the entrepreneurial experience becomes a socially and symbolically constructed phenomenon, shaped by normative expectations and discursive practices. When institutions implicitly favor rapid growth, aggressive expansion, and scalability, entrepreneurs often internalize these criteria as the only legitimate ones, even when their activities are based on sustainable, local, or cultural values. This gives rise to a cultural matrix of entrepreneurship that influences decision-making and self-perception among entrepreneurs.

Therefore, the interdisciplinary approach is not merely a useful research framework but a necessary epistemological strategy for understanding the entrepreneurial experience as a relational and situated practice. Hess (2025) notes that measuring the entrepreneurial ecosystem must also include cultural, symbolic, and relational indicators, such as how entrepreneurs evaluate their experiences, which services they perceive as meaningful, which they find frustrating, and how these factors influence their long-term loyalty to the ecosystem. These approaches enable an important epistemological shift: the entrepreneur is no longer viewed as a purely rational actor optimizing resources, but as a holistic individual whose entrepreneurial journey is built through an interplay of social, cultural, and emotional dimensions of experience.

2.3.2 Models of Collaboration and Co-Creation in Support Environments

If the interdisciplinary perspective has placed the entrepreneur at the center as a user with a unique experience, collaborative and co-creative models take this one step further. The entrepreneur becomes an active co-creator of the support environment, its services, institutions, and norms of operation. This shift is based on the understanding that complex systems, such as entrepreneurial ecosystems, are more effective when built through participatory, iterative, and responsive processes in which user experiences are transformed into organizational learning and structural adaptation (Campos-Blázquez et al., 2024).

Co-creation and co-design models originate from service design and social innovation practices, where users are involved from the earliest stages of identifying needs, developing solutions, and testing prototypes. In the entrepreneurial context, this means that entrepreneurs are not merely recipients of support but active participants in designing incubators, mentoring programs, evaluation systems, and even strategic orientations (Thees et al., 2020).

Empirical examples from Munich demonstrate how coworking spaces have become arenas of experimentation and community-based service design, where entrepreneurs, together with local authorities, co-create new services, spaces, and even operational models. Their success is not only the result of accessible infrastructure but also of enabling active user participation, which strengthens the sense of belonging, legitimacy, and institutional relevance (Thees et al., 2020).

Even in more institutionally structured contexts, such as the Basque Startup Bay model, systemic openness to collaboration and plurality of perspectives proves to be a key component of success. Campos-Blázquez et al. (2024) illustrate how the regional government maintains a platform for continuous dialogue, where startups, research institutions, companies, and policymakers meet not merely to exchange information but with the explicit goal of co-shaping the ecosystem through feedback loops, idea testing, and inclusion of diverse stakeholder perspectives.

In entrepreneurial ecosystem theory, such models are already established through the Quadruple Helix framework, which emphasizes the need for collaboration among four key sectors: academia, industry, the public sector, and civil society. This approach allows the analysis of synergies between knowledge creation, normative control, and value generation, as actors engage in "taking the roles of others" and create overlaps within helix spaces. This facilitates the development of more inclusive and socially embedded innovation environments, such as living labs, which further create experimental settings in which entrepreneurs collaboratively design and test new services under real-world conditions (Cai, 2020; Thess et al., 2020).

2.3.3 Methodological Approaches in Researching the Entrepreneurial Experience

Researching the entrepreneurial experience as a user-centered, developmental, and emotional journey requires methodological approaches that go beyond the traditional focus on quantitative metrics. Javadian et al. (2020) note that the use of qualitative research has significantly increased in recent decades, allowing for a diversity of methodological approaches to the study of entrepreneurship. As a result, the combination of methods that enable a multidimensional and contextualized understanding of the complexity of the entrepreneurial experience is becoming increasingly established. Qualitative research, especially when using a multi-level approach, enables the identification and analysis of causal mechanisms that explain entrepreneurial processes and outcomes (Burg et al., 2020).

Hlady-Rispal et al. (2021) emphasize that combining quantitative and qualitative research methods provides a deeper understanding of contemporary entrepreneurial challenges, as it captures the broader context and complexity of entrepreneurship research. The most commonly used methodological approaches include semi-

structured interviews, focus groups, questionnaires, and ethnographic methods, which allow for detailed examination of entrepreneurs' everyday practices and the contextual characteristics of their activities (Burg et al., 2020).

Soetanto and Jack (2016) stress that combining longitudinal surveys with qualitative interviews is effective for monitoring the development of entrepreneurial self-confidence. Their study shows that forms of support such as mentoring contribute not only to business outcomes but also to feelings of competence, belonging, and psychological empowerment, dimensions that can primarily be captured through subjective indicators. Similarly, Stephens (2022) applies a narrative methodology, in which entrepreneurs recount their journey through so-called life arcs. This approach reveals the invisible dynamics of the entrepreneurial path, including emotional breakthroughs, personal transitions, decisive turning points, and the importance of relationships with other stakeholders, all of which are often absent in quantitative studies.

An important step toward a comprehensive understanding of the entrepreneurial experience is offered by Hess (2025), who develops a multi-level methodology combining macroeconomic indicators with entrepreneurs' micro-perceptions. This approach makes it possible to analyze how individual entrepreneurs perceive the quality of their support environment in relation to the broader institutional framework. It is essential to emphasize that understanding the entrepreneurial experience cannot be limited to internal individual factors but must include the entire context, from legislation and access to capital to social networks and interactions with institutions.

In regional studies, comparative analysis (benchmarking) is often used to evaluate entrepreneurial ecosystems based on indicators such as program effectiveness, user satisfaction, level of participation, and the impact of mentoring (Campos-Blázquez et al., 2024). On this basis, a clear need emerges for the development of an integrated methodological model that combines in-depth interviews and quantitative questionnaires for broader comparability, along with iterative mechanisms for incorporating stakeholder feedback.

2.3.4 The Relevance for the Ljubljana Urban Region

All of the theoretical concepts and empirical findings discussed thus far acquire their full significance only when analyzed within a specific spatial and institutional context. The Ljubljana Urban Region (LUR) represents a distinctive developmental environment that combines an urban center with a high concentration of knowledge, research infrastructure, entrepreneurial potential, and cultural capital, while simultaneously facing institutional challenges typical of medium-sized regions in post-transition countries (Pustovrh et al., 2020).

The Ljubljana Urban Region (LUR) thus constitutes a unique developmental setting that integrates knowledge concentration, research infrastructure, and entrepreneurial potential, while contending with the structural and institutional limitations characteristic of post-transition economies (Pustovrh et al., 2020). Within this context, the Regional Development Agency of the Ljubljana Urban Region (RRA LUR) plays a pivotal role as an intermediary between municipalities, enterprises, and public institutions, particularly through the PUŠ 2025 program. Its intermediary institutional position enables it to link strategic policy planning with the actual needs of end users. PONI LUR, as one of its key instruments, is distinguished by its comprehensiveness (mentorship, consulting, networking); however, the question remains whether the program also encompasses the subjective and psychological dimensions of the entrepreneurial experience.

International studies (Campos-Blázquez et al., 2024; Thees et al., 2020; Fuentes et al., 2024; Hess, 2025) emphasize that the success of entrepreneurial ecosystems depends less on the number of programs and more on the quality of interconnections among actors, their adaptability, and the inclusion of users in the design and evaluation of policies. For LUR, this implies a potential shift from the model of a »program for entrepreneurs« toward an »ecosystem with entrepreneurs«, thus moving toward a co-created support environment grounded in responsiveness, relational values, and legitimacy through participation.

3 Research

The study analyzed the entrepreneurial experiences of participants in the PONI LUR program within the Ljubljana Urban Region in order to examine their demographic characteristics, entrepreneurial experience, motivation for entering the program, and its effects. The purpose of the research was to determine the impact of the support environment on entrepreneurial activity and to assess the program's effectiveness in fostering entrepreneurship.

3.1 Methodology

The research was based on a questionnaire that included both closed and open-ended questions, as well as a set of statements with ratings and open-form suggestions. This approach enabled the collection of quantitative data while simultaneously providing qualitative insights into participants' personal experiences and their proposals for improving the program, based on the »actor-analysis« method, which, as part of a multi-actor process, allows for insights into the observations and discussions of direct program participants (Hermans & Thissen, 2009).

Analytically, the study relied on a method of detailed examination and decomposition of collected data (Ragin, 2007). Inductive reasoning enabled the formulation of general findings from individual responses, while deductive reasoning was applied to test the consistency of results with established theories of entrepreneurship (Ragin, 2007, 91). Particular attention was given to comparing participants from the Municipality of Ljubljana with those from other municipalities and to analyzing the relationship between education level and the likelihood of establishing a business. A comparative method was also applied to identify similarities and differences between participants with and without prior entrepreneurial experience, as 48 % of respondents had already engaged in entrepreneurial activities. Additionally, synthesis was used to integrate data from various sources into a coherent whole (Ragin, 2007, 106), complemented by a retroductive approach, which allows for continuous testing of theory against empirical data and contributes to the reliability of findings (Ragin, 2007, 71–72).

3.2 Formulation of Hypotheses

The objective of the study was to examine the influence of the PONI LUR program's support environment on participants' entrepreneurial activity and to analyze demographic and entrepreneurial factors that contribute to a higher likelihood of establishing a business after completing the program. For this purpose, four research hypotheses were formulated:

- *(H1) Better prior education (a higher level of formal education) among participants represents a greater potential for a successful entrepreneurial path.*
- *(H2) Participants of the PONI LUR program from the Municipality of Ljubljana (MOL) are more likely to establish a business compared to participants from other municipalities within the Ljubljana Urban Region (LUR).*
- *(H3) Participants with previous entrepreneurial experience are more likely to sustain their business after completing the program.*
- *(H4) The program provides participants with significant opportunities to tailor its content according to their preferences.*

To formulate the final findings, we employed a synthetic method, linking quantitative data with existing literature and theoretical frameworks on the entrepreneurial ecosystem. We also followed the retroductive approach (Ragin, 2007, 71–72), which enabled continuous testing of theoretical assumptions against empirical data and contributed substantially to the objectivity and reliability of the findings. The entire research process was therefore based on questionnaire analysis, which highlighted key differences and similarities among various participant groups.

3.3 Survey

Data on participants, their attitudes, and experiences with the PONI LUR program, as well as their entrepreneurial ambitions and prior experience, were collected using a survey method. The questionnaire was first designed and then published on the online platform 1ka. The survey was open from 19 to 23 May 2025.

3.3.1 Sample Size

The sample size in relation to the overall population (N = 66 out of 109) is more than half and contains elements of a census. The survey response rate was notably high, as three-fifths of all program participants (61 %) responded to the invitation and submitted completed questionnaires. This ensures a high level of representativeness for the research results, which are specific, and purpose driven. The findings provide analytical insights into the effectiveness of entrepreneurship training programs such as PONI LUR, which will be further discussed in Chapter 4 (Discussion).

3.3.2 Sample Structure

Out of a total of 109 PONI LUR participants, 66 completed questionnaires were collected between 19 and 23 May 2025. More than two-thirds (68 %) of respondents were women, indicating the predominance of female participation in entrepreneurial support programs. The average age of participants was 37, reflecting a diverse age structure. Four-fifths (79 %) of respondents held tertiary education degrees, suggesting that the program primarily attracted well-educated individuals with solid academic backgrounds. Geographically, most respondents were from the Ljubljana Urban Region, which aligns with the program's regional focus. Nearly half (48 %) were from the Municipality of Ljubljana, while other municipalities with multiple participants included Brezovica, Borovnica, Medvode, and Vodice. Interestingly, 8 % of respondents came from outside the LUR area (Figure 1).

The representation of respondents by municipality roughly corresponds to the population distribution within the Ljubljana Urban Region (LUR). Out of the total 22 municipalities comprising the LUR, respondents originated from 17 municipalities included in the sample. While 8% of participants (five municipalities) came from outside the LUR, an equal share of 8% or five municipalities within the LUR had no respondents participating in the survey. Among the participants from other municipalities, three came from areas bordering the LUR, one from a neighbouring region (Gorenjska), and one from the Pomurje region (Table 1).

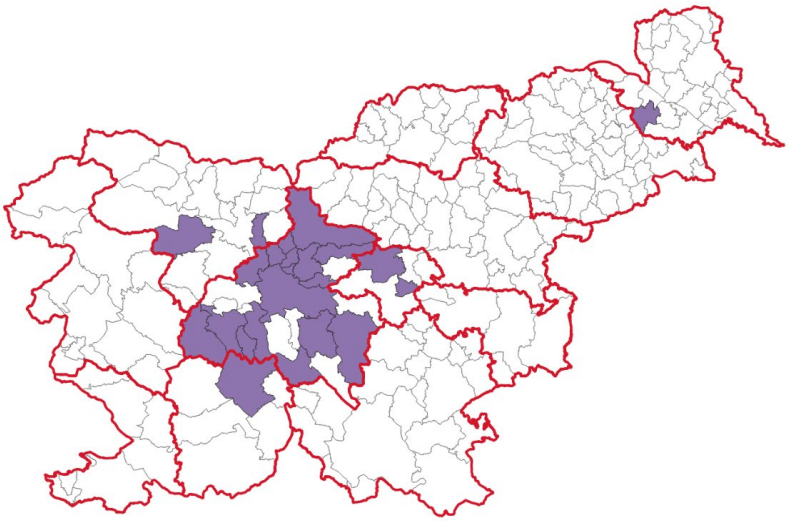

Figure 1: Municipal areas of surveyed PONI LUR program participants
Source: base data: GURS; data: Survey, 2025; cartography: D. Josipovič, 2025

Table 1: Participants of the PONI LUR Program by Municipality of Residence

Municipality of Residence	Share of Participants
Borovnica	5%
Brezovica	9%
Dol pri Ljubljani	2%
Domžale	2%
Grosupje	2%
Ivančna Gorica	3%
Kamnik	2%
Komenda	2%
Logatec	3%
Lukovica	2%
Medvode	5%
Mengeš	2%
Mestna občina Ljubljana	48%
Trzin	2%
Velike Lašče	2%
Vodice	5%
Vrhnika	2%
Drugo	8%

Source: Survey, 2025

3.3.3 Sociodemographic Structure and Thematic Sections of the Research Sample

Within the sociodemographic part of the study, the following data were collected:

- Gender
- Age
- Highest level of education achieved
- Municipality of permanent or temporary residence

This allowed us to connect entrepreneurial success across various thematic domains with gender, age, education level, and place of residence. Thematic focal points were structured through the following sets of questions:

- Did you have prior entrepreneurial experience before joining the PONI LUR program?
- What was your employment status before joining the PONI LUR program?
- Did you have a registered company before entering the program?
- Have you participated in other entrepreneurial programs before PONI LUR?
- Did you use any support institutions before joining the PONI LUR program?
- What was your main motivation for joining the program?
- Did you establish a company after completing the program?
- How long after completing the PONI LUR program did you establish it?
- What legal form did you choose?
- What business activity (or multiple activities) did you register?
- Is your company still active?
- How many people are currently employed in your company?
- Please estimate your company's annual revenue.
- Do you also operate abroad?
- What is your company's primary market?

We were also interested in the participants' views regarding individual aspects of the program and their entrepreneurial journey, as well as which program components they identified as the most important, those from which they gained the most, and

conversely, which ones they felt could have been omitted. We also inquired whether and to whom they would recommend the program. Finally, we examined whether their entrepreneurial path or the learning outcomes achieved within the PONI LUR program were influenced by the COVID-19 pandemic, as the program was implemented during that period.

4 Discussion

To address the research questions and objectives, we formulated four hypotheses. Each is presented and examined in detail below.

Hypothesis 1 (H1):

»A higher level of prior education among program participants represents a greater potential for a successful entrepreneurial career.«

The variable of prior education was assessed based on participants' self-reported highest level of completed education. The structure is presented in Table 2.

Table 2: Highest Level of Education Attained

Highest Level of Education Attained	
Responses	Percentage
1 (Secondary education)	21%
2 (Post-secondary education)	8%
3 (Undergraduate)	56%
4 (Master's degree)	15%
5 (Doctoral degree)	0%
6 (Other:)	0%
Total	100%

Source: Survey, 2025

In connection with education, the participants' self-perception of digital literacy also offers an interesting insight. The analysis showed that participants with secondary education rated their own digital literacy higher than those with post-secondary or higher education, who were more self-critical. As many as 29% of respondents with secondary education assessed their digital literacy as very good, while this share was only 13% among those with post-secondary education and 20% among those with higher education.

We found that prior entrepreneurial experience is statistically significantly associated with the level of education ($\chi^2 = 36.42$; df = 3; $p < 0.01$). Intuitively, one might expect that individuals with higher education would possess greater entrepreneurial knowledge and consequently achieve greater success in entrepreneurship. However, another process seems to be at play: those with higher education tend to have more reservations, which can act as a constraint in their decision-making. This pattern can be directly confirmed in the PONI LUR program. A significantly larger proportion of participants with secondary education (57%) reported prior entrepreneurial experience, while other educational groups were more evenly distributed between both categories.

A noticeable gender difference was also observed in terms of previous entrepreneurial experience. Women appeared to be somewhat more reserved in their entrepreneurial decision-making (44:56%), whereas the opposite pattern was found among men, where the proportion with prior entrepreneurial experience was higher (57:43%). It is important to note that in Slovenia, the ratio of tertiary-educated individuals favors women (60:40) (Josipovič, 2018).

When comparing the outcome of the PONI LUR program with participants' subsequent entrepreneurial actions, the majority (68%) established a company after completing the program. Among these new founders, more than half (53%) had no prior entrepreneurial experience. This is a highly significant outcome of the program, given that approximately half of the participants entered it without previous entrepreneurial experience and that a substantial proportion (56%) were unemployed before joining. It can therefore be inferred that the PONI LUR program had a decisive influence on participants' final decision to pursue an entrepreneurial path. This decision appears to be more firmly established among those with lower levels of education (Table 3).

Table 3: Establishment of a company after completing the program

	Yes	No
Secondary and post-secondary education	79 %	21 %
Higher and master's education	64 %	36 %
Total	68 %	32 %

Source: Survey, 2025

Based on the presented results, we can conclude that a higher level of education does not necessarily lead to greater entrepreneurial activity. However, broader education and general awareness—both of which are significantly enhanced through the PONI LUR program—clearly support the development of entrepreneurial potential and its realization. Therefore, Hypothesis 1 can be confirmed, with the note that higher formal education alone does not open the door to entrepreneurship. Instead, targeted educational programs focused on entrepreneurship play a more decisive role in the realization of entrepreneurial ideas.

Hypothesis 2 (H2):

»Participants in the PONI LUR program from the area of the Municipality of Ljubljana (MOL) are more likely to establish a company compared to participants from other municipalities in the Ljubljana Urban Region (LUR).«

We also examined the effect of program location and the relationship between the entrepreneurial initiative of participants from the urban environment (the MOL area) and those from suburban municipalities within the Ljubljana Urban Region (LUR), which corresponds to the Central Slovenia Statistical Region. The findings show that participants from the MOL area established a company in 71% of cases, which is above the overall average (68%). Among participants from MOL, prior entrepreneurial experience did not stand out as a decisive factor. However, differences emerged regarding employment status: there was a higher proportion of unemployed participants (59%) and self-employed individuals (28%), while the share of students (3%) and employed persons (9%) was notably lower compared to participants from suburban municipalities (see Table 4).

Table 4: Participants of the PONI LUR Program by Area of Residence and Employment Status

Area	Unemployed	Employed	Self-employed	Students
Municipality of Ljubljana (MOL)	59 %	9 %	28 %	3 %
Suburban municipalities and outside LUR	53 %	15 %	12 %	21 %
Total	56 %	12 %	20 %	12 %

Source: Survey, 2025

It can be inferred that participants from the Municipality of Ljubljana (MOL) were more likely to choose an independent entrepreneurial path primarily because they had prior experience with self-employment, rather than due to unemployment or the associated imperative to seek employment in general or as entrepreneurs (Figure 2).

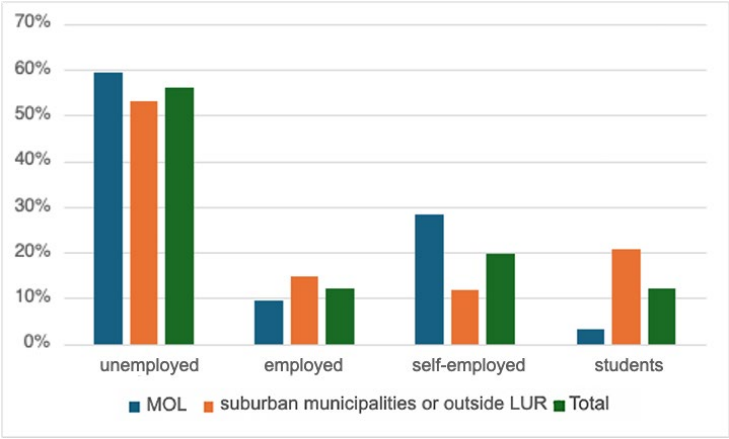

Figure 2: Employment status by area of residence of PONI LUR participants
Source: Survey, 2025

Based on the analysis, we can confirm Hypothesis 2, stating that participants from the area of the City Municipality of Ljubljana (MOL) are more likely to establish a company. The data show that this is primarily because most self-employed participants came from the City Municipality of Ljubljana.

Hypothesis 3 (H3):

»Participants with prior entrepreneurial experience are more likely to sustain their company after completing the program.«

The most frequently mentioned motivation for participating in the PONI LUR program already reveals the participants' core ambitions. There is a significant difference between those who cited unemployment as their main motivation (9%) and those who joined the program with the goal of developing a business idea (52%) or starting a company (57%). Since multiple motivational factors could apply simultaneously, it is not possible to infer the significance of each element

individually. However, it is notable that the establishment of a company was the most common motivation. Participants also emphasized mentorship and the creation of support networks (41%) as well as the acquisition of new knowledge (39%) as important motivational factors (Figure 3).

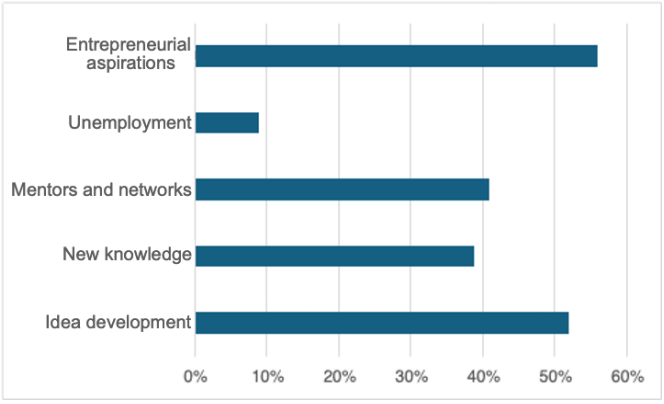

Figure 3: Primary motivation for joining the PONI LUR program (up to two responses)
Source: Survey, 2025

Given the predominant motivation among participants, the high share of newly established companies (68% of participants) is expected. In terms of company type, two-thirds (67%) registered as sole proprietors (s.p.), with an additional 11% opening part-time sole proprietorships. Other legal forms of business were less represented (Figure 4).

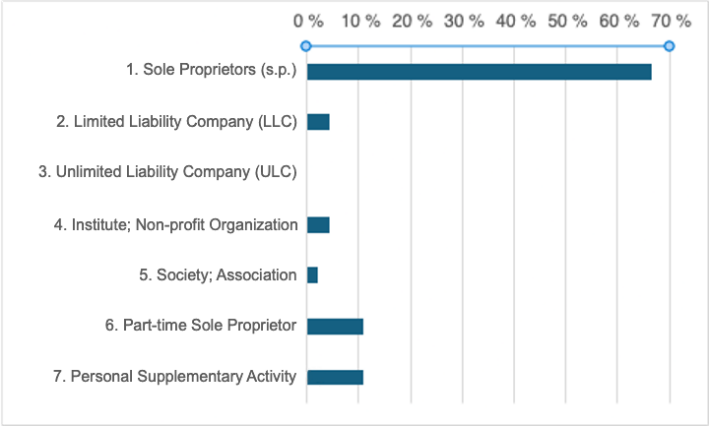

Figure 4: Legal forms of newly established companies
Source: Survey, 2025

If we compare the ratio between the entrepreneurial ventures that were still active at the time of the survey and those that had ceased operations after establishment, the vast majority (89%) remained active, which represents a significant success. The focus and ambition of participants who founded a company are also evident from the fact that most did so within three months of completing the program (69%). Only 6% established their business more than a year after finishing the PONI LUR program (Figure 5).

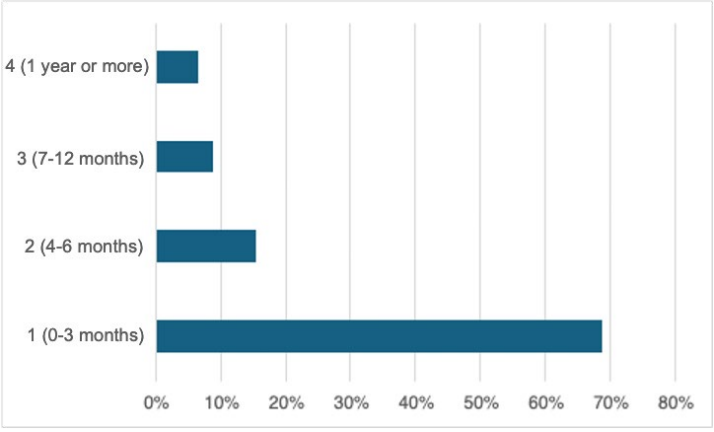

Figure 5: Time elapsed between completion of the PONI LUR program and company establishment
Source: Survey, 2025

To confirm or reject Hypothesis 3, it was first necessary to deconstruct it. Specifically, we needed to compare two groups: participants with prior entrepreneurial experience (48%) and those without such experience (52%). These two subgroups were therefore roughly equal in size. The next step was to examine the ratio between companies that remained active and those that ceased operations, considering these two groups. As previously shown, most PONI LUR participants were focused on establishing a company or defining a business idea. One might expect that participants with prior entrepreneurial experience would be more successful in maintaining their businesses. However, the analysis revealed that previous entrepreneurial experience did not have a statistically significant impact on business longevity. First, PONI LUR participants with entrepreneurial experience were less likely to start a company (34%) compared to their less experienced peers (27%), indicating slightly greater caution and conservatism in their decision-making.

As a result, their overall realization rate was somewhat lower. Second, among those who did establish a business, only 5% of companies founded by participants with prior experience ceased operations, compared to 16% among those without experience. This means that the overall share of active companies remains very similar between the two groups: 62% for those with experience and 61% for those without. Based on this cumulative distribution, Hypothesis 3 can neither be fully confirmed nor rejected. Prior entrepreneurial experience appears to have a preventive effect—it reduces the likelihood that participants will establish a company if their business idea is not viable. Less experienced participants, on the other hand, tend to pursue company formation more enthusiastically, even when the feasibility of their business model is uncertain.

Hypothesis 4 (H4):

»The program offers participants extensive opportunities to shape it according to their preferences.«

Finally, the research also aimed to evaluate the extent to which participants were able to actively influence the structure of the PONI LUR program. Therefore, we formulated the hypothesis that the program allows significant opportunities for co-creation and for participants to adapt the content to their needs.

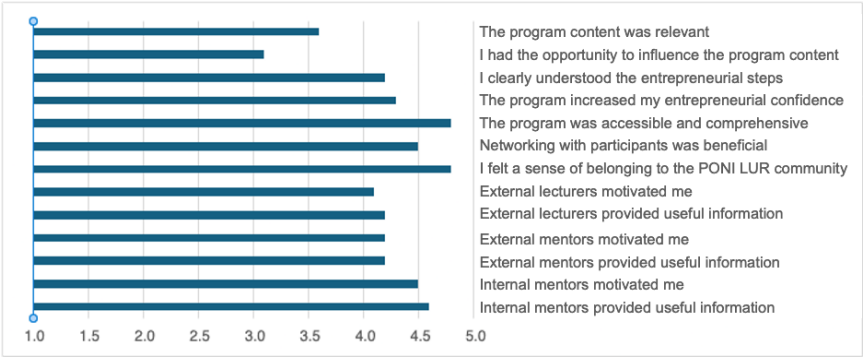

Figure 6: Average rating (from 1 to 5) of agreement with statements about the program
Source: Survey, 2025

The data show that participants were not particularly satisfied with the extent of their influence on the program's structure, content, and implementation. Their responses

were predominantly neutral (average score 3.1 on a 5-point scale) when asked about their ability to shape the program. However, participants rated the overall quality and relevance of the program's content above average (around 4 on a 5-point scale) (Figure 6).

Compared to the level of agreement, the average evaluations of the PONI LUR program content are somewhat lower but still remain at the level of »good« (3.7) (Figure 7).

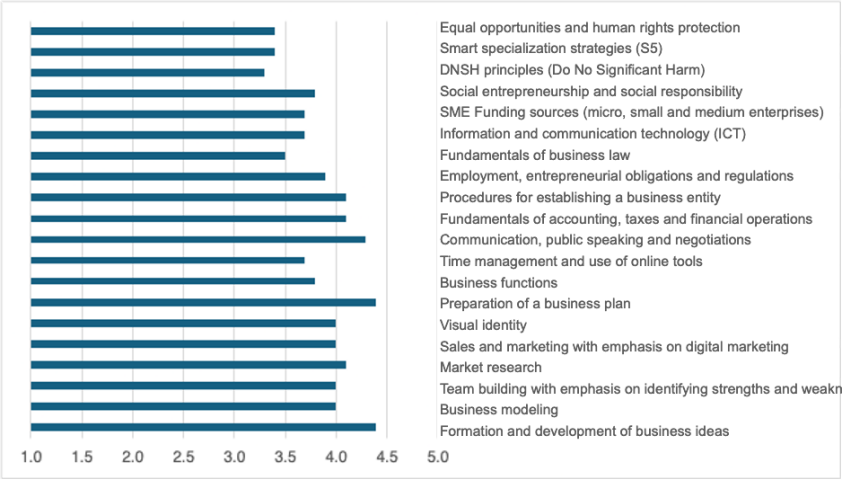

Figure 7: Average rating (from 1 to 5) of satisfaction with program content
Source: Survey, 2025

Nonetheless, it is important to emphasize that one of the key aspects of the program is its support for realizing the entrepreneurial path within one of the available legal forms. Given that more than two thirds of participants (67%) successfully established their entrepreneurial ventures, and that a large majority of those companies remain active today, 62% of all participants currently hold an entrepreneurial status, the program can be considered highly successful and impactful. Most participants (94%) followed the program steps, and as many as 97% confirmed that they received comprehensive and accurate information.

Therefore, Hypothesis 4 can be rejected, as participants did not have significant influence over the program structure, which was not its primary intent. However, it is crucial to highlight participants' suggestions, which can support the re-evaluation and further calibration of program content, especially given that 97% of participants would recommend the PONI LUR program to others (Source: Survey, 2025).

5 Conclusion

It can be concluded that one of the key aspects of the PONI LUR program is its support for the realization of the entrepreneurial path in one of the available legal forms. This is considered highly successful and significant, given that more than two-thirds of participants (67%) pursued their entrepreneurial path and the vast majority of their companies are still active today – 62% of all participants currently operate under some form of entrepreneurial entity. Nearly half (48%) of respondents had prior entrepreneurial experience before joining the program, meaning that PONI LUR attracted both beginners and those with previous experience. More than half (56%) of respondents were unemployed before joining the program, 18% were self-employed, and the rest were fully or partially employed, indicating diverse starting conditions among participants. Over one-third (36%) already had a registered company before entering the program, confirming that PONI LUR is also suitable for entrepreneurs in early development stages. Less than one-fifth (18%) had previously participated in other entrepreneurial programs, suggesting PONI LUR's added value as a new source of support. Additionally, 62% of participants had already used support institutions such as the Employment Service of Slovenia (ZRSZ) or business incubators. The main motivation for joining the program was, for most, the development of a business idea, acquisition of new knowledge, and access to mentoring – aligning well with the program's primary objectives.

In summary, the following conclusions can be drawn regarding the tested hypotheses:

(H1) Based on the presented results, we find that a higher level of education does not necessarily lead to greater entrepreneurial activity. However, broader education and awareness – to which PONI LUR significantly contributes – enable greater entrepreneurial potential and realization. Hypothesis 1 can thus be confirmed, with the note that formal education alone does not open the door to entrepreneurship;

rather, targeted, content-driven entrepreneurship programs are more important for business idea realization. (H2) Hypothesis 2 can also be confirmed: participants from the Municipality of Ljubljana (MOL) are more likely to establish a business. The data suggest this is primarily because the largest share of self-employed individuals – and thus those with prior entrepreneurial experience – come from the area of the City Municipality of Ljubljana.(H3) Regarding Hypothesis 3, we find that participants with prior entrepreneurial experience were less likely (34%) to establish a company than those without such experience 27%), meaning they are somewhat more conservative and cautious. Consequently, their realization rate was slightly lower. Among those who did establish a company, only 5% of experienced participants' businesses ceased operation, compared to 16% among less experienced participants. This means that the overall share of active companies is very similar between the two groups: experienced (62%) and inexperienced (61%). Based on this cumulative distribution, Hypothesis 3 can neither be fully confirmed nor rejected. Prior entrepreneurial experience slightly reduced the likelihood of starting unsustainable businesses that less experienced participants were more inclined to establish. From the perspective of active companies, the outcome is nearly identical. Therefore, entrepreneurial experience primarily serves as a preventive factor, helping experienced individuals refrain from launching ventures if the business idea is not feasible, unlike their less experienced peers. (H4) Hypothesis 4 can be rejected, as participants had limited opportunities to influence the program's content or structure – which, however, was not the program's primary purpose. It is nonetheless important to highlight participants' suggestions, which can help in re-evaluating and calibrating the content of future programs, given that 97% of respondents stated they would recommend the PONI LUR program to others.

Almost half (48%) of respondents assessed that COVID-19 had a moderate to significant impact on their entrepreneurial journey. After completing the program, 62% of participants established a company, with the largest share (33%) doing so within three months of finishing. The most common legal form chosen was the sole proprietorship (68%), followed by limited liability companies (21%) and other forms. The most frequent business activities among new companies included consulting, education, and e-commerce, reflecting diverse entrepreneurial orientations. Before the program, one-third (36%) already had a registered company, most of which were microenterprises with a single employee. After completing the program, 82% of these companies remained active, indicating a high survival rate.

Most companies reported annual revenues below €50,000, typical for microenterprises in their early stages, while 20% had already started operating internationally.

The majority of participants' companies (82%) operate in the domestic market, while 18% are expanding abroad. Most attended the program between 2021 and 2024, aligning with the funding cycle timeline. Four-fifths (79%) of respondents rated their digital literacy as good or very good, suggesting strong readiness for modern entrepreneurship. Participants rated key program elements positively, with most expressing satisfaction with mentors, content accessibility, and acquired entrepreneurial skills. The most valuable topics were business idea development, business modeling, and digital marketing. The most important skills gained included public speaking, business plan preparation, and website or visual design – emphasizing the program's strong focus on practical competencies.

Most respondents suggested improvements such as more practical content, more personalized mentorship, and a more flexible workshop schedule. They also recommended stronger networking with existing entrepreneurs and extending the program's duration. As many as 94% of respondents would recommend the program to others, citing the acquisition of new knowledge, mentor support, resource accessibility, and entrepreneurial networking as key reasons. The recommendation spans a broad range of target groups – from young people and start-ups to individuals with diverse entrepreneurial ambitions. Participants noted that the information provided during the program was accurate and useful, confirming the high quality of program implementation and the supportive environment fostered by PONI LUR.

Acknowledgement

This paper was prepared as part of the project "Improving the Entrepreneurial Experience through the Support Environment in the Ljubljana Urban Region", conducted under the public call "Problem-Based Learning for Students in the Work Environment: Economy, Non-Economy, and Non-Profit Sector in the Local/Regional Environment 2024–2027." The project is co-financed by the Ministry of Higher Education, Science and Innovation of the Republic of Slovenia and the European Social Fund Plus (ESF+) of the European Union.

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How Business Incubators Foster Idea Development and Business Plans: A Case Study of Montenegro

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The research includes 15 potential entrepreneurs from Montenegro who attended training in a business incubator and who evaluated the mentoring process. Participants agreed that the success of a business requires a lot of work hours (Average 5.00), which supports the Entrepreneurial Commitment Theory. Enjoyment of problem-solving (Mean 4.83) reflects the Theory of Problem Solving in Entrepreneurship. They were the least likely to agree that they think best under pressure (Mean 3.80), which is consistent with the Yerkes-Dodson law. High scores were given for the ability to delegate, interest in work, and self-confidence (Average 4.57-4.51), consistent with the Self-Efficacy Theory. Task prioritization, leadership motivation, and readiness to face problems were also rated well (Average 4.43-4.40). Activities such as problem-solving, market research, financial planning, marketing strategies, and networking received the highest scores (Average 5.00). Mentors received high grades for understanding business ideas and offering support (Average 4.66). The participants rated the entire mentoring experience very positively (Average 4.57), whereby the mentors contributed to the personal and entrepreneurial development of the participants. The research emphasizes that a high level of commitment, effective problem-solving, adequate support from mentors, and practical experience are key to the success of entrepreneurs.

DOI
https://doi.org/10.18690/um.fov.10.2025.4

ISBN
978-961-299-090-9

Keywords:
business incubator, business plan, marketing plan, case study, Montenegro

University of Maribor Press

1 Introduction

Entrepreneurship is a multifaceted concept involving identifying and exploiting new opportunities for value creation and capture (Bryant, 2015). This dynamic process drives economic growth, enhances well-being, and generates wealth (Saiz-Alvarez, 2017). Often, it entails the formation of new organizational structures to seize these opportunities, even when resources and capabilities are lacking (Bryant, 2015). Entrepreneurs, the key players in this process, bring innovations to market and address unresolved problems (Tripathi et al., 2022).

Entrepreneurs, those who initiate and manage businesses, are vital to a country's economic development. They possess the ambition, skills, and determination to launch ventures and strive for significant achievements. Beyond economic contributions, entrepreneurs foster social change by introducing new products and services and adeptly identifying and leveraging opportunities to stimulate economic activity. Their primary objective is profit, yet they achieve this by providing goods or services that benefit society (Sulochana, 2021). However, starting a business is usually accompanied by challenges. New entrepreneurs often face difficulties in maintaining motivation, solving problems patiently, and utilizing creativity to derive solutions.

This study examines thirty-five entrepreneurs from Montenegro who are developing business plans within the framework of a business incubator. By focusing on these entrepreneurs, the study aims to gain insights into their experiences, challenges, and strategies as they navigate the early stages of their business ventures. The incubator provides a supportive environment, offering resources such as mentorship, networking opportunities, and access to funding, which are crucial for the successful development of their business plans. Through this case study, the research seeks to understand how the support of the incubator impacts entrepreneurs' ability to innovate, overcome obstacles, and achieve sustainable growth.

2 Literature Review

2.1 Entrepreneurship

An entrepreneur is an individual who takes the risk of starting their own business, often investing their own money and resources. Entrepreneurs are the initiators, driving new ventures from conception to execution. Notable entrepreneurs like Bill Gates, Steve Jobs, Mark Zuckerberg, and Pierre Omidyar exemplify the impact and innovation that can stem from entrepreneurial efforts. Similarly, figures like Arianna Huffington and Caterina Fake have made significant contributions through their entrepreneurial ventures. Entrepreneurs are responsible for both the success and the inherent risks of their businesses. Entrepreneurship, therefore, involves not only starting a new business but also navigating the challenges and opportunities that arise along the way (Tripathi et al., 2022).

Entrepreneurship is a multifaceted concept that encompasses the creation of new ventures, problem-solving, and the pursuit of opportunities (Tripathi et al., 2022) (Saiz-Alvarez, 2017). It serves as a key driver of economic growth and societal well-being, supported by various theoretical frameworks and approaches (Saiz-Alvarez, 2017). These include economic-based theories, sociological and psychological-based theories, and newer approaches such as effectuation and the O-Ring theory. Entrepreneurial organizations are distinguished by their proactive pursuit of opportunities and their emphasis on innovation (Aardt et al., 2008).

A company that actively seeks out opportunities, initiates actions rather than merely reacting to external events, and focuses on developing new and innovative products and services can be described as an entrepreneurial organization (Aardt et al., 2008). Such companies cultivate entrepreneurial skills and approaches within their operations to ensure continuous innovation and adaptability.

2.3 Who is an entrepreneur?

Entrepreneurs are individuals who undertake new business ventures, assuming accountability for the associated risks (Jhamb, 2014). They are driven by a combination of curiosity and exploration, and are characterized by their ability to create value (Andersson et al., 2010). These individuals play a crucial role in

economic growth and can be found in various sectors, including the private and non-profit ones (Casson & Godley, 2005). However, they face numerous challenges, such as a lack of sustained motivation and patience, which can hinder their success (Sulochana, 2021).

The entrepreneur is a leading character in many accounts of economic growth, appearing in business biographies as a charismatic founder of a company; in industry studies as a prominent innovator, or a leading figure in a trade association or cartel; and in general economic histories as one of the self-employed small business owners who confer flexibility and dynamism on a market economy. Entrepreneurship is not confined to the private sector; it can also be discerned in the personalities of people who establish progressive charitable trusts and reform government administration (Casson & Godley, 2005).

2.4 What does an entrepreneur do?

What makes an entrepreneur? They have a sharp eye for spotting potential profits. They see the gap between what people are willing to pay for something and what it costs to make it (Sherman, 1975). Entrepreneurs then use their skills to bring these desired goods or services to life. They coordinate resources like people, materials, and money to make it happen. In doing so, they benefit society without actually owning everything themselves.

Competition is built-in because everyone is looking for a profit. But entrepreneurs cannot afford to waste resources, even on marketing and sales. Everything they do is focused on what customers want. If you agree with this description, then you would probably also agree that taking away an entrepreneur's hard-earned success would discourage others from taking risks in the future. This could ultimately hurt consumers by limiting their choices. This is what economist Israel Kirzner calls the "full circle" – entrepreneurs create value and deserve their rewards. They are the unsung heroes of the market system.

Entrepreneurs are individuals who recognize profit opportunities and coordinate resources to satisfy consumer needs (Sherman, 1975). They are driven by a desire for high achievement and economic improvement and are characterized by their initiative, skill, and motivation (Sulochana, 2021). These individuals are risk-takers

who create wealth and further innovation and economic growth (Jhamb, 2014). However, they face numerous challenges, including a lack of patience, motivation, and the ability to dream (Sulochana, 2021) (Bhavan, 2013). Despite these challenges, entrepreneurs play a crucial role in the economic development of a country and are essential for driving progress and change.

2.5 What are the key entrepreneurial challenges

Entrepreneurial challenges are multifaceted, encompassing the need for technological, organizational, and marketing knowledge (N. A. Ahmad., 2005). First-generation entrepreneurs face challenges such as a lack of patience, sustained motivation, and the ability to dream (Mouli & Roshni, 2017). The early entrepreneurial journey is marked by challenges in the equity division, co-founder exits, and mentor selection (Dibbern, 2018). Start-up entrepreneurs encounter issues like lack of financial support, marketing opportunities, and digital illiteracy (Anitha & Veena, 2022). These challenges underscore the complex and diverse nature of entrepreneurship.

2.6 Business incubators

Business incubators play a crucial role in supporting new businesses, with a focus on local development and job creation (van der Sijde, 2002). They provide a range of services, including premises, business development advice, shared services, and access to financial and professional assistance. These services help new businesses overcome barriers and increase their chances of success, ultimately contributing to economic growth and job creation (Daniel, 2010). Additionally, university incubators help turn research results into productive technological activities (Mîrzac, 2014).

Research has consistently highlighted the crucial role of business incubators in supporting the development of entrepreneurial ideas. Diawati (2023) underscores the importance of these incubators in providing a supportive environment, resources, and training, which are essential for idea development. Karambakuwa (2022) emphasizes the positive impact of incubation hubs on start-up development, while Harmath (2018) and Mantovani (2007) both provide specific examples of successful initiatives and the generation of economic and social development

through the support of business incubators. These studies collectively underscore the significant role of business incubators in nurturing and developing the ideas of future entrepreneurs.

2.7 Mentoring process

Mentoring for business beginners is a process that provides support and guidance through various aspects of business. The usual scheme of the mentoring process includes (Unija poslodavaca Srbije, 2010):

1) Business diagnostics: The mentor first analyzes the current situation in the company to identify key areas for improvement.
2) Development plan: Based on the diagnosis, the mentor helps create an action plan that includes concrete steps to achieve business goals.
3) Consulting and training: The mentor provides advice and training in areas such as finance, marketing, sales, and human resource management.
4) Access to resources: A Mentor can help in finding business partners, access to funds, and use of new technologies.
5) Implementation: The mentor monitors the implementation of development activities and provides support throughout the process.
6) Evaluation and adjustment: Progress is regularly assessed and, if necessary, strategies are adjusted to ensure the best result.
7) Mentoring is an interactive process based on cooperation between the mentor and the entrepreneur, which enables the building of trust and long-term support.

In this research, a mentoring program was developed for participants of entrepreneurial training for young people (15-29 years old) and women as part of the project 'Skills for Sustainable Employment and Inclusive Economic Growth of Cross-Border Region of Albania and Montenegro - Skills for Jobs Albania-Montenegro', contract number CFCU/MNE/219, which was financed under the Cross-Border Cooperation Program Montenegro - Albania 2014-2020 under the Instrument for Pre-Accession Assistance (IPA II) No.: EuropeAid/171769/ID/ACT/ MULTI. The project was implemented by the Business Start Center Bar (BSC Bar) in cooperation with the Chamber of Commerce of Montenegro and the Investment Development Agency of Albania.

The public call for implementing a package of services for young people (15-29 years old) and women envisions two sets of services. The first set refers to services provided by mentors who are required to conduct introductory pieces of training and create a short manual of Instructions for Business Beginners. The total number of mentoring service providers is 5. The mentoring service provider is obliged to conduct entrepreneurial training in their narrowly specialized profession for 2 days.

Training fields:

a) Business-legal issues and business registration
b) Financial management and accounting
c) Strategic planning and business model
d) Marketing and sales
e) Digital/content marketing

With the support of the mentor, 15 participants will develop business plans and acquire the necessary knowledge to start their businesses by the end of the training.

The second set of services includes individual mentoring services for each of the 15 participants who need to develop their business plans. The provider of mentoring services is obliged to conduct individual counseling from his narrow specialist field for each of the 15 participants for 20 hours per participant.

Mentoring fields:

a) Business-legal issues and business registration
b) Financial management and accounting
c) Strategic planning and business model
d) Marketing and sales
e) Digital/content marketing

Mentoring in the field of Marketing and sales was taken as an example of the implementation of the aforementioned process.

The mentoring process is divided into two phases. In the first phase, a two-day training was implemented, and in the second phase, a process of individual mentoring was implemented for 20 working days.

The two working days was realized on May 14 and 15, 2024. in the Business Start Center in Bar, Montenegro (https://www.bscbar.org/me/category/novosti-10/radionica-marketing-i-prodaja-464). The training aimed to acquire basic knowledge in the field of marketing and sales and training for the development of a business marketing plan.

Topics covered in the training program: Marketing dictionary, Marketing research tools, STP concept, Price calculations, Promotional techniques, Sales Process, Distribution channels, Marketing plan, Creating a marketing plan.

The participants acquired basic knowledge regarding key terms, concepts, instruments, and techniques in the implementation of marketing processes in the company's operations. Through the mutual exchange of opinions, various aspects of the application of marketing techniques were considered, such as getting to know customers, researching customer behaviour, the use of criteria for segmentation, and the choice of intermediaries in product placement. The participants successfully mastered the basic terms and concepts of marketing, became sufficiently familiar with the application of marketing instruments and techniques, and did the exercise of creating a marketing plan based on the given example.

The individual mentoring process was realized in the term 27.05.-21.06.2024. Mentoring support was provided in the area of Marketing and sales. Mentoring was conducted via electronic communication (e-mail) and online meetings in the form of consultations via the Zoom platform.

The process of individual mentoring included several steps.

1. In the first step, the participants submitted a Business Plan proposal to the mentor and received feedback in the form of suggestions and recommendations.
2. In the second step, individual consultations regarding the given suggestions and recommendations were carried out at online meetings.

3. In the third step, the control and verification of the prepared Business Plan was carried out.

Skills developed during mentoring: Market research, customer profiling, making price calculations, performing promotional activities, performing sales processes, performing distribution activities, and creating a marketing plan. Topics discussed during mentoring: STP concept, Price calculations, Promotional techniques, Sales Process, Distribution channels, Marketing plan.

The average rating given by the mentor for mastering the above-mentioned topics concerning all users (ratings on a scale from 1 to 5, where 1 represents the lowest and 5 the highest degree of mastery of the subject matter): 4.20.

Special attention is paid to insight into the quality of the mentoring process through feedback from the participants. The mentoring process in the first and second phases was checked through a specially designed questionnaire for participants.

The questionnaire is designed in two parts as follows:
1. Questionnaire: Entrepreneurship Self-Assessment
1.1. Questionnaire: Entrepreneurship Self-Assessment
1.2. Questionnaire: Self-assessment of sales skills
2. Questionnaire: Mentoring Experience
2.1. Questionnaire: Overall Mentoring Experience
2.2. Questionnaire: Specific Mentoring Activities
2.3. Questionnaire: Personal Growth and Development
2.4. Questionnaire: Overall Satisfaction

The analysis of the results of the research established the scope of realization of the set goals of the mentoring process in its entirety.

3 Research

The results of the research are presented through entrepreneurial predispositions in tables 1.1.-1.2. and evaluation of the mentoring process in tables 2.1-2.4.

Participants' answers regarding entrepreneurial self-assessment are shown in Table 1.1.

Table 1.1.: Entrepreneurship Self-Assessment

	Minimum	Maximum	Mean	Std. Deviation
You often find yourself taking on a leadership role.	3	5	4,00	,420
You often find that you work your hardest until you have accomplished what you set to accomplish. You can take a break later.	3	5	4,23	,598
You are motivated by the thought of being your own boss and making all of the day-to-day decisions.	3	5	4,40	,775
It is important to take risks, even if you are not completely sure of the outcome.	3	5	3,83	,707
When you face setbacks, you are comfortable with asking for help or finding a different solution.	3	5	4,40	,651
Entrepreneurs need to know how to delegate to get things done.	4	5	4,51	,507
You are never bored because there is always something to do.	3	5	4,57	,655
You do your best thinking under pressure.	2	5	3,80	,994
Success is earned, and you have a strong drive to earn your success.	3	5	4,34	,639
You are ready to put as many hours into your new business as necessary, even if that means clocking hours seven days a week.	5	5	5,00	0,000
You like to find solutions to problems.	4	5	4,83	,382
Success does not happen overnight, and luck is something you have to work for.	3	5	4,40	,775
You are comfortable with prioritizing tasks and can do it efficiently.	3	5	4,43	,655
Failure is not a deal-breaker, it is a challenge.	3	5	3,97	,707
You put 100% effort into everything.	3	5	4,40	,651
You are confident you have the skillset needed to run a business.	4	5	4,51	,507
Valid N (listwise)				

Source: Own processing

Participants completely agree with the maximally positive attitude (Mean 5,00; SD 0,000) that it is necessary „put as many hours into your new business as necessary, even if that means clocking hours seven days a week", and almost agree with a very pronounced positive attitude (Mean 4,83; SD 0,382) that they „like to find solutions to problems".

On the other hand, participants least agree (Mean 3,80) with the statement "you do your best thinking under pressure"; where they have significant mutual deviations in grades (SD 0,994).

The ability to delegate, interest in work, and belief in one's own abilities to run a business was highly rated (Mean 4,57 – 4,51) with moderate deviations (SD 0,655-0,507).

The ability to prioritize tasks, motivation for leadership, willingness to face problems, the belief that business success does not happen overnight, and willingness to engage in work was rated quite well (Mean 4,43-4,40) with a higher level of deviation compared to the previous set of attitudes (SD 0,755-0,651).

The conviction that success should be earned, the feeling of hard work until the goal is achieved and the readiness for a leadership role is somewhat less valued (Mean 4,34-4,00) but with smaller deviations (SD 0,639-0,420) compared to the previously expressed attitudes.

The perception of failure as a challenge and the importance of risk acceptance were slightly better rated (Mean 3,97 and 3,83) compared to the lowest valued attitude (Mean 3,80) elaborated at the beginning of the analysis, with considerable deviations (SD 0,707).

Overall, the participants' ratings were given in the range of 3,80 to 5,00 (Mean), which shows a different level of evaluation in relation to certain attitudes regarding entrepreneurial behavior, with a high level of deviation expressed in individual answers with SD values from 0,994 to 0,000.

Attitudes regarding sales skills are presented in the following table.

Table 1.2.: Self-assessment of sales skills

	Minimum	Maximum	Mean	Std. Deviation
I can turn a stranger into a friend very quickly and easily	3	5	4,00	,594
I can attract and hold the attention of other people even if I don`t know them	3	5	4,26	,611
I like new situations	3	5	4,17	,568
I`m intrigued by the psychology of meeting and building good relationships with someone I don`t know	3	5	4,17	,707
I would enjoy giving a sales pitch to a group of CEOs	2	5	3,91	,887
When I`m dressed for a special occasion, I feel like I have a lot of confidence in myself	3	5	4,40	,651
I don`t mind using the phone to make an appointment with strangers	4	5	4,66	,482
I feel no fear of unknown people	2	5	4,09	,981
I enjoy solving problems	3	5	4,31	,758
Most of the time, I feel safe	2	5	3,74	,950
Valid N (listwise)				

Source: Own processing

The most valued attitude regarding sales skills refers to establishing telephone contact with an unknown person (Mean 4,66) with a lower level of deviation of individual answers (SD 0,482).

The least valued was the feeling of security during work (Mean 3,74) with almost the highest level of deviation in individual responses (SD 0,950).

The ability to adapt clothing for special occasions with a high sense of self-confidence, enjoyment in solving problems, and the ability to attract and hold the attention of strangers were highly valued (Mean 4,40-4,26) with a higher level of deviation (SD 0,758-0,611).

Readiness for new situations, interest in building good relationships with an unknown person and no fear of unknown people are less valued compared to previous attitudes (Mean 4,09-4,17) with very different deviations in individual attitudes (SD 0,981-0,568).

The attitude of quickly and easily turning a stranger into a friend and the pleasure of presenting an offer to a group of CEOs are the least valued compared to all the previous ones (Mean 4,00-3,91) with also different individual deviations in individual attitudes (SD 0,887-0,594).

Overall, the participants' ratings were given in the range of 3,74 to 4,66 (Mean), which shows that they are confident enough to consider sales as a profession, according to test results, but with a higher level of deviation expressed in individual answers with a SD value of 0,981 to 0,482.

The evaluation of the mentoring process is shown in tables 2.1.-2.4.

In Table 2.1. is presented overall mentoring experience.

Table 2.1.: Overall Mentoring Experience

	Minimum	Maximum	Mean	Std. Deviation
The mentoring experience I received was very positive and provided valuable support.	1	5	4,57	1,145
My mentor had a clear understanding of my business idea and its goals.	1	5	4,66	1,136
I received helpful guidance and support from my mentor throughout the development of my business idea.	1	5	4,66	1,136
My mentor maintained consistent communication with me throughout the mentoring process.	1	5	4,66	1,136
My mentor was always available and responsive when I needed their assistance.	1	5	4,66	1,136
The mentoring process was extremely effective in helping me develop and advance my business idea.	1	5	4,66	1,136
Valid N (listwise)				

Source: Own processing

Participants almost completely agree with the very high positive attitude (Mean 4,66; SD 1,136) that the mentor: had a clear understanding of their business idea and its goals, provided helpful guidance and support, provided consistent communication, was always available and responsive, provided extremely effective mentoring process. Received overall mentoring experience was slightly less valued (Mean 4,57

SD 1,145). Overall, participants rated the overall mentoring experience very highly (Mean 4,66-4,57) with high agreement in individual responses (SD 1,145-1,136). Attitudes regarding specific mentoring activities are given in the following table.

Table 2.2.: Specific Mentoring Activities

	Minimum	Maximum	Mean	Std. Deviation
Goal setting and planning	4	5	4,83	,382
Problem-solving and decision-making	5	5	5,00	0,000
Market research and analysis	5	5	5,00	0,000
Financial planning and management	5	5	5,00	0,000
Marketing and sales strategies	5	5	5,00	0,000
Networking and relationship-building	5	5	5,00	0,000
Valid N (listwise)				

Source: Own processing

Participants gave the maximum score (Mean 5,00) to specific mentoring activities such as problem-solving and decision-making, market research and analysis, financial planning and management, marketing and sales strategies, and networking and relationship building; where individual attitudes are identical without deviation (SD 0,000). Goal setting and planning were rated somewhat lower (Mean 4,83) with a low level of diversity of individual attitudes (SD 0,382).

Attitudes regarding the evaluation of mentoring efforts in relation to personal growth and development are presented in Tables 2.3.a and 2.3.b.

Table 2.3.a: Personal Growth and Development

	Minimum	Maximum	Mean	Std. Deviation
To what extent do you feel that the mentoring process has helped you develop your personal skills and qualities as an entrepreneur?	5	5	5,00	0,000

Source: Own processing

The overall mentoring effort for the development of personal skills and entrepreneurial abilities was highly valued (Mean 5,00) without deviation in individual attitudes (SD 0,000).

Table 2.3.b: Personal Growth and Development

	Minimum	Maximum	Mean	Std. Deviation
Self-confidence	4	5	4,83	,382
Communication skills	4	5	4,66	,482
Leadership skills	4	5	4,60	,497
Problem-solving skills	4	5	4,69	,471
Decision-making skills	4	5	4,91	,284
Marketing skills	5	5	5,00	0,000
Valid N (listwise)				

Source: Own processing

The mentor's contribution to the development of marketing skills was rated as high as possible (Mean 5,00) without deviation in individual attitudes (SD 0,000). The mentor's contribution to the development of decision-making skills and self-confidence is highly valued (Mean 4,91-4,83) with a low level of deviation (SD 0,382-0,284). The mentor's effort in developing problem-solving skills, communication skills and leadership skills was rated somewhat lower (Mean 4,69-4,60) compared to previous ratings, and with moderate deviations in individual attitudes (SD 0,497-0,471).

The total satisfaction of respondents with the mentoring program is shown in tables 2.4.a-2.4. c.

Table 2.4.a: Overall Satisfaction

	Minimum	Maximum	Mean	Std. Deviation
Overall, I am satisfied with the whole program	5	5	5,00	0,000

Source: Own processing

Participants expressed maximum satisfaction (Mean 5.00) with the mentoring program without deviation in individual attitudes (SD 0.000).

Table 2.4.b: Overall Satisfaction

Would you recommend the mentoring program to other aspiring entrepreneurs?		Frequency	Percent
Valid	Yes	15	100,0

Source: Own processing

All participants would recommend the overall mentoring program.

Table 2.4.c: Overall Satisfaction

	Frequency	Percent
/	13	82,9
I am extremely satisfied and positively surprised by the overall support I received from the mentoring program and mentors	1	8,6
The mentor made a great effort and showed a great desire to pass on his knowledge to us and train us as best as possible for further business.	1	8,6
Total	15	100,0

Source: Own processing

The general attitude of participants regarding the mentoring program can be formulated as follows: The participants were very satisfied and pleasantly surprised by the support of the mentoring program. They believe that the mentor put in a lot of effort and desire to share his knowledge, and he prepared them well for future business ventures.

5 Discussion

Considering the results of the research, it is possible to establish the following. Participants completely agree (Mean 5.00; SD 0.000) that it is necessary to put in as many hours as needed for a new business, even working seven days a week. This aligns with the Theory of Entrepreneurial Commitment (Gabay-Mariani et al., 2024), which suggests that high levels of dedication and time investment are crucial for entrepreneurial success. Entrepreneurs often need to work long hours to overcome initial challenges and establish their businesses.

Participants almost agree (Mean 4.83; SD 0.382) that they like to find solutions to problems. This reflects the Problem-Solving Theory in entrepreneurship (Jonassen & Hung, 2012), which suggests that successful entrepreneurs are proactive in identifying and solving problems. This attitude is essential for innovation and business growth.

Participants least agree (Mean 3.80; SD 0.994) with the statement that they perform the best under pressure. According to the Yerkes-Dodson Law (Cohen, 2011), performance increases with physiological or mental arousal but only to a certain point. Performance decreases above that point. This result suggests that while some pressure can enhance performance, too much pressure may hinder effective thinking and decision-making.

High ratings (Mean 4.57 – 4.51; SD 0.655-0.507) were found for the ability to delegate, interest in work, and trust in one's abilities. These findings are consistent with Self-Efficacy Theory (Lopez-Garrido, 2023), which emphasizes the importance of one's trust in own ability to succeed. Effective delegation is also a key aspect of Leadership Theory, highlighting the importance of distributing tasks to manage workload and enhance productivity.

Good ratings (Mean 4.43-4.40; SD 0.755-0.651) were found for prioritizing tasks, leadership motivation, and willingness to face problems. This aligns with the Time Management Theory (Dierdorff, 2020), which stresses the importance of prioritizing tasks to achieve business goals. Leadership Motivation Theory also supports the idea that motivation to lead and face challenges is crucial for entrepreneurial success.

Moderately high ratings (Mean 4.34-4.00; SD 0.639-0.420) were found for the belief that success should be earned and readiness for a leadership role. This reflects the Achievement Motivation Theory (Anderman, 2020), which suggests that individuals are driven by the desire to achieve and succeed through hard work and perseverance.

Slightly better ratings (Mean 3.97 and 3.83; SD 0.707) were found for viewing failure as a challenge and the importance of risk acceptance. This is consistent with Risk-Taking Theory in entrepreneurship (De-Juan-Ripoll et al., 2021), which suggests that willingness to take risks and view failures as learning opportunities are essential traits for entrepreneurs.

Overall, the respondents' ratings (Mean 3.80 to 5.00) show varying levels of agreement with different entrepreneurial attitudes, with significant deviations (SD 0.994 to 0.000) indicating diverse perspectives among individuals. This diversity highlights the complexity of entrepreneurial behaviour and the importance of multiple factors in achieving business success.

Most valued attitude (Mean 4.66; SD 0.482) is establishing telephone contact with an unknown person. This aligns with Social Penetration Theory (Pennington, 2021), which suggests that initial interactions, such as phone calls, are crucial for building relationships. Effective communication skills are essential in sales to establish trust and rapport with potential clients.

The least valued attitude (Mean 3.74; SD 0.950) is the feeling of security during work. According to Maslow's Hierarchy of Needs (Copley, 2024), security is a fundamental need. The high deviation (SD 0.950) indicates varied perceptions of job security among respondents, which can impact their overall job satisfaction and performance.

High ratings (Mean 4.40-4.26; SD 0.758-0.611) for adapting clothing for special occasions, self-confidence, problem-solving enjoyment, and attracting strangers' attention. This reflects Self-Efficacy Theory (Lopez-Garrido, 2023), which emphasizes the importance of confidence in one's abilities. Adaptability and problem-solving are also key components of Emotional Intelligence Theory (Fiori & Vesely-Maillefer, 2018), which is crucial for managing interpersonal relationships effectively.

Moderately high ratings (Mean 4.09-4.17; SD 0.981-0.568) were found for readiness for new situations, interest in building relationships, and lack of fear of unknown people. This aligns with Adaptability Theory (Brassey et al., 2021), which highlights the importance of being open to new experiences and building relationships. The varying deviations suggest different levels of comfort and skill in these areas among respondents.

Lower ratings (Mean 4.00-3.91; SD 0.887-0.594) were found for quickly turning strangers into friends and presenting offers to CEOs. This can be connected to Social Exchange Theory (Ahmad et al., 2023), which posits that building relationships involves a cost-benefit analysis. The lower ratings and higher deviations indicate that respondents may find these tasks more challenging and less rewarding.

Overall, the participants' ratings (Mean 3.74 to 4.66) indicate general confidence in their sales skills, with significant deviations (SD 0.981 to 0.482) reflecting diverse attitudes and comfort levels. This diversity underscores the complexity of sales skills and the need for tailored training and support to address individual differences.

Participants almost completely agree (Mean 4.66; SD 1.136) that mentors had a clear understanding of their business ideas, provided helpful guidance, consistent communication, and were always available and responsive. This aligns with Social Support Theory (Costa-Cordella et al., 2021; Li et al., 2021), which emphasizes the

importance of emotional, informational, and instrumental support in mentoring relationships. Effective mentoring involves understanding mentees' needs and providing consistent, responsive support.

Slightly lower but still highly valued (Mean 4.57; SD 1.145) overall mentoring experience. According to Transformational Leadership Theory (Deng et al., 2023), mentors who inspire, motivate, and provide individualized consideration can significantly enhance mentees' experiences. The high ratings reflect the mentors' ability to positively influence their mentees' development.

Maximum scores (Mean 5.00; SD 0.000) for activities like problem-solving, market research, financial planning, marketing strategies, and networking. This is consistent with Experiential Learning Theory (Passarelli & Kolb, 2012; Asiri, n.d.), which posits that hands-on, practical experiences are crucial for learning. The high ratings indicate that these activities were highly effective in providing practical, applicable skills.

Goal Setting and Planning; rated slightly lower (Mean 4.83; SD 0.382) with low deviation. This aligns with the Goal-Setting Theory (Jeong et al., 2023), which suggests that clear, specific goals enhance performance. The slightly lower rating may indicate room for improvement in setting and planning goals, but the low deviation shows general agreement among respondents.

Development of Personal Skills and Entrepreneurial Abilities; highly valued (Mean 5.00; SD 0.000) without deviation. This reflects Human Capital Theory (Goldin & Katz, 2013; CIPD, 2017), which emphasizes the importance of investing in personal skills and abilities for long-term success. The perfect scores indicate that respondents felt the mentoring program significantly contributed to their personal and entrepreneurial development.

Marketing Skills Development; Rated as high as possible (Mean 5.00; SD 0.000) without deviation. This aligns with Marketing Theory (Ferrell et al., 2021), which highlights the importance of effective marketing strategies in business success. The perfect scores suggest that the mentoring program was highly effective in enhancing respondents' marketing skills.

Decision-Making and Self-Confidence; highly valued (Mean 4.91-4.83; SD 0.382-0.284) with low deviation. This is consistent with the Decision-Making Theory (Khemka, 2021; Morelli et al., 2022), which emphasizes the importance of making informed and confident decisions. The high ratings reflect the mentors' effectiveness in developing these skills.

Problem-Solving, Communication, and Leadership Skills; Rated somewhat lower (Mean 4.69-4.60; SD 0.497-0.471) compared to previous ratings, with moderate deviations. This aligns with Leadership Theory (Harrison, 2018; Swan, 2022), which highlights the importance of problem-solving, communication, and leadership skills in effective leadership. The slightly lower ratings suggest areas for improvement, but the moderate deviations indicate varied perceptions among participants.

Overall Satisfaction and Recommendation; Maximum satisfaction (Mean 5.00; SD 0.000) with the mentoring program, and all participants would recommend it. This reflects Customer Satisfaction Theory (Yüksel & Yüksel, 2008; Talukder, 2018), which suggests that high satisfaction leads to positive word-of-mouth and recommendations. The perfect scores indicate that participants were extremely satisfied with the mentoring program.

Overall, the participants' ratings (Mean 4.66-4.57) show a very high level of satisfaction with the mentoring program, with high agreement in individual responses (SD 1.145-1.136). The perfect scores for specific mentoring activities and personal development efforts highlight the effectiveness of the program in providing valuable skills and support.

6 Conclusion

These days, society relies heavily on business owners (entrepreneurs) to stimulate the economy and create jobs, especially for young people. Successful entrepreneurs tend to be optimistic and adaptable, possessing a strong understanding of their chosen field. Staying informed about market trends and new technologies is crucial for their success. However, starting a business comes with its own set of challenges. There will always be problems to solve, even if potential solutions are known. This study focuses on the biggest hurdles entrepreneurs face, such as competition,

finances, and marketing. Overcoming these obstacles requires practical skills and a solid business plan.

An entrepreneur's greatest strength is their self-belief. They trust in their ability to navigate the business world and take practical steps to achieve their goals. However, the fear of failure can be a significant weakness, especially when starting. This fear can inhibit risk-taking and innovation, essential components of entrepreneurial success.

Business incubators play a crucial role in supporting entrepreneurs as they develop their business ideas. They provide a nurturing environment with the resources needed to turn innovative concepts into successful companies. This includes access to educational programs, workspaces, funding options, and collaboration opportunities.

Incubators also teach entrepreneurs the skills and mindset necessary for success. They offer valuable guidance, helping entrepreneurs build strong networks, learn from experienced professionals, develop practical business skills, and access resources that might not otherwise be available. The success of an entrepreneur's idea can have a profound impact beyond the individual, benefiting the entire innovation ecosystem, contributing to economic growth, and creating new jobs.

By addressing common challenges and leveraging the support provided by incubators, entrepreneurs can enhance their chances of success and drive significant economic and social progress. This study sheds light on the essential role of incubators in fostering entrepreneurial talent and ensuring that new businesses have the tools and support they need to thrive.

Acknowledgement

We would like to thank for the opportunity to conduct research within the project 'Skills for Sustainable Employment and Inclusive Economic Growth of Cross-Border Region of Albania and Montenegro - Skills for Jobs Albania-Montenegro', contract number CFCU/MNE/219, which was financed under the Cross-Border Cooperation Program Montenegro - Albania 2014-2020 under the Instrument for Pre-Accession Assistance (IPA II) No.: EuropeAid/171769/ID/ACT/ MULTI. The project was implemented by the Business Start Center Bar (BSC Bar) in cooperation with the Chamber of Commerce of Montenegro and the Investment Development Agency of Albania.

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The Hungarian Start-up Ecosystem: A Comprehensive Overview

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This chapter explores the Hungarian start-up ecosystem, a critical component for fostering economic growth, innovation, and societal change. It begins with a historical overview, setting the stage for an analysis of Hungary's entrepreneurial journey and current start-up landscape, highlighted by key statistics. The chapter examines the societal environment, including values and perceptions surrounding entrepreneurship, and the state and governmental measures impacting the start-up sector. A detailed exploration of the funding landscape identifies key sources of capital and investment trends. Additionally, the chapter addresses entrepreneurship education, a significant barrier to the ecosystem's development. Through case studies of notable Hungarian start-up programs, the chapter showcases contributions to the ecosystem. The discussion is framed using established ecosystem models, leading to conclusions about the primary challenges facing the Hungarian start-up ecosystem, including access to funding, education, cultural attitudes, regulatory hurdles, and talent retention. Recommendations are provided to overcome these barriers, ensuring a sustainable and dynamic entrepreneurial environment in Hungary.

DOI
https://doi.org/10.18690/um.fov.10.2025.5

ISBN
978-961-299-090-9

Keywords:
startup ecosystem, entrepreneurship, startup funding, government policies, Hungary

University of Maribor Press

1 Introduction

The study of start-ups and their ecosystems has gained increasing attention from scholars, policymakers, and practitioners due to its critical role in driving economic growth, innovation, and societal change. Understanding the dynamics of start-ups and the environments in which they operate is essential for fostering a vibrant and sustainable entrepreneurial landscape.

Start-ups are often regarded as engines of economic growth and job creation. They introduce new products and services, which can stimulate demand and create new markets (Schumpeter, 1942). Research has shown that start-ups contribute disproportionately to job creation compared to established firms. For instance, Haltiwanger, Jarmin, and Miranda (2013) found that young firms are a significant source of net job creation in the economy. By studying start-ups, researchers can identify the factors that enable these firms to grow and create jobs, informing policies that support entrepreneurship and economic development.

Start-ups play a crucial role in driving innovation and technological advancement. They are often at the forefront of developing and commercializing new technologies, processes, and business models (Gans & Stern, 2003). Unlike established companies, start-ups can experiment with high-risk, high-reward innovations without the constraints of existing organizational structures and market expectations. Research into start-ups helps to understand how innovation occurs, the challenges start-ups face in bringing innovations to market, and the strategies that lead to successful innovation. This knowledge is vital for fostering an environment that supports cutting-edge technological advancements (Acs, Audretsch, & Feldman, 1994).

The concept of the start-up ecosystem has become a focal point in entrepreneurship research. (We will return to this topic in more detail in a later part of this chapter.) A start-up ecosystem comprises various elements, including entrepreneurs, investors, mentors, educational institutions, and government agencies, all interacting to create a supportive environment for new ventures (Isenberg, 2010). Researching these ecosystems is crucial for identifying how these elements work together to influence start-up success. For example, Mason and Brown (2014) emphasize that understanding the local context and the specific needs of start-ups can lead to more effective support programs and policies. By analyzing different ecosystems,

researchers can identify best practices and transfer successful models to other regions, enhancing global entrepreneurial activity.

Research on start-ups and start-up ecosystems has significant policy implications. Policymakers rely on empirical evidence to design and implement programs that foster entrepreneurship. For instance, understanding the impact of tax incentives, regulatory frameworks, and funding programs on start-up formation and growth can lead to more effective policy interventions (Feld, 2012). Additionally, research can shed light on the barriers that start-ups face, such as access to capital, talent acquisition, and market entry challenges. By addressing these barriers through informed policies, governments can create a more conducive environment for entrepreneurship, leading to increased economic dynamism and resilience (Audretsch & Thurik, 2001).

Beyond economic and technological contributions, start-ups also play a significant role in driving social and cultural change. Social entrepreneurship, for example, addresses societal challenges through innovative solutions, contributing to social welfare and sustainable development (Mair & Marti, 2006). Studying these start-ups provides insights into how entrepreneurial initiatives can address pressing social issues, such as poverty, education, and healthcare. Moreover, research on cultural factors influencing entrepreneurship can help understand how societal values, norms, and networks impact entrepreneurial activity and success (Saxenian, 1994).

Among the evolving ecosystems, Hungary presents a compelling case study. This chapter introduces the start-up ecosystem of Hungary, exploring its historical roots, current state, key players, and future potential. The case study begins with a historical overview, providing context to Hungary's entrepreneurial journey. It then examines the current start-up landscape, highlighting key statistics. We will discuss the social environment surrounding start-ups and entrepreneurship in general, including societal values and the perception of the entrepreneurial sector. We will also explore the state and governmental measures that influence the start-up sector. We will delve into the funding landscape, identifying sources of capital and notable investment trends. We will address the issue of entrepreneurship education, as several studies (Csákné et al., 2022; 2023; 2024) have identified it as one of the main barriers to the development of Hungary's entrepreneurial and start-up ecosystem. The chapter will feature some case studies of notable Hungarian start-up programs shedding light on their contributions to the ecosystem. The logic of the discussion is based on the

factors of the ecosystem models introduced above. At the end of the chapter, we will make conclusions about the most significant challenges facing the development of the Hungarian startup ecosystem.

Through this comprehensive examination, readers will gain a nuanced understanding of Hungary's start-up ecosystem, appreciating its complexities, recognizing its achievements, and anticipating its future trajectory.

2 Literature Review

2.1 Defining Start-Ups: Challenges

The concept of a "start-up" is widely used in both popular and academic discourse, yet it remains challenging to define with precision. This lack of a standardized definition complicates efforts to conduct systematic research on start-ups, as the term encompasses a broad range of entities with diverse characteristics and trajectories.

One of the primary reasons defining start-ups is difficult is the variability in definitions across different contexts and disciplines (Csákné & Radácsi, 2019). According to Ries (2011), a start-up is "a human institution designed to create a new product or service under conditions of extreme uncertainty". This definition emphasizes innovation and uncertainty but does not specify size, age, or industry, making it broad. In contrast, Blank (2013) describes a start-up as "a temporary organization designed to search for a repeatable and scalable business model", focusing more on the business model discovery process. Paul Graham, the legendary start-up builder, investor, and Co-founder of Y Combinator, states that "being newly founded does not in itself make a company a start-up. Nor is it necessary for a start-up to work on technology, take venture funding, or have some sort of 'exit'. The only essential thing is growth. Everything else we associate with start-ups follows from growth." (Graham, 2012).[1]

[1] He also observed that at Y Combinator, one of the world's most successful and growth-focused start-up programs, discussions often centered on weekly growth rates rather than annual ones.

These varying definitions reflect different perspectives on what constitutes a start-up. Some definitions emphasize the newness and innovative aspect (Gartner, 1985), while others focus on the intention to scale and grow rapidly (Eisenmann, 2013). The lack of consensus on these defining attributes leads to inconsistencies in what different researchers consider to be a start-up, complicating comparative studies and meta-analyses.

Start-ups are inherently fluid and dynamic, evolving rapidly as they navigate through different stages of development. This fluidity poses a challenge for researchers who attempt to capture the essence of start-ups at a specific point in time. As start-ups progress from ideation to growth and potentially to become established companies, their characteristics and needs change significantly (Kazanjian, 1988). This dynamic nature means that what qualifies as a start-up at one stage may no longer apply to another, making longitudinal studies particularly complex.

Start-ups can be found across virtually all sectors of the economy, each with unique characteristics and challenges. For instance, tech start-ups often focus on disruptive innovation and rapid scaling, while social enterprises may prioritize mission-driven goals over profit maximization (Mair & Marti, 2006). The diversity of business models, industries, and objectives means that a one-size-fits-all definition is impractical. This heterogeneity necessitates tailored research methodologies that can account for the specific contexts and operational dynamics of different types of start-ups.

2.2 Implications for Research

The difficulty in defining start-ups has significant implications for research. Firstly, it affects the generalizability of research findings. Studies that adopt narrow definitions may produce results that do not apply to start-ups outside the specific context being studied. Conversely, overly broad definitions may lead to results that lack specificity and actionable insights. This variability can undermine the comparability of studies and the accumulation of a coherent body of knowledge.

Secondly, the lack of a clear definition complicates the process of identifying and sampling start-ups for research purposes (Csákné & Radácsi, 2019). Without a standardized definition, researchers may rely on self-identification or arbitrary criteria, leading to selection bias and skewed samples (Freeman & Engel, 2007). This

can affect the validity and reliability of research findings, making it difficult to draw robust conclusions about the start-up ecosystem.

The third implication is that in start-up research, there is often no opportunity to rely on classic scholarly sources. Due to the unique characteristics of the field – rapid changes and numerous transactions – information tends to appear in newspapers, magazines, and blogs rather than traditional academic literature.

2.3 The Ecosystem Metaphor in Entrepreneurship and Start-up Research[2]

The ecosystem metaphor has become increasingly prevalent in entrepreneurship and start-up research, offering a comprehensive framework for understanding the complex, dynamic interactions among various actors and elements that contribute to entrepreneurial success. This metaphor is useful for several reasons, providing insights into how start-ups grow, innovate, and thrive within their broader environment.

The word 'ecosystem' is etymologically a compound of two Greek words, οιχος ('eco') and συστημα ('system'), and describes a complex, living, and dynamic system made up of a large number of 'individuals'. The concept was first applied in biology (Tansley, 1935), who argued that living organisms cannot be separated from their characteristic environment because they form a single physical system. These systems, in the view of ecologists, are the basic units of nature on Earth.

The idea of an ecosystem in economics appeared as early as 1920 (Marshall, 1920), but the first truly ecosystem model was not published until 1982 (Nelson & Winter, 1982). In this model, the authors sought to link profit maximisation and survival at the systemic level by combining it with Darwinian evolutionary theory. The studies that laid the foundations for ecosystem thinking appeared in the 1980s and 90s, when entrepreneurship research shifted from focusing on the individual, the personality of the entrepreneur, to research on entrepreneurship as a process influenced by social, cultural and economic factors.

[2] This section is based on the 2020 study by Radácsi & Csákné.

The entrepreneurial ecosystem approach can be linked to the literature on strategy and regional development (Acs, Stam, Audretsch & O'Connor 2017). The first studies focusing on the ecosystem (or business environment) focused on the economic and social effects of regions on businesses, as in Pennings (1982), Dubini (1989), Van de Ven (1993), and Bahrami and Evans (1995). With this turn of events, the researchers also indicated that it is not possible to talk about enterprises in general terms without context.

However, location/area, which can also be seen as an important element of the environment, is not the cause of certain entrepreneurial activities but carries in itself elements of a much more complex set of impacts (Johannisson, 2011).

In the decades since then, the concept of entrepreneurial ecosystems has been of increasing interest to researchers and economic policymakers. Figure 1 shows the number of peer-reviewed academic publications on the subject in recent years:

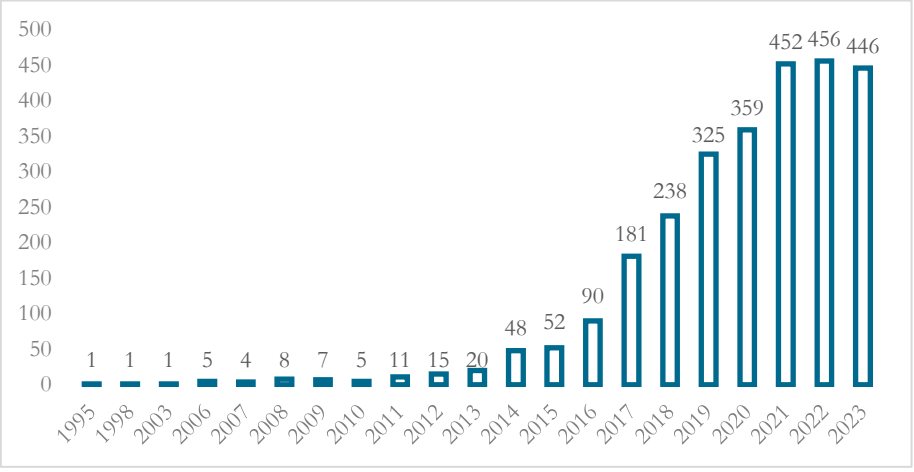

Figure 1: **Academic publications on entrepreneurial ecosystem 1995-2023**
Source: own ed.

Many attempts have been made to define the concept of an entrepreneurial ecosystem over the past decades, but due to the complexity and novelty of the subject and the constant and intensive changes in the field, no single, agreed definition has emerged.

The comprehensive study by Cavallo and colleagues (2019) attempted to compare and analyse the definitions that have been produced on the subject, analysing 47 definitions out of 163 relevant peer-reviewed publications, of which 16 specific definitions were examined. The main features of the definitions listed are:

- The components of an entrepreneurial ecosystem are, on the one hand, the enterprises themselves (from start-ups to successful growth to large enterprises), on the other hand, the various entrepreneurial organisations, associations, and networks, and thirdly, the supporting and related institutions (banks, universities, NGOs, etc.), and finally, the interactions and linkages between them.
- The emphasis is on complexity and a system of "non-linear", but networked, multi-level and dynamic relationships.
- It is not possible to define precise and stable boundaries, and the external linkages of an ecosystem can only be described approximately.
- The definitions differ as to whether the main objective of an ecosystem is to create new businesses, to increase the success rate of "productive" businesses, or to create highly successful "unicorn" businesses.[3]

The comparative study cites Stam's (2015:1765) definition as the most widely accepted in the literature, which states that "An entrepreneurial ecosystem is a coordinated set of independent actors and factors that result in opportunities for competitive enterprises in a particular area."

As highlighted in the study by Cavallo et al. (2019), beyond definition, the delimitation of ecosystem boundaries is a cardinal issue. What is the appropriate unit of analysis, whether the ecosystem be considered in terms of countries, regions, counties, cities, or on a smaller scale, linked to university campuses or perhaps incubators (Acs, Stam, Audretsch & O'Connor 2017).

[3] A startup unicorn refers to a privately held startup company that has reached a valuation of $1 billion or more. The term "unicorn" was coined in 2013 by venture capitalist Aileen Lee, reflecting the rarity of such successful ventures, akin to the mythical creature. Unicorns are typically characterized by their rapid growth, innovative business models, and substantial market disruption. They often operate in technology-driven industries and achieve significant funding from venture capitalists to support their expansive growth trajectories. Examples of well-known unicorns include companies like Uber, Airbnb, and SpaceX.

Another key question in ecosystem studies is whether, within a given geographical context (e.g. country), an assessment of the whole entrepreneurial ecosystem is the goal or whether a narrower focus is desirable. The local environment has a crucial impact on the development of enterprises, as Isenberg (2010) points out, developments in the entrepreneurial ecosystem must be adapted to local specificities, needs, and cultural context.

Despite variations in scope and content among entrepreneurial ecosystem models, a shared characteristic across these models is that influencing factors exert their impact through entrepreneurial performance (see Figure 2).

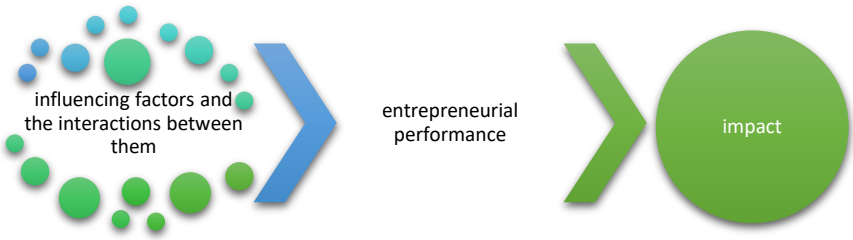

Figure 2: **Common structure of ecosystem models**
Source: own ed.

While an almost exhaustive list of influencing factors is presented in the literature, further analysis and research are needed to identify causal effects.

2.3.1 The Isenberg Model

One of the earliest and most influential entrepreneurial ecosystem models is by Isenberg (2010), comprises six main elements:

1. Culture: An inspiring and stimulating entrepreneurial culture.
2. Policy: Supportive policies.
3. Finance: Available and appropriate financing.
4. Human Capital: High-quality human resources.
5. Markets: Business-friendly markets.
6. Supports: Necessary institutional and infrastructural support.

Isenberg emphasizes the uniqueness of each ecosystem due to complex interactions among components. Identifying success factors is challenging due to the "law of small numbers". Entrepreneurial ecosystems are self-sustaining, evolving intelligently rather than through top-down creation, with state and institutional interventions playing a supportive role.

2.3.2 The WEF Model

The World Economic Forum (WEF, 2014) model shares significant overlap with Isenberg's principles. Developed in collaboration with experts from Stanford University, Endeavor, and EY, the WEF model provides a comprehensive framework for interpreting regional differences in entrepreneurial ecosystems. The model is focusing on eight pillars:

1. Access to markets
2. Human resources
3. Availability of funding sources
4. Support and advisory mechanisms
5. Networking opportunities
6. Professional services, accelerators, incubators, and an entrepreneur-friendly business environment
7. University entrepreneurship education and training
8. A culture of respect for research, entrepreneurship, and innovation

2.3.3 The ANDE Model

The Aspen Network of Developmental Entrepreneurs (ANDE) Ecosystem Toolkit emphasizes critical components for promoting entrepreneurship, especially in developing economies (ANDE, 2013). Key components include:

1. Finance: Diverse financing options.
2. Business support: Incubators, accelerators, and consulting services.
3. Markets: Local and international market access.
4. Human capital: Entrepreneurial education and workforce development.
5. Policy: Supportive regulatory environment.
6. Infrastructure: Reliable physical and technological infrastructure.
7. Culture: Societal attitudes encouraging entrepreneurship.

The ANDE model underscores the need for a supportive ecosystem where various sectors collaborate to nurture entrepreneurs, fostering a resilient environment for economic development and poverty alleviation.

2.3.4 The Stam Model

Stam (2015) introduces a comprehensive and integrative model, combining insights from economic geography, regional studies, and innovation systems. This model emphasizes the dynamic interactions between ecosystem components, recognizing both tangible and intangible elements. The key modules are:

1. Formal institutions: Regulatory framework and governance structures.
2. Culture: Societal attitudes and values towards entrepreneurship.
3. Physical infrastructure: Quality of transportation networks, office spaces, and communication systems.
4. Demand: Markets for entrepreneurial products and services.
5. Finance: Access to financial resources.
6. Leadership: Influential individuals or organizations driving entrepreneurial initiatives.
7. Talent: Availability of skilled individuals.
8. Knowledge: Generation and dissemination of new ideas through research institutions and universities.
9. Support services: Availability of incubators, accelerators, and consultants.
10. Networks: Connections among entrepreneurs, investors, and mentors.

Stam's model provides a robust framework for analyzing and fostering entrepreneurial activity, highlighting the importance of a supportive environment with interconnected elements.

2.3.5 The Global Entrepreneurship Monitor (GEM) Model

The Global Entrepreneurship Monitor (GEM) is the world's foremost study of entrepreneurship, initiated in 1999 by Babson College and London Business School. The GEM conceptual framework is based on the assumption that national economic growth results from individuals' capabilities to identify and seize opportunities, influenced by environmental factors. GEM data, gathered annually through the Adult Population Survey (APS) and the National Expert Survey (NES), assesses

entrepreneurial activity as an interaction between individual capacities and environmental conditions, benefiting the environment through social value and economic development (GEM, 2024). (See Figure 3 for the factors and the interplay between them.)

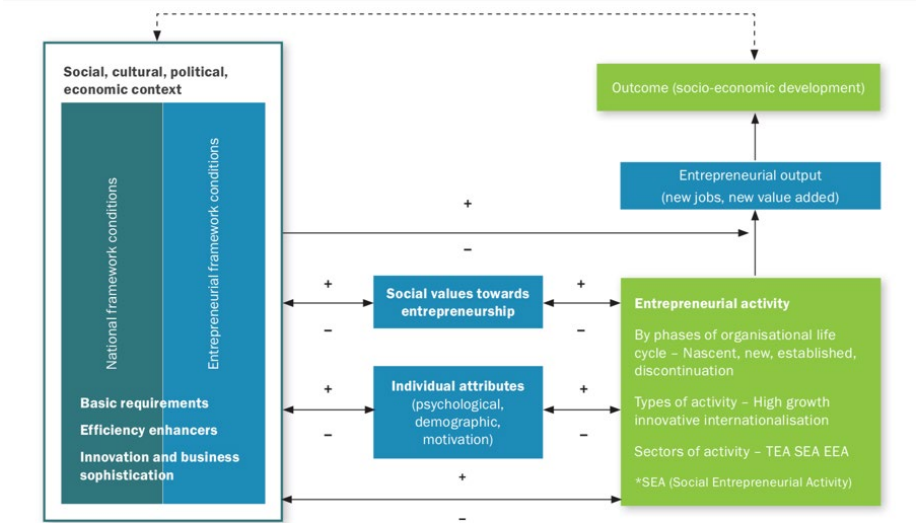

Figure 3: The GEM Conceptual Framework
Source: GEM, 2024

These models collectively offer comprehensive frameworks for understanding and fostering entrepreneurial ecosystems globally.

3 The Hungarian Start-Up Ecosystem

To assess the state of the startup ecosystem in Hungary and identify the primary developmental constraints, we employed the following methodologies:

1. **Analysis of scholarly literature**: We reviewed relevant academic publications to contextualise our findings within the existing body of research.
2. **Secondary data collection from available databases**: Data were gathered from Crunchbase, Dealroom.co, Vestbee, Startup Europe, StartupBlink, World Economic Forum, EU statistics, Startup Hungary, Hungarian Central Statistical Office, Hungarian National Bank, and Hungarian government publications.

3. **Examination of business magazines and publications**: We analysed content from business magazines and publications focusing on startups to gain insights from industry perspectives.
4. **Evaluation of websites of startup ecosystem stakeholders**: We scrutinised the websites of various stakeholders within the startup ecosystem to obtain additional data and viewpoints.

3.1 Historical Context

The entrepreneurial landscape in Hungary has undergone significant transformation over the past few decades. To fully appreciate the current start-up ecosystem, it is crucial to understand the historical context that shaped it. Hungary's journey from a centrally planned economy to a market-driven one has been pivotal in this evolution.

Before the 1990s, Hungary was under communist rule, which significantly constrained entrepreneurial activities. The economy was centrally planned, with the state controlling most enterprises and discouraging private ownership and market competition. Innovation and private entrepreneurship were stifled, leading to a lack of business dynamism (Kornai, 1992).

The fall of the Iron Curtain and the subsequent collapse of the communist regime in 1989 marked the beginning of a new era for Hungary. The transition to a market economy was a complex and challenging process, involving significant economic reforms, the privatisation of state-owned enterprises, and the establishment of legal frameworks to support private ownership and entrepreneurship (Csaba, 1995). During this period, Hungary opened its doors to foreign investment and integrated more closely with Western markets. The economic liberalization fostered a burgeoning private sector, although the initial years were marked by economic instability and structural adjustments (Bohle & Greskovits, 2012). This shift required dismantling the old economic structures and fostering a new entrepreneurial culture. Key aspects of this transition included:

– The *privatization* of state-owned enterprises was a major step in creating a market-driven economy. This process involved selling state assets to private investors, both domestic and foreign and encouraged the development of private enterprises (Kornai, 2006).

- Establishing a *legal framework* to protect private property, enforce contracts, and support business activities was essential. These reforms created a more predictable and secure environment for entrepreneurs (Haggard & Kaufman, 1995).
- Removing price controls, subsidies, and trade barriers allowed market forces to dictate economic activities. This *liberalization* encouraged competition and innovation (Nölke & Vliegenthart, 2009).
- Developing *institutions* that support entrepreneurship, such as financial markets, business associations, and support services, was crucial for fostering a vibrant business environment (McDermott, 2002).

Hungary's accession to the European Union in 2004 was a significant milestone that catalyzed further economic development. EU membership brought access to larger markets, structural funds, and a regulatory environment that encouraged business growth and innovation. This period saw a rise in foreign direct investment and an increase in entrepreneurial activities as businesses capitalized on new opportunities within the EU framework (Bruszt & Stark, 2003).

The 2010s witnessed the emergence of a more defined start-up ecosystem in Hungary. The government began to recognize the importance of fostering innovation and supporting start-ups as drivers of economic growth. Initiatives such as the New Széchenyi Plan, the establishment of incubators and accelerators, and targeted funding programs were introduced to support early-stage ventures (Szerb et al., 2013). Key cities like Budapest, Debrecen, and Szeged became hubs for start-ups, attracting both local and international talent. The rise of success stories like Prezi, LogMeIn, and Ustream put Hungary on the global start-up map, showcasing the potential of Hungarian entrepreneurs and their ability to compete internationally.

3.2 Current Start-up Landscape

The country's strategic location in Central Europe, along with its robust educational system and supportive governmental policies, has contributed to the growth of this ecosystem (Szerb et al., 2013).

3.2.1 Key Statistics and Metrics

To understand the current state of Hungary's start-up ecosystem, several key statistics and metrics can be highlighted:

- According to data from Dealroom.co, a global provider of information on start-ups and venture capital (VC) activity, in 2024 Hungary was home to over 1,600 start-up companies. (For which Hungary is the HQ location.) (Dealroom, 2024a)
- In the last 10 years (as of 2023), 823 start-ups have been founded, with 8 of them valued above $100 million and 1 exceeding $1 billion (GoTo, formerly LogMeIn). (See Table 1 for the 5 largest Hungary-based start-ups. Several previously high-valued start-ups have exited and therefore do not appear in the table.)[4]
- The start-up sector in Hungary has been growing steadily, with an annual growth rate of around 10-15% in the number of new ventures and funding received (Startup Hungary, 2023).
- Since 2000, VC funding in Hungary has totaled $738 million, with VC investment per capita being €7. (Compared to the European average of €78 and the CEE average of €12.) (Dealroom, 2024b)
- An analysis of the life cycle of leading Hungarian start-ups, using Dealroom funding data, reveals that initial funding predominantly originated from Hungarian sources. In contrast, larger rounds, typically Series A, attracted European investors, and it was only during Series B rounds, involving tens of millions of euros, that American venture capital investors showed interest.[5]
- According to the 2024 edition of the Startup Ecosystem Report by StartupBlink, Hungary maintained its 50th position globally for the second year in a row among the world's major start-up ecosystems, but it is far from its

[4] LogMeIn, a provider of remote connectivity services, raised substantial venture capital before going public on NASDAQ and was later acquired by private equity firms for $4,3 billion (Miller, 2019). Ustream, a live video streaming platform, was founded in Budapest and achieved global recognition. It raised over $60 million in funding before being acquired by IBM in 2016 for approximately $130 million (Primack, 2016). The IT security company Tresorit was acquired by Swiss Post in 2021. The purchase price was not disclosed (Gólya, 2021).

[5] The terms Series A, B, and C refer to specific rounds of financing from venture capital investors, categorized according to the start-up's life cycle and the amount of funding. However, there is no consensus in international literature on how to classify a particular capital raising into these rounds. Dealroom.co classifies European start-ups based on the amount of capital raised as follows: (1) Pre-seed: under EUR 1 million (2) Seed: EUR 1–4 million (3) Series A: EUR 4–15 million (4) Series B: EUR 15–40 million, and (5) Series C: EUR 40–100 million.

2020 ranking of 37th (StartupBlink, 2024). The decline is mainly due to the lack of internationally successful (unicorn) start-ups.

- According to the Global Entrepreneurship Monitor, Hungary's entrepreneurial ecosystem ranks in the middle of the pack both regionally and globally. The ease of access to business financing, commercial and service infrastructure, and government policies on taxes and bureaucracy are rated above the global and regional levels. However, there is a noticeable lag in entrepreneurial education in primary and higher education and the social and cultural norms ecosystem elements, both globally and regionally (Csákné et al., 2022; 2023; 2024).
- The total valuation of the Hungarian start-up ecosystem is $6.1 billion. Among Hungary's seven neighbouring countries, the ecosystem value is higher in three and lower in four (Dealroom, 2024a).6
- There is a significant ecosystem concentration in Budapest, hosting the majority of start-ups, incubators, accelerators, and co-working spaces. In 2023, Budapest ranked 9th among CEE start-up hubs for venture capital investment (Dealroom, 2024a). Hungary has now five ranked cities in the global top 1.000: Budapest (135), Szeged (816), Debrecen (901), Székesfehérvár (928), and Miskolc (991). All of the top three cities nationally experienced declines in their ranking in 2024 (StartupBlink, 2024).
- While only 8% of Europe's ecosystem value is derived from European start-ups that have relocated overseas, nearly 47% of CEE's ecosystem value comes from CEE start-ups that have moved abroad. For Hungary, 44% of start-ups have relocated from their country of origin, while 56% remain based in their home country.7 (Dealroom, 2022a)
- Until 2024, the number of exits has reached 106.
- There were 11 workspaces and 24 accelerators registered by Dealroom.co in 2024.
- The most funded technologies in the past three years (as of 2023) were artificial intelligence, big data, and machine learning (Dealroom, 2024a).

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[6] Over the past five years, the total value of start-ups in the CEE start-up ecosystem has more than doubled, increasing from €89 billion in 2019 to €213 billion in 2023. Notably, start-ups and scale-ups supported by venture capitalists have experienced the most rapid growth, contributing an impressive €21 billion to their value within this timeframe (Vestbee, 2024). The top three countries in terms of enterprise value for start-ups are Poland, Ukraine, and Estonia, contributing €49 billion, €28 billion, and €28 billion, respectively, to the total combined value of the CEE region. Croatia, Latvia, and Lithuania exhibited the most significant relative growth in values (Dealroom, 2024b).

[7] Start-ups founded in Ukraine, Romania and Bulgaria are most likely to have relocated their HQ abroad, in the UK, the US or Western Europe.

- The most funded industries in the past three years (as of 2023) were enterprise software, security, and fintech (Dealroom, 2024a).
- Hungary-based start-ups employ approximately 15,000 people (Dealroom, 2024a).

Table 1: The 5 largest Hungarian start-ups based on the total funding amount and valuation

	Name	Market	Total founding amount (in million USD)	Valuation (in million USD)	Investors
1.	Seon	B2B, security, fintech, identity & access regtech	107,8	385-575	Creandum, Institutional Venture Partners, PortfoLion
2.	Bitrise	B2B, enterprise software	83,5	240-360	Insight Partners, Partech, Y Combinator, Fiedler Capital, Zobito
3.	AIMotive	transportation, autonomous & sensor tech	67,6	200	Prime Ventures, Inventure, Draper Associates, Bosch Ventures, B Capital Group
4.	Turbine AI	health, pharmaceutical, biotechnology	34,2	110	Accel, Day One Capital, Mercia Asset Management, Merck, Delin Ventures
5.	Shapr3D	enterprise software	21,8	58-87	Creandum, Point Nine, Speedinvest, Thrive Capital, Lifeline Ventures

Source: own calculations, based on the Dealroom and Crunchbase databases[8]

3.2.2 Societal Attitudes and Values Influencing Hungary's Start-up Ecosystem

The impact of values on attitudes and behaviours has been extensively researched over time. The notion of values as guiding, justifying, or clarifying attitudes, norms, and opinions – and thereby influencing human actions – has garnered significant consensus among social scientists (Peral & Ramos, 2014).

[8] The table includes only those companies that are currently headquartered in Hungary. Consequently, it does not list some start-ups (e.g. Colossyan, Commsignia) that, despite receiving significant funding and achievening large valuations, have relocated their headquarters to another country (typically the USA). According to the 2022 Startup Report, half of the start-ups launched in Hungary have moved their headquarters abroad (Startup Hungary, 2023).

Societal attitudes and values play a critical role in shaping the entrepreneurial ecosystem of any country. These factors influence the willingness of individuals to engage in entrepreneurial activities, the support they receive from their communities, and the overall environment in which new ventures can thrive. In Hungary, societal attitudes towards entrepreneurship are a mix of positive and negative factors that collectively impact the entrepreneurial ecosystem.

International studies have found that Hungarians are generally less trusting, less tolerant, less open-minded, more individualistic, and more competitive compared to the European average (Neumann-Bódi et al., 2008; Keller, 2009; Tóth, 2009a; 2009b; Csepeli & Prazsák, 2010; Radácsi, 2024). They also tend to believe that individual actors can only succeed at the expense of others. Additionally, the majority of Hungarians expect the government, rather than themselves, to bring about positive changes in their lives (Kopp & Skrabski, 2008). This picture is nuanced by the European Values Studies results, which indicate that distrust and lack of cooperation are not unique to Hungary, but there is a significant divide along these values between Eastern and Western Europe (Halman et al., 2022; Luijkx et al., 2022). A 2018 Oxford University study found that Hungary was ranked the fourth lowest out of 77 countries on a risk-taking index (Becker et al., 2018).

As previously discussed in the Global Entrepreneurship Monitor (GEM) model, the general social perception of entrepreneurs can significantly influence the propensity to start a business. The GEM framework evaluates the public perception of entrepreneurs through three key questions: (1) media attention towards entrepreneurs, (2) the social status of successful entrepreneurs, and (3) entrepreneurship as a desirable career choice (Csákné et al., 2023). The data published in 2024 shows that, consistent with previous years, about half of the population believes that entrepreneurs receive significant media attention (50.9%), successful entrepreneurs hold high social status (48.5%), and entrepreneurship is seen as a desirable career path (47,2%) (Csákné et al., 2024). Conversely, the proportion of people disagreeing with these statements remains significantly lower but stable (26,6%, 25,4%, and 26,5% respectively). Notably, individuals under 35 years are more likely than average to agree that entrepreneurship is a desirable career path and that entrepreneurs hold high social status.

When discussing the cultural context and the start-up culture in Hungary, the story of Prezi stands out prominently.

Case study: Prezi as a defining enterprise in Hungary's startup culture

Founded in Budapest in 2009 by CEO Peter Arvai, CTO Péter Halácsy, and Chief Designer Adam Somlai-Fischer, Prezi is one of Hungary's most significant start-up success stories. Alongside other tech successes like Ustream and LogMeIn, Prezi has elevated Budapest's profile among international investors.

The founders of these companies have significantly shaped the local start-up ecosystem, investing time, resources, and capital to transform Budapest into a tech hub and establishing Bridge Budapest, a six-month fellowship program for promising tech talent. Bridge Budapest nurtures the next generation of tech talent by offering selected Hungarian university students a six-month paid fellowship with leading start-ups in Hungary. The program includes opportunities to visit the United States and gain insights from Silicon Valley or other tech hubs to apply in Budapest.

Beyond start-ups, CEO Peter Arvai initiated the 'Heroes Square Project', a social project led by Dr. Philip Zimbardo to change public attitudes toward helping others.[9] Péter Halácsy launched The Budapest School to modernize education for primary school children and also established a school for teaching girls to code.

Prezi to this day serves as a role model for Hungarian start-ups. Employing team members from 27 countries, Prezi offers Budapest employees the chance to spend a month in Silicon Valley. The company maintains a closed Facebook group called Prezi Mafia (a play on PayPal Mafia), where over 200 current and former employees collaborate on new projects in Hungary and beyond.

3.2.3 Funding and Investment

A critical aspect of a thriving start-up ecosystem is access to funding and investment. In Hungary, the funding landscape for start-ups has been developing robustly, supported by a combination of venture capital firms, angel investors, crowdfunding platforms, and government-backed funding programs.

[9] The name "Heroes Square Project" derives from Heroes' Square (Hősök tere), a major historical and cultural landmark in Budapest. Heroes' Square is one of the most iconic locations in Budapest, known for its impressive statues and monuments that commemorate notable figures from Hungarian history. By naming the project after such a significant site, the initiative symbolically connects with themes of heroism, national pride, and societal contribution, aiming to inspire public involvement and a sense of community responsibility.

3.2.3.1 Venture Capital Landscape

Venture capital (VC) is a major source of funding for start-ups in Hungary. This type of investment involves equity financing, where the investor acquires a stake in the target company. It is a financing form for non-public companies, typically for high-risk start-ups. Investments can be made directly or through funds – the latter being more common, as fund managers can manage their risks by diversifying their portfolios. The capital of VC funds comes partly from institutional investors (e.g., banks, international financial organizations, investment funds, insurance companies, etc.) and partly from individuals with significant private wealth. Fund managers raise capital for the fund based on their investment policy, track record, and network, and then make investments from this fund during the investment period.

In the 2010s, a milestone in the development of Hungary's venture capital ecosystem was the introduction of the Jeremie funds (Joint European Resources for Micro to Medium Enterprises). These funds not only put the sector on a more dynamic trajectory but also significantly reshaped domestic start-up financing. It was mainly from this period that significant activity in the venture capital investment market was observed. Consequently, local investment professionals typically have 5-15 years of experience, in contrast to the more developed markets where it is common to find investment experts with 20-30 years of experience.

Hungarian fund managers typically provide financing between EUR 1.5–3 million to mature but still growth-stage companies. The number of venture capital investments in Hungary has steadily increased in recent years, but the market size remains significantly smaller compared to the regional leaders (Poland, Estonia, Lithuania).

A regional peculiarity is that funds active here are predominantly backed by state and/or EU resources, which also influence investment opportunities and regulations (Karsai, 2022; MNB, 2023). Global and international funds rarely have a local presence and are only sporadically involved in transactions in Hungary. Regional funds generally have a more active local presence, but the processes related to transactions are typically managed from other venture capital hubs such as London, Amsterdam, or Berlin. Additionally, these funds are often sector-focused (MNB, 2023).

Access to capital in Central and Eastern European countries has been a challenge that governments have tried to mitigate through state interventions to promote economic growth and competitiveness. Following their EU accession, these countries benefited from EU funds dedicated to developing the venture capital sector, particularly through cohesion funds post-2010.

Despite these efforts, state venture capital programs in the region have shown both the positive and negative traits of similar programs in developed countries, failing to avoid previous mistakes. According to Judit Karsai's (2022) analysis, bureaucratic issues were compounded by the region's paternalistic and corrupt traditions and the difficulty in rapidly changing cultural-institutional conditions, leading to significant waste of communal resources. The increased capital supply was not always absorbed effectively, especially in finding and incentivizing private investors. Many co-investors were wealthy individuals with strong government ties, skewing the statistics.

Although the world's most developed, technology-based economies also have state programs to support high-tech industries, these programs primarily fund research, universities, and research institutions, or they place specific orders with private companies for desired technological solutions. The market competition aims to win these (often astronomical) orders, but the investment comes from market investors, not the state. In developed economies it is now clear that the state should not take a leading role in the venture capital market – this debate was settled in the developed countries by the 1990s (Florida & Smith, 1993). The state's excessive presence has already had the effect that those with truly internationally competitive, innovative business ideas prefer to establish their companies abroad or seek funding there. In this, it is not the availability of funds but the market knowledge and professional expertise that are attractive.

Although there has been growth in venture capital and angel investments, the overall availability of funding remains lower compared even to leading regional ecosystems like Baltic states. Dependence on EU and government funding, which can be inconsistent, adds to the uncertainty. The withdrawal of such funding in recent years has led to significant declines in investments (Karsai, 2023). According to Karsai, the venture capital industry is once again facing a challenging period globally. Significant state interventions due to the COVID-19 pandemic, the geopolitical shifts following the Russian invasion of Ukraine in 2022, disruptions in supply

chains, and volatility in energy, stock, and debt markets, alongside inflation and high interest rates, have all diminished the attractiveness of venture capital investments. The deteriorating investor environment is affecting the Central and Eastern European business incubation market, which is particularly vulnerable due to its geographical proximity to the Russia-Ukraine conflict. This situation encourages startups to distance themselves from the region rather than attracting talented founders and new companies from the international market, despite the area's cost advantages and abundance of skilled professionals. Consequently, despite the business incubation institutions' development in line with international trends, the region's overall prospects for continuing and deepening its integration into the global market, which began before the war, have not improved.

The positive impacts of state involvement included increased capital supply, some notable innovations, improved transparency in corporate operations, heightened activity among business angels, new market entries by funds, and greater awareness of venture capital (Karsai, 2018).

3.2.3.2 Government-Backed Funding Programs

Given the context, it is unsurprising that Hiventures, the largest and most active venture capital firm, is state-owned. Hiventures offers pre-seed, seed, and growth capital, ensuring continuous support as start-ups scale. Hiventures' focus areas include the creative industries, deep tech, healthcare, agriculture, energy, and e-commerce.

Hiventures was established in 2017, uniquely combining state funding with incubation and venture capital investment. Hiventures manages several funds, including a 30 billion HUF R&D fund and a 9,4 billion HUF digital innovation fund. During its seven years of operation, Hiventures has evaluated more than 3,000 projects and made 440 investments, including 110 as a co-financer, helping approximately 250 businesses in the idea phase get started. This amounts to nearly 62 billion HUF (EUR 160 m) in investments (Hiventures, 2024). Hiventures also organizes the annual Regional Startup and Innovation Day, which is the largest start-up networking event in the region.

The Hungarian Development Bank (MFB) which is the parent company of Hiventures, offers loans, guarantees, and equity financing to support start-ups and SMEs. Specific programs target innovation and technology development, providing crucial financial support for high-potential start-ups (MFB, 2024).

The National Research, Development and Innovation Office (NKFIH) manages several funding programs aimed at promoting R&D and innovation. These include grants for research projects, funding for technology transfer, and support for international collaboration (NKFIH, 2024).

The Hungarian Investment Promotion Agency (HIPA) facilitates foreign investment and provides support for start-ups (HIPA, 2024).

Hungary benefits from various EU funding programs that support innovation and entrepreneurship. Horizon 2020, now succeeded by Horizon Europe, provides substantial grants for research and innovation projects involving Hungarian start-ups (European Commission, 2024).

3.2.3.3 Private VC Funds

The Hungarian Venture Capital and Private Equity Association (HVCA), established in 1991, represents the interests of the private equity and venture capital sector in Hungary. The MKME's members include all major investors and advisors dealing with non-listed companies in the sector. As of June 2024, the Association had 24 members headquartered in Hungary, three of which were state-owned VC companies (HVCA, 2024).

Day One Capital is an early-stage venture capital firm, focusing on technology-driven start-ups with high growth potential. Day One Capital has a diversified portfolio, including investments in sectors such as AI, SaaS, and cybersecurity (Day One Capital, 2024). They typically invest €300k - €1.5M with substantial reserves for follow-on investments. Day One Capital was one of the initial investors in aiMotive, a start-up that executed the most valuable exit of 2022. The company was acquired by the Stellantis group, which includes brands such as Fiat, Chrysler, Citroën, and Maserati (Zsiborás, 2022). The Fund's other investments are Flawless, Colossyan, Shapr3D, and Webshippy (exited in 2024). They also publish the annual 'Startup salary trends in Hungary' reports.

OXO Ventures, a multi-stage venture investor and accelerator, is part of OXO Holdings, a leading investment firm in the tech sector in the CEE region. In its thesis, the firm is focused on finding technology-intensive solutions capable of shifting customer or market patterns. They invest from €200k and up to €5M. Some of the firm's portfolio companies include Evermart, zLense, and Commsignia (OXO Group, 2024).

PortfoLion Capital Partners is another key player in the Hungarian venture capital scene, providing funding and strategic support to start-ups and SMEs. Backed by OTP Group, one of the largest Banking groups in the CEE region, the fund has been actively investing in the seed stage across multiple verticals since 2010. The firm invests in various industries, with a strong emphasis on technology, digital media, and healthcare. Beyond funding, PortfoLion offers mentorship and access to a wide network of industry experts and partners. Their investment ticket is €500k - €5M. The Fund's notable investments are SEON, Commsignia, Starschema (exited in 2022), Deskbird, and FlowX.ai (PortfoLion, 2024).

Tresorit's investment journey exemplifies the typical path of successful startups: beginning with seed capital for product development, and then securing increasingly larger investments for market expansion, additional product enhancements, and human resource development. Venture capital and angel investors consistently profited by selling their shares in each funding round.

Case Study: The Tresorit investment story

Tresorit is a cloud-based, secure file synchronizing and collaboration software that enables business users to share confidential data with the highest level of security. Its patented end-to-end encryption service has earned accolades, such as the Gartner Peer Insights Customers' Choice Award in 2020. Tresorit's technology encrypts data before it reaches the cloud, ensuring that decryption keys never enter the cloud, adhering to a "zero knowledge" principle. Through a collaboration with Apple's healthcare team, developers can use Tresorit's patented encryption to secure iOS healthcare apps.

Founded in 2011 by István Lám, Szilveszter Szebeni, and György Szilágyi, Tresorit's roots trace back to the CrySyS Data and System Security Laboratory at the Budapest University of Technology and Economics, where Lám and Szebeni were computer

science students. They were joined by Szilágyi, a student at Corvinus University of Budapest, who contributed his expertise in economics, business, and product development.

In 2012, Tresorit closed its first investment round with €1.5 million from the VC fund Euroventures and nine angel investors, including Márton Szőke, Balázs Fejes, and Swiss businessman Andreas Kemi, who has since served as Chairman of the Board. This initial investment funded two years of product development.

Just a month after exiting beta, Tresorit secured a second round of funding, raising an additional $3 million from previous backers.

In 2017, Márton Anka, co-founder of LogMeIn, joined Tresorit as a strategic advisor and investor.

On September 4, 2018, Tresorit announced the closure of an €11.5 million Series B financing round, led by 3TS Capital Partners and joined by PortfoLion. Key existing investors, including Andreas Kemi and Márton Anka, also participated. Part of this funding facilitated the acquisition of existing shares.

In 2021, Swiss Post acquired a majority stake in Tresorit, with the founders retaining minority shares and continuing to lead the company.

3.2.3.3 Angel Investment

Angel investments represent one of the first steps in financing early-stage companies and start-ups. Angel investors take significant risks by investing capital, knowledge, experience, and support in nascent companies at a very early stage. They undertake this risk – with international statistics indicating a failure rate of 80-90% – in the hope that some of the companies they finance will become rapidly growing, successful scaleups in the coming years. After a few years and considerable market and organizational development, they aim to sell their shares at substantial profits, potentially 10 or 100 times the initial investment. Angel investors play a crucial role in the early stages of a start-up's life cycle by providing not only capital but also valuable expertise and connections.

Typically, an individual angel in Hungary invests between 10,000 and 50,000 euros per investment. However, through syndicates, multiple angels combine their capital, allowing start-ups to receive between 50.000 and 300.000 euros in a single funding round.

Hungary has a growing network of angel investors who are keen to support innovative ventures. Many successful entrepreneurs and industry veterans in Hungary act as individual angel investors. They bring extensive experience, industry insights, and strategic guidance, alongside their financial investment.

The Hungarian Business Angel Network (HUNBAN) is a prominent network of angel investors in Hungary, dedicated to supporting early-stage start-ups. The network organizes pitch events, provides mentorship opportunities, and facilitates connections between start-ups and investors. HUNBAN members have invested in numerous start-ups, offering vital seed funding and helping to bridge the gap to larger investment rounds (HUNBAN, 2024).

3.2.3.4 Crowdfunding Platforms

Crowdfunding has emerged as an alternative funding source for start-ups, allowing them to raise capital from a large number of small investors.

StartSomeGood is a crowdfunding platform that supports social enterprises and start-ups with a social impact focus. It allows entrepreneurs to create campaigns and attract funding from individuals interested in supporting innovative projects that address social challenges (StartSomeGood, 2024).

Global crowdfunding platforms like Indiegogo and Kickstarter are also accessible to Hungarian start-ups. These platforms offer a way for start-ups to validate their ideas, gain initial funding, and build a community of early adopters and supporters. Among Hungarian start-ups, Brewie, which manufactured home beer brewing machines, GrapeOcean Technologies, a video game developer, AIT Smart One which manufactures smart desks, Shoka Bell, the smart bicycle bell, utilized this form of financing.

We can conclude that although the number of available fundraising options for start-ups is high, there is a lack of "smart money" that could help the international growth of these companies. There should be more co-investments with international VCs and the country, and the region should attract Western EU and US investors (Startup Europe, n.d.)

3.2.4 Business Incubators and Accelerators

Business incubators and accelerators offer structured programs with mentoring and training for selected groups, typically culminating in a public pitch event (Cohen et al., 2019). The rise of digitalization has significantly reduced experimentation costs over the past decade, which has facilitated the emergence of these organizations (Ewans et al., 2018). This reduction in costs has lowered the seed capital requirements for start-ups, allowing incubators and accelerators to provide substantial support, often with minimal or no financing.

Discussing the significance of the ecosystem metaphor, we have already touched on the importance of cooperation among participants. Technological solutions and lessons from successful start-ups within these programs spread among other participants, making knowledge more accessible and accelerators more effective in fostering growth (Drori & Wright, 2018). Cooperation is highly valued, with many programs fostering mutual recognition and curiosity among entrepreneurs. Teams often share workspaces, participate in specialized sessions, and offer each other advice on various topics, from technology to marketing. Accelerators play a crucial role not only in developing participating start-ups but also in positively influencing the broader entrepreneurial environment.

In Hungary, the government has played an increasing role in establishing and funding incubators and accelerators. The first state incubation program, the Accredited Technology Incubator (ATI), was launched in 2013, targeting the establishment and support of four technology incubators (ACME Labs, Acquincum Technology Incubator, Digital Factory, iCatapult) with grants of 60 million HUF each. By 2014, there were 11 business and technology incubators offering office space, complex services, investment, and global networks. In late 2015, a new state incubation tender offered 600 million HUF in non-refundable support to private organizations. By 2016, eight regional and three Budapest-based accredited technology incubators received nearly 2 million EUR each (Lovas & Riz, 2016).

To further support incubators, the (former) Ministry of Innovation and Technology launched the Startup Factory program in 2020, providing 2 billion HUF to enhance risk-taking and support activities. This program selected seven organizations, each receiving 300 million HUF (Hungarian Government, 2020). The program included innovative requirements, such as a cap on incubator stakes at 24% and a stipulation that 80% of the funding must go to incubated companies. The Széchenyi Funds announced a new program in 2021, offering 10 billion HUF for incubators and accelerators, with selected applicants receiving 300 million to 1.5 billion HUF (Növekedés.hu, 2021).

In 2017, Hungary-based OTP Bank, in partnership with its subsidiary PortfoLion Venture Capital Fund Management, launched an international accelerator program for fintech start-ups. The OTP Startup (later: Booster) program, announced annually, invests in companies with growth potential and promising fintech innovations. Participants work on innovative banking test projects with mentors and experts. Since 2019, five OTP Bank Group foreign subsidiaries have joined, offering an additional six-month cooperation period for top performers. Other Hungarian banks like K&H, MKB, and CIB, as well as energy (Mol, MVM) and telecom companies, have also invested in local incubator and accelerator programs to support start-ups in their fields.

Several venture capital funds in Hungary have launched their own incubator houses and acceleration programs. For example, Traction Labs Ltd. was established by PBG FMC, the AVEC Accelerator program by the Day One Group, OXO Labs by the OXO Group, and the Startup Factory by BNL Start.

The Global Accelerator Network (GAN) is an alliance of independent accelerators, large corporations, and investors that connects start-ups with financial and human resources. They have launched programs in over 120 countries and supported more than 19,000 start-ups over ten years. In Hungary, GAN includes one banking accelerator: Start it@K&H.[10]

[10] In the region, it also includes one Bulgarian accelerator (Eleven) and two Czech accelerators (Start it@ČSOB and Startup Yard).

Other incubators include the private incubators Design Terminal, Lab.Coop, and xLabs. Impact Hub Budapest is a member of the global Impact Hub network accelerating inclusive and sustainable innovation), and NAK TechLab is the agricultural start-up program of the National Chamber of Agriculture.

Case study: Design Terminal[11]

Since the establishment of the first acceleration program for creative industry entrepreneurs in 2014, Design Terminal has played a pivotal role in the Hungarian and broader European start-up ecosystems, offering extensive support and resources to emerging businesses and talented individuals.

The agency's core mission is to accelerate the development of start-ups and facilitate their successful integration into the market. This is achieved through a combination of business consultations, tailored accelerator programs, and a robust network of mentors and industry experts.

Their flagship incubation initiative, the Mentoring Program, runs twice annually, during spring and fall, with each semester comprising three months of intensive mentoring. Although the Mentoring Program is not industry-specific, it is dedicated to start-ups addressing social problems, focusing on teams committed to making a positive impact on the world. Typically, around ten start-ups are selected for each cohort based on the quality of their solutions.

The Mentoring Program in Numbers:

- Over 1000 applicants
- More than 50 hours of professional programs per semester
- Over 30 hours of personalized mentoring per semester

Another Design Terminal program, Space Terminal serves as the Hungarian partner of the European Space Agency (ESA), fostering the development of successful start-ups and projects that contribute to the broader European space ecosystem and industry. They collaborate with leading Hungarian market players and institutes,

[11] Source: https://designterminal.org/en

while also expanding their network to include university students, start-ups, SMEs, R&D stakeholders, and academia.

3.2.5 Government Policies and Support

The Hungarian government has recognized the importance of fostering a vibrant start-up ecosystem and has implemented a variety of policies and support mechanisms to encourage entrepreneurship and innovation. These initiatives aim to provide financial support, create a conducive regulatory environment, and facilitate the growth and international expansion of start-ups.

The Hungarian government has launched several initiatives designed to bolster the start-up ecosystem. These initiatives are often coordinated through various government agencies and ministries, each focusing on different aspects of start-up support.

The Digital Welfare Program aimed to enhance digital infrastructure and literacy, promoting digital innovation across Hungary. It included measures to support digital start-ups, improve broadband connectivity, and enhance IT skills among the workforce. Two main strategies were accepted within this strategy: the Digital Export Development Strategy to enhance export by using ICT tools, and the Digital Start-up Strategy to support the creation and development of innovative start-ups with high growth potential (VV – WIK Consult, 2019).

Named after the 19th-century Hungarian chemist János Irinyi, the Irinyi Plan focuses on modernizing the Hungarian industry through innovation and technology. It provides support for industrial start-ups, particularly those involved in advanced manufacturing and technology sectors (Hungarian Government, 2016).

The Hungarian government offers several tax incentives and subsidies to reduce the financial burden on start-ups and encourage investment in innovative ventures.

Hungary offers one of the lowest corporate tax rates in Europe at 9%, which is highly favourable for start-ups. This low tax rate applies universally, making it easier for start-ups to retain more of their earnings for reinvestment and growth.

Companies investing in research and development activities can claim significant tax deductions. Both SMEs and large enterprises engaged in R&D can benefit from these credits, encouraging innovation across various sectors. Companies can reduce their tax burden by contributing to innovation funds, which are used to support R&D activities. All businesses can participate, but start-ups particularly benefit by gaining access to additional funds for their innovative projects.

The Hungarian government provides various grants and funding programs to support the development and growth of start-ups. These programs are often co-funded by the European Union, enhancing their scope and impact. We have previously discussed the programs of the Hungarian Development Bank (MFB) and the National Research, Development and Innovation Office (NKFIH).

Creating a start-up-friendly regulatory environment has been a key focus of the Hungarian government. Efforts are made to streamline bureaucratic processes and reduce administrative burdens on start-ups:

- The process for registering a new company in Hungary has been simplified and digitalized, significantly reducing the time and cost involved. This makes it easier for entrepreneurs to start their businesses and focus on growth and innovation.
- In Hungary, legislation introducing the so-called "white card" was enacted in July 2021 for those who work as digital nomads, meaning they can perform their work from anywhere in the world. The white card is available to individuals who come from outside the European Economic Area and hold employment in a non-European Union country, provided they can prove a monthly income of 2.000 euros. However, they are not required to pay income tax. Applicants must submit their request at the Hungarian embassy in their home country, and upon approval, they can enter Hungary after a 30-day waiting period. Once in the country, they must apply for the white card in person to be able to work during their stay (Hajdú, 2023).
- The government has strengthened intellectual property (IP) protections to safeguard innovations. Strong IP laws provide start-ups with the confidence to invest in new technologies and bring them to market without fear of infringement.

Recognizing the importance of global markets for start-ups, the Hungarian government provides various programs to help start-ups expand internationally. Agencies like the above-mentioned Hungarian Export Promotion Agency (HEPA) offer services to help start-ups enter foreign markets. These include market research, trade missions, and participation in international trade fairs. Programs such as V4 Startups, which foster collaboration among Visegrad Group countries (Hungary, Poland, Czech Republic, and Slovakia), provide platforms for networking and joint ventures. Start-ups benefit from shared resources, knowledge exchange, and access to regional markets.

3.3 Empirical Research on Survival and Growth of Hungarian Start-Ups

Radácsi and Csákné (2021) analyzed the determinants of start-up survival and growth, utilizing a systematic literature review of empirical studies and expert interviews with prominent figures in the Hungarian start-up ecosystem.

Their literature review, which incorporated studies from the Web of Science Core Collection and ScienceDirect databases, identified several factors that positively impact the survival and growth of start-ups. These factors include the following:

- Higher levels of business experience and business planning positively influence the survival and growth of start-ups.
- The choice of location, particularly proximity to important customers, suppliers, research centres, and business organizations, also plays a crucial role.
- Patent development and new technology-based firms improve survival rates, provided these firms move beyond the self-employment phase in their lifecycle.
- Entrepreneurship education positively impacts survival, while previous entrepreneurial experience does not have a significant effect. The university background of the founder(s) is beneficial for business survival.
- High absorption capacity, specific customer-supplier relationships, and internationalization enhance survival chances.
- Firms with founding members who have both academic and non-academic experience are more likely to grow compared to those started by less diverse teams. A combination of technical, managerial, and commercial experience is particularly advantageous.

- Bootstrapping, or the ability to finance growth internally from cash flow, is beneficial. However, business angels, venture capital, and traditional bank financing positively impact growth, whereas government subsidies and stock market introduction do not correlate with growth rates. External equity financing is associated with higher growth rates.

Interviews with experts from the Hungarian start-up scene revealed that the factors influencing survival and growth differ somewhat from those indicated in international literature. From among the factors influencing the survival and growth of start-up companies indicated in international literature, the authors were able to identify only four through the analysis of expert interviews: entrepreneurial education, internationalization, acquisition, and the heterogeneity of the start-up team's knowledge and skills.

The factors influencing the survival of start-ups identified in the interviews can be divided into three large groups. The first group consists of internal factors such as team weaknesses/conflicts among the founders and funding problems. The second group includes external factors, with experts noting the importance of timing and the lack of effective incubation and mentoring support. The third major group, sociocultural factors, encompasses values rooted in the past, the conflict of short-, medium-, and long-term financial goals and opportunities, and the rent-seeking attitude.

Additionally, the experts pointed out that just as professional knowledge and management skills play a key role in the survival of start-ups, the lack of knowledge and unpreparedness in the areas of entrepreneurship, finance, and management are also often barriers to the growth of start-ups.

3.4 Entrepreneurial Education

Entrepreneurship education and preparation for entrepreneurial careers are some of the most critical aspects of the Hungarian ecosystem.

3.4.1 Entrepreneurial Competence

Entrepreneurial competence is a transversal competency that applies to all areas of life, from personal development and active social engagement to entering or re-entering the labour market (whether as an employee or as an independent entrepreneur) and launching ventures representing cultural, social, or commercial value. Thus, while the components of a successful venture are complex and dynamically influenced by environmental conditions and expectations, the presence of entrepreneurial competencies provides a foundation for increasing the chances of success not only for entrepreneurs or future entrepreneurs but also for individuals in various roles within the labour market.

As the focus on competency development becomes central to learning, one of the challenges for entrepreneurship education is to move away from frontal knowledge transmission and find ways to support post-graduate success, facilitating a smooth transition between the years spent in education and the period following graduation. According to Tsankov (2017), the development of students' transversal competencies requires problem orientation, autonomy, and creativity. He notes that "the acquisition of a knowledge system for the specific and the general is a cognitive process, characterized by the continuous design of models, through which students encode, recode and decode information in the course of the incessant transition from the concrete to the abstract and vice versa" (ibid, p. 140).

The European Union Lifelong Learning Reference Framework encompasses a range of essential competencies, one of which relates to entrepreneurship competencies, which are defined as "the capacity to act upon opportunities and ideas, and to transform them into values for others. It is founded upon creativity, critical thinking and problem-solving, taking initiative and 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). The importance of this competence is highlighted by the creation of a separate framework for entrepreneurship (Bacigalupo et al., 2016; Rațiu et al., 2023).

The Hungarian entrepreneurship education does not fully support the comprehensive development of entrepreneurial competencies. Mihálkovné's (2014) study suggests that one contributing factor to this insufficiency could be the

interchangeability and indistinct implementation of economic knowledge, entrepreneurial knowledge, and entrepreneurial competencies.

3.4.2 GEM Data

As mentioned earlier, the Global Entrepreneurship Monitor (GEM) expert panel highlights a significant lag in entrepreneurial education at both primary and higher education levels (Csákné et al., 2022; 2023; 2024).

Since 2021, the proportion of the Hungarian population aged 18-64 who self-report possessing the knowledge, skills, and experience necessary to start a business has been slowly but steadily increasing, according to GEM data. However, this proportion remains the lowest among the European Union countries participating in the GEM research. In 2023, the proportion was 38,3%, significantly below both the EU average and the average of Central and Eastern European EU member states with similar socio-cultural and historical backgrounds.

GEM data also indicates that 16,2% of the Hungarian adult population received some form of education or training that prepares and motivates them for entrepreneurship, which is nearly identical to the 18,1% measured in the previous year. There is no significant change in the fact that the majority (52,0%) acquired this knowledge through non-formal training or courses. Additionally, a quarter (25,4%) of those who received entrepreneurial education did so at a university, and one-fifth (20,3%) received it in high school. The role of primary school in acquiring entrepreneurial knowledge was negligible in both years.

Furthermore, seven out of ten entrepreneurs started and ran their businesses without ever participating in entrepreneurship education, likely negatively impacting their operational efficiency and competitiveness. There is a strong correlation between being an entrepreneur and participating in entrepreneurship education; those who own businesses are nearly twice as likely to have received entrepreneurship education compared to non-entrepreneurs.

3.4.3 GUESSS Data

Hungary has participated in seven surveys of the GUESSS (Global University Entrepreneurial Spirit Students' Survey), a biennial survey conducted since 2003. The data presented in Figure 4 represents the percentage of students inclined towards pursuing an entrepreneurial career immediately after completing their studies, as well as the aspirations five years down the line (Gubik & Farkas, 2022).

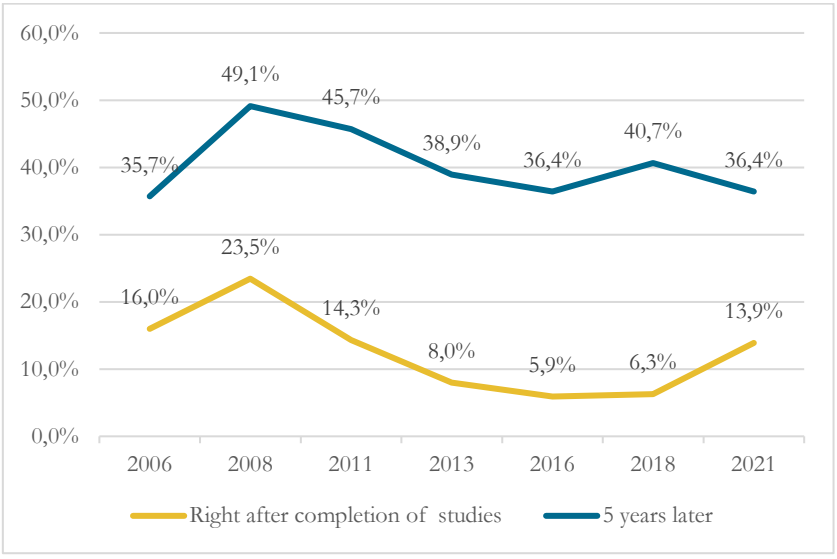

Figure 4: Entrepreneurial career plans 2006-2021 – Hungarian results from the GUESSS 2006, 2008, 2011, 2013, 2016, 2018, and 2021 databases
Source: Reproduced from Gubik & Farkas, 2022, p 14, with permission

The initial benchmark in 2006 stood at 16%. Subsequently, a notable rise occurred in 2008, which was then followed by a considerable decline, likely attributed to the impact of the financial crisis. By 2018, there was a slight improvement in the ratio, and a substantial amelioration was observed in 2021. These figures, though lower than global averages, still surpass the data from countries with the highest GDP.

Case study: Hungarian Startup University Program

The most recent development in the Hungarian entrepreneurship education ecosystem was the launch of the Hungarian Start-up University Program (HSUP) in 2020. The two-semester-long e-learning programme was initiated and centrally

administered by the Hungarian National Council for Research, Development and Innovation (NKFIH) to familiarise students in the higher education system with ideas and concepts concerning innovation, financial planning, market strategies, and IP rights. HSUP provides a comprehensive curriculum that combines theoretical knowledge with practical experience to cultivate the next generation of entrepreneurs. Since its first year, the programme has been running at more than 30 Hungarian higher educational institutions (HEIs), and the number of participants reached 4.200 in the 2023/2024 academic year.

HSUP is structured to offer a balanced mix of online courses, workshops, and hands-on projects. The program spans two semesters:

- First semester: Foundational knowledge (Students learn the basics of entrepreneurship, including business planning, market research, financial management, and legal aspects of starting a business.)
- Second semester: Practical application (Project Development: Students form teams to develop their start-up ideas, applying the knowledge gained in the first semester. Mentorship: Each team is assigned a mentor from the business community to provide guidance and support throughout the project.

At the end of the semester, teams present their projects to a panel of judges, including investors and industry leaders, with opportunities for funding and further development.

Key features of the programme:

- HSUP is open to students from all Hungarian HEIs, ensuring widespread access to entrepreneurial education.
- The program encourages students from diverse academic backgrounds to participate, fostering interdisciplinary collaboration and innovation.
- HSUP integrates various stakeholders, including universities, businesses, and government bodies, to create a supportive ecosystem for aspiring entrepreneurs.

Since its inception, HSUP has made significant strides in promoting entrepreneurship among Hungarian youth:

- Over 14,000 students from 33 universities have enrolled in the program, indicating strong interest and engagement across the country.
- The program has facilitated the creation of numerous start-ups, with several student projects securing funding and mentorship for further development.
- Participants report enhanced entrepreneurial skills, increased confidence, and a better understanding of the start-up ecosystem.

A study summarizing the experiences from the first years of the Hungarian Startup University Program (HSUP) found that teams with members from multiple universities possessing engineering and IT competencies are more likely to advance their projects (Dőry et al., 2024). Additionally, an indicator of the intention to continue can be the team's more active development activities during the semester, such as demonstrating the functionality of the technological solution or creating an MVP. The success of initial student projects is also facilitated by diversity; teams with an institutionally heterogeneous composition are more likely to continue their work. Although the proportion of team members with engineering competencies is low, those teams with such members are more likely to complete the MVP and plan to continue the project.

While HSUP has achieved considerable success, it faces challenges such as scalability (expanding the program to include more students and universities while maintaining quality), and sustained funding.

3.5 ICT Talent Pool, STE(A)M Education, Digital Competences[12]

3.5.1 ICT Workforce

Hungary has the region's highest share of ICT (information and communication technology) specialists in the workforce (3.9%) but it remains below the EU average (4.5%) (European Commission, 2022).[13] According to a Dealroom analysis, because

[12] The "A" in "STE(A)M" stands for Arts. Incorporating the arts into the traditional STEM (Science, Technology, Engineering, and Mathematics) framework aims to foster creativity and innovation. The inclusion of the arts encourages a more holistic approach to education, promoting critical thinking, problem-solving, and collaboration. It emphasizes the importance of creativity and design in technical fields, helping students to develop a more comprehensive understanding of how various disciplines interconnect and contribute to solving complex, real-world problems.

[13] The combined share of Germany, France and Italy accounted for more than 40% of the EU's ICT workforce.

of the strong STE(A)M (science, technology, engineering, arts, mathematics) education and world-class technical talent pool, the verticals where Hungary tends to produce most of the success stories lay in deep tech-related verticals such as data analytics and data science, artificial intelligence, and cybersecurity. Hungarian start-ups in the field of fintech and blockchain have shown great development over the last few years (Dealroom, 2022b).[14]

Some of the most successful companies raise money and open headquarters in the US, but they keep most of their R&D activities and tech teams in Hungary. In recent years some of the fastest-growing international tech companies such as Cloudera, Tansferwise or Blackrock opened large development offices in Hungary to utilize the great STE(A)M talent pool of Hungary (Startup Europe, n.d.).

However, one of the largest challenges for start-ups is to find a skilled workforce as the digital industry is rapidly growing in Hungary. Although one of the main strengths of the ecosystem is the quality of the technical talent, the labour market is limited and approximately 22.000 people are missing from the IT industry (Startup Europe, n.d.). Multiple coding schools are popping up, trying to solve this gap. Also, many companies manage to attract people from other countries to relocate to Budapest. Besides the limited number of engineers, the ecosystem lacks the marketing and business competencies needed for scale-ups. This is why successful start-ups started in Hungary are often headquartered in the US (ibid.).

3.5.2 STE(A)M Education

Due to these issues, Hungary's government aims to increase university enrollment in science, technology, engineering, and mathematics programs to 50% by 2030 (BBJ, 2023), and it implemented various programs in both secondary and vocational education systems.

[14] A good example of the "internal migration" of essential professionals necessary for the development of the start-up ecosystem is the case of one of the earliest Hungarian start-ups. The adult streaming site LiveJasmin, which is often overlooked by the tech community due to the risqué industry it works in, was founded in 2001, and became one of the most popular adult sites in the world around 2004. To this day, it continues to be leading stream and chat site. The founder, György Gattyán, was named No. 1 on the Forbes Hungary's 'Richest Hungarians' list in 2014. Many of the engineers who would then move to Ustream began working in streaming with LiveJasmin. As we mentioned it earlier, on January 21, 2016, IBM acquired Ustream for up to $150 million.

In 2020, the "Vocational Training 4.0" strategy was introduced, targeting the vocational education system, which encompasses approximately 400 schools nationwide. This strategy aims to ensure that all aspects of vocational education are aligned with the challenges posed by Industry 4.0. Sectoral Skills Councils, composed of top-tier employers from various sectors, have been established to align vocational training with current market demands. Within the Vocational Training Centers, Digital Community Maker Spaces were established (Halaska, 2024). These Maker Spaces, equipped with state-of-the-art instruments and machinery, host both curricular and extracurricular activities, workshops, competitions, and camps for interested individuals. These activities allow participants to explore technologies such as 3D printing, laser cutting, CNC machining, welding simulators, and mobile-controlled robots. The Maker Spaces emphasize student creativity, with participants actively engaging in the creative process rather than merely observing. Through collaborative team efforts and playful environments, participants can familiarize themselves with both traditional and modern tools and technologies, while also enhancing their professional knowledge and skills (ibid.).

Case study: KIKS – Kids Inspiring Kids in STEAM

With professional support from the Hungarian Association for Digital Education, the international educational project KIKS[15] – Kids Inspiring Kids in STEAM – was conducted. This Erasmus+ initiative involved children from four European countries (Hungary, Finland, Spain, UK) collaborating virtually through Facebook and other Web 2.0 tools. The project's goal was to demonstrate the appeal and excitement of STEAM subjects through student-created projects.

Besides fostering interest in STEAM subjects, the KIKS project aimed to enhance students' independent learning abilities and develop their self-motivation and peer motivation skills. Virtual group work, online communication, and the use of the English language provided an engaging experience, serving as an initial step towards international mobility for the participants.

In Hungary, 50 students from six institutions participated in the program, with each school represented by a team of at least four students and a mentor teacher. Similar team compositions were present in other participating countries. Initially, these local

[15] The case study is based on the Hungarian Association for Digital Education's project description: https://mdoe.hu/projektek/kiks-kids-inspiring-kids-in-steam/ and on Fenyvesi et al, 2017.

teams planned and executed projects, involving their school and local communities. The only requirement set by the organizers was that the project should integrate mathematics with at least one other science subject and connect to the arts in some way. At the end of this phase, each group presented their project, and the best ideas were further developed by international teams. After five weeks of online collaboration under the guidance of mentor teachers, the mixed teams presented their final projects to an international jury. All international projects were showcased at the KIKS stand during the 2017 Cambridge Science Festival.

The Hungarian Association for Digital Education compiled the valuable experiences and insights gained from the KIKS project into a handbook for educators.

Naturally, it will take many years to determine whether these programs will have any impact on the development of the Hungarian start-up ecosystem. However, it can be confidently stated that the enhancement of skills and competencies, in addition to knowledge transfer—based on what has been described regarding entrepreneurial training—is certainly a welcome development.

3.5.3 Digital Literacy

The European Commission has been monitoring Member States' digital progress through the Digital Economy and Society Index (DESI) reports since 2014. The latest DESI report is from 2022, and it is based mainly on 2021 data (European Commission, 2022).

Hungary traditionally performs best in the area of digital infrastructure, ranking 13th, which places it in the middle of the EU pack. Neither internet access nor the prevalence of internet usage can now hinder digital convergence. However, the country lags significantly in digital literacy, ranking 23rd.[16] Hungary has fallen behind not only the traditionally better-performing Scandinavian countries and the EU average but also the average of the Visegrad region. Only 49 per cent of Hungarians have at least basic digital skills. Digital inequalities overlap with general social

[16] Besides digital literacy, the most significant lag is in the digitalization of companies, ranking 25th, which causes severe competitiveness disadvantages. Only one-third of Hungarian SMEs have at least basic digital intensity, and two-thirds do not even have a website. The proportion of companies using artificial intelligence (3 %) and big data applications (7 %) is minimal, and the rate of cloud service subscriptions (24 percent) is well below the EU average. In terms of digital public services, Hungary ranks 21st within the EU.

disparities: the digital divide primarily affects the poor, the less educated, those living in underdeveloped regions, and the elderly.

The weakness in digital competencies can primarily be attributed to deficiencies in the education system. Beyond the general issues affecting the public education system, specific problems at all levels of training and education also contribute to the inadequacy of digital competencies (DJP, 2016).

4 Potential Benefits and Challenges for the Hungarian Start-up Ecosystem

4.1 Potential Benefits of a Better Ecosystem

A team of analysts from McKinsey suggest that over the coming decade, a more advanced start-up ecosystem could significantly benefit Hungary's economy in three ways (Havas et al., 2023).

1. Economic and financial value added: Maturity in the start-up funding funnel could generate EUR 2.5 billion–EUR 5.0 billion in additional sector funding, with EUR 0.6 billion–EUR 1.3 billion contributing to local economic spending. This job creation could yield up to EUR 2.2 billion in employment taxes between 2025 and 2030, alongside other tax revenue increases.
2. Talent development: A more advanced start-up ecosystem could create nearly 30,000 high-value jobs in Hungary, providing opportunities for local professionals and attracting skilled labour from abroad. This effect is particularly pronounced in digital start-ups, benefiting the economy at large.
3. Digitalisation: A McKinsey report (2022) highlights that an advanced start-up ecosystem, focusing on digital solutions, could enhance nationwide digitalisation, potentially adding EUR 9 billion to GDP by 2025. The authors concur with Torres and Godinho (2021) that ambitious firms are essential for competitiveness, and a digital entrepreneurial ecosystem can cultivate digital unicorns. This ecosystem can also rejuvenate traditional industries by enabling them to adopt cutting-edge technologies through collaborations with local start-ups.

Havas et al. further note that a successful start-up ecosystem is sustainable, with successful founders reinvesting and sharing their knowledge with new start-ups.

4.2 The Challenges Facing the Hungarian Start-up Ecosystem

The Hungarian start-up ecosystem faces several hurdles that could impede its future development. The key challenges include access to funding, entrepreneurial education, cultural and societal attitudes, regulatory and bureaucratic challenges, talent retention and development.

As previously discussed, while there has been some growth in venture capital and angel investments, the overall availability of funding in Hungary remains comparatively low, even when contrasted with leading regional ecosystems such as the Baltic states. Global and international funds seldom maintain a local presence and are infrequently involved in transactions within Hungary. Regional funds, although generally more locally active, typically manage transaction processes from other venture capital hubs. Furthermore, reliance on EU and government funding, which can be inconsistent, exacerbates this uncertainty.

The GEM reports indicate that Hungary lags in providing adequate entrepreneurial education and training, which affects the readiness of potential entrepreneurs. Most entrepreneurs operate without formal entrepreneurial education, impacting their efficiency and competitiveness.

There is a noticeable societal lack of trust and cooperation, which is more pronounced in Hungary and other Central and Eastern European countries compared to Western Europe. This cultural divide can hinder collaborative efforts crucial for start-up success. The perception of entrepreneurship as a desirable career option is relatively low, which can discourage potential entrepreneurs from pursuing start-up ventures.

Navigating regulatory requirements and bureaucratic hurdles can be cumbersome for start-ups. Although there have been improvements, the regulatory environment still poses challenges that can stifle start-up growth.

There is a continuous challenge in retaining skilled talent within Hungary. Many highly skilled individuals seek opportunities abroad, where they perceive better support and growth prospects. The local talent pool needs to be developed further to meet the specific needs of high-tech and innovative start-ups. Particular emphasis must be placed on STEM education to ensure that the country does not lose this

competitive advantage. The development of the digital ecosystem requires users and employees who are adequately equipped with digital skills, highlighting the importance of widespread digital preparedness. Enhancing digital skills is essential across all segments of the population.

5 Conclusion

The future development of the Hungarian start-up ecosystem hinges on addressing existing hurdles while simultaneously leveraging its inherent potential. To achieve this, a concerted effort from multiple stakeholders is essential and requires a holistic and integrated approach. Through the combined efforts of policymakers, educational institutions, investors, and the start-up community, Hungary can develop a more supportive and dynamic ecosystem. This will not only spur the growth of new enterprises but also contribute to the broader economic development of the country, positioning Hungary as a competitive player in the global innovation landscape.

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Sara Kremsar's work bridges theory and practice in organizational science and entrepreneurship. Her vision is to create resilient, human-centered ecosystems where collaboration, learning, and innovation help individuals and organizations reach their full potential.

IMPROVING ENTREPRENEURIAL JOURNEY

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The scientific monograph *Improving Entrepreneurial Journey* brings together research contributions from ten authors exploring contemporary approaches to the development of entrepreneurial ecosystems in Central and Southeastern Europe. The publication is based on the Improving Entrepreneurial Journey Initiative (IEJI), which bridges academic research, entrepreneurial practice, and sustainability-oriented development. The chapters address key themes such as psychological dimensions of entrepreneurship, mentoring and support mechanisms, business incubators, and case studies from Slovenia, Montenegro, and Hungary. The monograph contributes to a deeper understanding of entrepreneurship as a complex social phenomenon that integrates personal, organizational, and systemic perspectives while promoting the creation of resilient, inclusive, and sustainability-driven entrepreneurial ecosystems.

DOI
https://doi.org/10.18690/um.fov.10.2025

ISBN
978-961-299-090-9

Ključne besede:
IEJ iniciative, entreprenurship, business management, organization, management, human resources

University of Maribor Press

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The monograph is an outstanding contribution to the understanding and enhancement of the entrepreneurial journey. Through initiatives, insights into cognitive factors, and the analysis of regional support mechanisms, incubators, and start-up ecosystems, the authors offer a comprehensive overview of tools that current and future entrepreneurs can readily apply. The integration of in-depth empirical data and clear recommendations creates a solid foundation for further research and practical implementation that will foster sustainable growth, innovation, and collaboration within the region.

Marija Ovsenik
Alma Mater Europaea University

The monograph represents an important contribution to understanding and enhancing the entrepreneurial journey. By focusing on cognitive factors, regional support mechanisms, business incubators, and start-up ecosystems, the authors provide a comprehensive overview of approaches and tools that entrepreneurs can directly apply in practice. The connection between in-depth empirical insights and well-defined recommendations establishes a strong foundation for further research and effective knowledge transfer into practice. The work promotes sustainable growth, innovation, and collaboration within entrepreneurial environments and contributes to the development of more resilient and interconnected ecosystems.

Maja Djurica
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Faculty of Organizational Sciences

The book successfully integrates theoretical insights and empirical research while offering relevant recommendations for the development of entrepreneurial ecosystems. It clearly contributes to the understanding of entrepreneurship and represents a valuable bridge between scientific knowledge and practical application, making it a useful resource for researchers, policymakers and professionals involved in the development of entrepreneurial support. The book develops a comprehensive concept of the contemporary entrepreneurial ecosystem by connecting human and psychological factors, mindset, leadership, institutional support and national start-up systems into a unified framework for understanding entrepreneurship entrepreneurship. In doing so, it advances existing theories of entrepreneurship by integrating personal, organisational, regional and cultural dimensions of entrepreneurial development and provides a theoretical contribution.

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