INSTITUTIONAL DESIGN THINKING FOR ENTREPRENEURIAL GOVERNANCE: WHEN EMPLOYABILITY SUCCESS IS NOT ENOUGH

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Abstract

Many higher education institutions (HEIs) have come to believe that successful graduates represent the pinnacle of success. The institution's focus on graduate employability may inadvertently suppress entrepreneurial behaviour in its graduates. This paper explores and conceptualises the employability paradox and argues that the institutional successes in graduate employability may inhibit entrepreneurial behaviour in graduates. This paper focuses on a leading European data science and information management school showcasing exceptional levels of graduate employment and partnerships with both private and public sector organisations. Despite these very positive conditions, however, there appear to be very few start-ups formed by graduates from the school. The findings suggest that the design of institutional governance may contribute to a lack of entrepreneurial initiatives. When the curriculum, partnerships, incentives, and performance metrics for students are all primarily focused on preparing students to supply talent to existing organisations, then student expectations and career development are shaped toward employment rather than starting ventures.

To help resolve this challenge, the paper presents a design-thinking-based framework for designing entrepreneurial governance that includes three phases: Inspire, Ideate, and Implement. The first phase, Inspire, involves using student self-assessment to identify the contradictions between the school's rhetorical commitments to innovation and its actual entrepreneurial outcomes. The second phase, Ideate, identifies how governance structures, curricula, and incentives can be re-designed to encourage the formation of ventures while still providing students with the opportunity to pursue employment in traditional ways.

The third phase, Implement, involves transforming entrepreneurship into an embedded part of the school's operations by establishing venture pipelines, creating new performance metrics, and increasing ties to entrepreneurial ecosystems. The proposed framework represents entrepreneurship in universities as a systemic design challenge rather than solely as an educational intervention. The paper also asserts that entrepreneurship cannot be successfully taught without corresponding systemic entrepreneurial governance structures. Therefore, by synchronizing strategy, incentives, partnerships, and learning environments, universities can convert successful graduate employment outcomes into increased entrepreneurial activity in the regions in which they are located and contribute more effectively to regional innovation ecosystems.

Keywords: Entrepreneurial University, Entrepreneurial Governance, Design Thinking, Graduate Employability, Academic Entrepreneurship, Innovation Ecosystems.

1 INTRODUCTION

In the current landscape of Higher Education, many institutions have come to define excellence through the lens of graduate employability [1,2]. High placement rates, strong industry demand, and extensive research collaborations with the private sector are widely interpreted as the pinnacle of institutional success [3–5]. This is particularly evident in specialised fields such as data science and information management, where graduates are highly sought after by established organisations for their technical proficiency [6]. However, we argue that such success may carry an unintended consequence: the institutional focus on employability may inadvertently suppress entrepreneurial behaviour in its graduates. We conceptualise this tension as the "employability paradox". In environments where graduates face exceptional employment prospects, the default choice architecture of the institution, consisting of its curriculum, performance metrics, and industry partnerships, is often heavily weighted toward supplying talent to existing organisations [7]. When every institutional signal reinforces the security and prestige of a traditional career path, entrepreneurship is frequently relegated to an extracurricular rather than a viable professional alternative. Consequently, even institutions with high levels of innovation and applied research may find themselves producing very few startups [8,9]

This study investigates this phenomenon through the case of a leading European data science and information management school, NOVA Information Management School (NOVA IMS). Despite

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maintaining an ecosystem of applied research and strong ties to the public and private sectors, the conversion of this knowledge into new ventures was consistently limited. To address this challenge, this paper proposes that entrepreneurship in universities must be reframed as a systemic design challenge rather than solely an educational one [10,11]. We argue that entrepreneurship should be understood as an emergent property of institutional decision systems, with the continuous configuration of incentives, signals, and structures that shape how students perceive and choose between career alternatives. Drawing on the principles of Design Thinking (DT), as both a theoretical lens for understanding the subject matter and as a transformational logic to guide the research process, we present a framework for Entrepreneurial Governance structured around three iterative phases: Inspire, Ideate, and Implement [12]. The paper makes three contributions. First, it proposes the concept of the employability paradox as a potential structural explanation for relatively low entrepreneurial outcomes in high-performing institutions. Second, it offers a conceptual perspective that frames entrepreneurship as a system-level outcome shaped by institutional configurations, rather than solely by individual or programmatic factors. Third, it develops an initial framework of entrepreneurial governance (Fig 1), informed by the analysis of institutional practices observed in the case study, and operationalized through a diagnostic checklist designed to translate these practices into observable and actionable mechanisms.

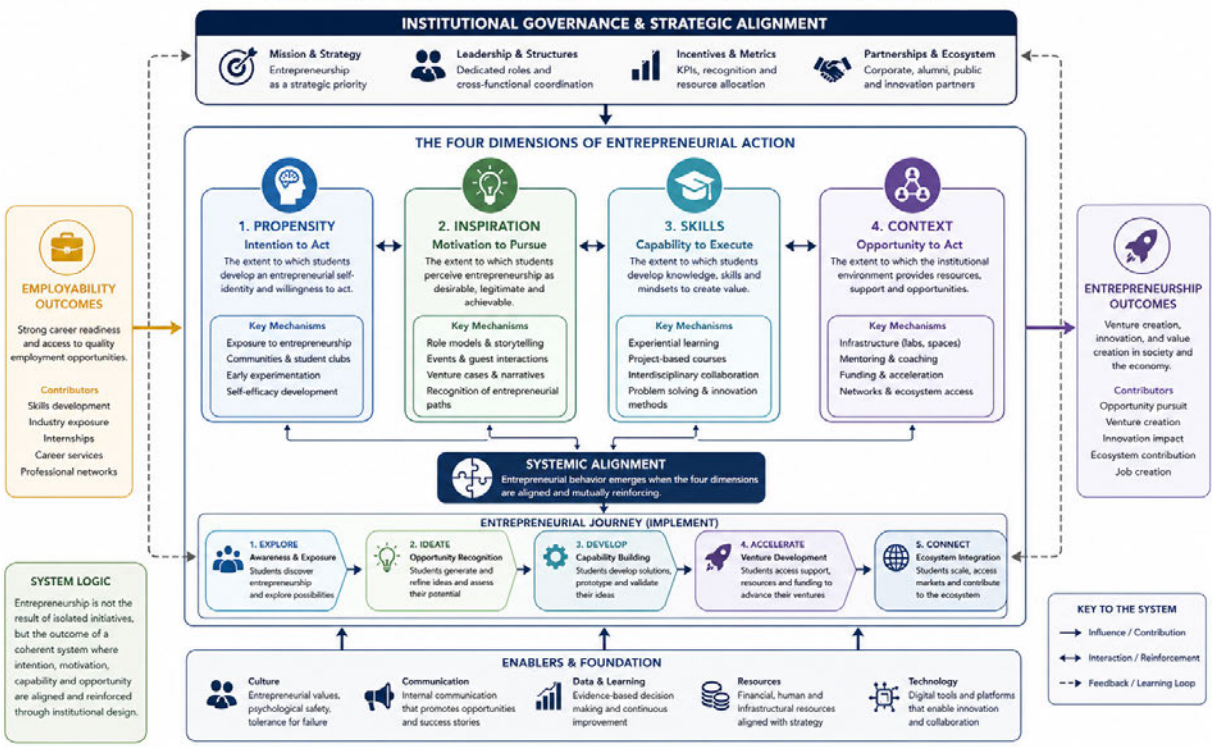

Figure 1. Entrepreneurial Governance Framework

2 METHODOLOGY

2.1 Research design

This study adopted a narrative case study approach [13] to explore how institutional governance and organizational practices shape entrepreneurial outcomes in higher education. The focus was on a higher education institution specialized in data science, information management and artificial intelligence, characterised by high levels of graduate employability, strong industry engagement, and a well-established ecosystem of applied research and innovation activities. This context provides a relevant setting to examine how strong institutional performance in employability coexists with comparatively limited levels of graduate entrepreneurship.

2.2 Data sources

Multiple sources of institutional data were triangulated to understand how entrepreneurship is positioned and supported. These include internal data on graduate employability and entrepreneurial activity, as

well as student participation in entrepreneurship-related initiatives, such as mentoring and venture development programmes. This was complemented by institutional sources, including strategic plans, programme descriptions, and organisational structures, which provide insight into how entrepreneurship is formally articulated. Together, these sources enabled an integrated analysis of institutional practices, incentives, and outcomes. The triangulation process was used to examine consistency between institutional discourse, organisational structures, student-facing initiatives, and observable entrepreneurial outcomes. This allowed the analysis to move beyond describing available programmes and to assess how different institutional mechanisms jointly shape the visibility, accessibility, and perceived viability of entrepreneurship as a student pathway.

2.3 Analytical Approach: Design Thinking as Process and Lens

The analysis used principles of DT from Brown [12] to structure the transformation and reconfiguration of institutional governance, shaping both the framing of the problem and the development of institutional responses. The transformation was based on a reframing of the problem as a mismatch between strong employability outcomes and limited entrepreneurial activity, shifting the focus to how student decisions are shaped by institutional incentives, support systems, and the visibility of pathways. This involved analysing the student journey and identifying key decision points, particularly in relation to the positioning of employment and entrepreneurship pathways. As a result, the process focused on reconfiguring institutional structures to support entrepreneurial pathways, aligning governance, programmes, and support mechanisms rather than introducing isolated initiatives.

The analytical process involved coding the institutional evidence according to the three Design Thinking stages: Inspire, Ideate, and Implement. The Inspire stage focused on diagnosing how student decisions are shaped, including decision pathways and the relative positioning of employment and entrepreneurship. The Ideate stage examined how these dynamics are addressed through changes in governance, programmes, and support mechanisms. The Implement stage analysed how these elements are embedded into a coherent system, including the development of structured pathways and the integration of initiatives across contexts. The coded evidence was then grouped around recurring governance mechanisms, such as strategic alignment, student decision pathways, skills development, infrastructure, and ecosystem support. These analytical categories informed the development of the framework and checklist by linking observed institutional practices to the mechanisms through which entrepreneurship is made visible, supported, and embedded.

2.4 Development of the checklist

Building on the case analysis, a structured checklist was developed to translate observed institutional practices into an actionable framework [14]. Rather than summarising the case, the checklist captures key organisational mechanisms that shape entrepreneurial pathways. Items were derived by identifying and consolidating recurring practices across the different stages of the framework, with a focus on observable and assessable actions. This ensures that the checklist can be used by institutions seeking to strengthen entrepreneurial outcomes among their students. The checklist is organised according to the stages of the framework and the DT lens and is designed to support institutions in identifying gaps, assessing their current approach, and prioritising interventions to increase entrepreneurial activity. Each item can be evaluated in terms of presence, maturity, and intensity, enabling a structured understanding of how entrepreneurial support is developed and embedded.

3 RESULTS

The institutional environment of NOVA IMS has evolved so that it currently represents an organization with increasing integration of the concept of entrepreneurship at all levels: strategy, structure and practice. The formal incorporation of the concept of entrepreneurship into the mission of the institution, as well as into its strategic planning process and governance framework; was operationalized through several different initiatives encompassing education, research and value creation. This reflection of an evolving system in transition indicates a gradual transformation from the previously predominant orientation toward employment, to one in which an expanding array of entrepreneurial mechanisms are being added. As such, the current configuration represents a rebalancing mechanism, whereby a growing number of initiatives are continually shaping how students become aware of, assess, and pursue entrepreneurial opportunities. Table 1 illustrates the evolution of employability, entrepreneurial engagement, and startup creation across the period 2008-2025, and highlights a tendency to rebalance the employability and entrepreneurial paradox.

Table 1. Evolution of Employability and Entrepreneurial Activity (2008–2025)

Period	Employability Rate (%)	Startups Created	Students in Entrepreneurship (%)	Startups per 1,000 Students	Paradox Indicator Employability / Entrepreneurship gap indicator
2008-2018	94.5	16	8.52% (140/1644)	9.7	High
2019-2025	94.3	70	56.82% (2557/4500)	15.6	Medium

3.1 Inspire: reframing entrepreneurial pathways

The Inspire phase is about how institutions create an atmosphere that allows students to view their career choices in terms of available entrepreneurship opportunities. At the strategic level, the institution has explicitly stated its commitment to entrepreneurship. In addition to articulating the value of entrepreneurship in its mission statement, the institution has included entrepreneurship as a focus area in its Strategic Plan and created specific governance roles to support entrepreneurship (for instance, the Associate Dean for Value Creation). This demonstrates a conscious decision on behalf of the institution to increase the visibility of entrepreneurship as part of its overall strategy. At the same time, a variety of structured entrepreneurship tools have been developed and implemented providing students with clear and predictable transition options into their first entrepreneurial experience. Collectively the initiatives implemented offer an additional narrative and experiential options to students who are considering whether to pursue entrepreneurship as one of their potential career paths, demonstrating a rebalancing of the decision environment toward making entrepreneurship more equally apparent to students compared to employment.

3.2 Ideate: expanding entrepreneurial conditions

The Ideate phase shows the extent to which the institution is creating the conditions to foster entrepreneurial activity and, therefore, is developing a more balanced system. The increased activation of entrepreneurial propensity is implemented through student participation in various initiatives (Table 2), which enables students to develop their entrepreneurial interest in a low-risk setting. Instead of relying on traditional segmentation, the institution adopts an activation model that encourages student engagement in entrepreneurship by increasing inspiration, normalising entrepreneurial pathways, and exposing students to relevant opportunities. This is done by promoting success stories from *alumni* who have been successful with their ventures; prominent events focused on entrepreneurship (Data with Purpose Summit); exposure to entrepreneurs/industry leaders that interact directly with students. Through this exposure, the institution increases student's perceptions of entrepreneurship as acceptable, rather than extraordinary; increasing legitimacy for entrepreneurship as a viable career path.

Another key aspect is the development of entrepreneurial competencies through experiential learning. Across all levels, from undergraduate to PhD, students engage in project-based activities that foster problem-solving, creativity, and opportunity recognition. These capabilities are valuable in a range of professional contexts, including corporate environments, while also providing a foundation for future entrepreneurial activity.

Table 2. Entrepreneurial Governance Initiatives

GOVERNANCE DIMENSION	INITIATIVE	DESCRIPTION
Propensity & Inspiration	Dean's Open Innovation Challenge	Annual competition where students and stakeholders ideate and pitch data-driven solutions to real-world challenges, fostering entrepreneurial mindset and ideation culture.
	Data with Purpose Summit	Flagship international event connecting academia, industry, and policymakers, promoting entrepreneurial thinking, networking, and exposure to innovation trends.
	NOVAe (Entrepreneurship Club)	Student-led club promoting entrepreneurship through hackathons, workshops, and programs like InNOVAetors and NOVAe Summit.
	Global Events & Forums (e.g., Smart City Expo)	Participation in international innovation forums that expose students and faculty to global entrepreneurial ecosystems and opportunities.
	Labs Night Out & Lunch with a CEO	Informal engagement initiatives connecting students with real-world projects and leaders, inspiring entrepreneurial careers.

Skills	Entrepreneurship Curricular Units (e.g., Startup Venture Studio, Design Thinking)	Courses integrating entrepreneurship, innovation, and venture creation into formal education through project-based learning.
	Corporate Challenges (Curricular Projects)	Real-world problem-solving initiatives embedded in courses with companies, developing applied entrepreneurial skills.
	IMS IGNITE Acceleration Program	Internal acceleration program supporting students in transforming ideas into viable business concepts.
	Career Design & Mentoring Program	Structured mentoring journey (exploration, skills assessment, mentoring sessions) supporting entrepreneurial capability development.
	Junior Data Consulting (JDC)	Student-run consulting enterprise providing hands-on experience solving real business problems, developing entrepreneurial and professional skills.
	Executive Education Programs	Programs aimed at professionals to build entrepreneurial and innovation capabilities in real-world contexts (e.g., AI, Digital Transformation, Innovation and Design Thinking).
Context	NOVA Analytics Labs (15 Labs)	Core infrastructure acting as innovation incubators, enabling co-creation with industry, applied research, and venture development.
	NOVA Innovation & Analytics Lab (Innovation Space)	Physical innovation environment designed for ideation, prototyping, and collaboration, supporting entrepreneurial experimentation.
	Value Creation Office	Dedicated institutional structure coordinating entrepreneurship initiatives, partnerships, and startup support.
	Partnerships with Incubators (Startup Lisboa, Unicorn Factory)	External ecosystem connections providing access to incubation, scaling support, and investment networks.
	New Campus (Future Infrastructure)	Large-scale innovation district with incubators, co-working spaces, and startup support facilities, strengthening the entrepreneurial ecosystem.
	Alumni Mentorship & Network	Alumni-driven mentoring, networking, and startup support ecosystem contributing to venture creation and knowledge transfer.
	Research & Innovation Projects	Large-scale funded projects translating research into market-ready solutions and entrepreneurial ventures.

3.3 Implement: Towards more integrated entrepreneurial pathways

The Implementation phase describes how the entrepreneurial support at the university translates to institutional systems that operate coherently, as well as the level to which the four dimensions of the framework (propensity, inspiration, skill and environment) are aligned to facilitate entrepreneurial activity. Our analysis indicates that NOVA IMS has established numerous programs that together span all aspects of the entrepreneurial process, namely exposure, ideation, start-up, and interaction with external ecosystems. Examples of such programs are various curricular units, innovation challenges, analytics labs, mentorship programs, and entrepreneurship accelerators. Individually, each of these program elements can provide significant levels of support for various stages of entrepreneurial activities. However, there is no formalized progression for student entrepreneurs, rather, the pathway appears as a result of the successive implementation of the numerous initiatives described above. Therefore, student entrepreneurs must make use of multiple programs separately.

Regarding the implications for our research question this configuration highlights an important dynamic: the University has developed most of the components required by an entrepreneurial system, however, to date, their impact depends on the level of alignment among them. When alignment is partial, entrepreneurial engagement depends largely on individual student initiative. As alignment increases, entrepreneurial pathways become clearer and easier to navigate (Table 3).

Table 3. Empirically Derived Dimensions of Entrepreneurial Governance as a Design System

GOVERNANCE DIMENSION	INSPIRE: REFRAMING	IDEATE: DESIGNING	IMPLEMENT: ALIGNING
1. Strategic & Governance System	Entrepreneurship embedded in mission, strategy, and leadership roles	Translation into priorities (innovation, partnerships, pedagogy) and governance structures (Value Creation Office)	KPIs, BI dashboards, performance systems, and institutional oversight align entrepreneurship with decision-making
2. Student Decision System (Propensity & Inspiration)	Entrepreneurship made visible through events, role models, communication, and exposure	Activation through student clubs (NOVAe), challenges, mentoring, and real-world engagement	Emergence of structured pathways, though still partially fragmented across initiatives
3. Capabilities (Skills Development)	Identification of entrepreneurial skill gaps through self-assessment	Development through project-based learning, venture courses, and executive education	Application in real-world contexts via labs, challenges, and industry collaboration
4. Environment & Infrastructure (Context)	Visibility of opportunities through labs, spaces, and ecosystem presence	Expansion of infrastructure (Analytics Labs, innovation spaces, mentoring systems)	Integrated physical and digital ecosystem (labs, platforms, new campus planning, external incubators)
5. Ecosystem & Impact System	Recognition of entrepreneurship as societal and economic impact driver	Activation through partnerships, research, and co-creation with external actors in accreditation processes	Institutionalization through startups, spin-offs, research commercialization, policy influence, and economic impact measurement

3.4 An Organizational Checklist for Assessing Entrepreneurial Governance

The organizational checklist developed in this study (Table 4) is a behaviour-based instrument designed to assess a university's capability of reconfiguring students' decision-making systems related to entrepreneurship. The checklist is organized into three phases (Inspire, Ideate, and implement) and reflects a process view of institutional change using DT. Instead of measuring abstract constructs such as "entrepreneurial culture," the checklist focuses on observable practices that influence how students perceive and choose between employment and entrepreneurship.

The Inspire phase will capture an institution's ability to understand and reframe the problem at the level of decision systems; the Ideate phase will focus on the design of a coherent system for entrepreneurship across four dimensions (Propensity, Inspiration, Skills, and Context); and the Implement phase will assesses the operationalizing of this system through structured journeys, touch points, and institutional integration. Each item on the checklist may be evaluated across three complementary dimensions: presence, maturity, and intensity, enabling a nuanced assessment of an institution's capability. Presence captures whether a given practice exists; maturity captures the degree of formalization and integration within the organization; and intensity reflects the extent to which the practice is actively used and experienced by students. This multi-layered approach enables distinguishing between symbolic adoption and effective implementation, a common limitation in assessments of organizations. By combining a process-based structure with behaviour-actionable indicators, the checklist functions both as a rigorous analytical tool and as a practical instrument [15] for diagnosis and strategic development.

Table 4. Checklist for Entrepreneurial Readiness

FRAMEWORK DIMENSION	DT PHASE	CHECKLIST ITEM
PROPENSITY	*INSPIRE*	The institution maps the student decision journey, including critical moments where students choose between employment and entrepreneurship
		The university collects, analyzes, and documents structural barriers to entrepreneurship (e.g., risk, social pressure, financial concerns)
		Employability is explicitly recognized as the default career pathway, and entrepreneurship is framed as a decision-system challenge
		Clear strategic principles for entrepreneurship are defined, positioning it as a viable alternative to employment

INSPIRATION	*IDEATE*	The institution segments students based on entrepreneurial potential and tracks the evolution of their interest over time
		Entrepreneurial role models are actively promoted through structured interactions and visible institutional narratives
		Entrepreneurial competencies are embedded in curricula through experiential learning and opportunities to test ideas in practice
		The university provides an enabling environment through access to spaces, funding, mentorship, ecosystem connections, and reduced administrative barriers
SKILLS	*IMPLEMENT*	A structured entrepreneurial journey exists, with multiple entry points in the student lifecycle
		Entrepreneurial experiences are distributed in the academic lifecycle and integrated across curricular and extracurricular contexts
CONTEXT		Initiatives are coordinated as a coherent system, with defined stages of exposure, experimentation, validation, and continuity across the process
		Institution provides resources, access and networking support that enables students to translate entrepreneurial intention into action

Applying the checklist to the case study suggests that initiatives aligned with its dimensions may have contributed to a gradual improvement in students' entrepreneurial mindset, particularly through increased exposure, participation, and the growing visibility of entrepreneurship as a potential career path.

3.5 Limitations

Different study limitations should be acknowledged: First, it is based on a single institutional case study, so the findings should not be interpreted as generalisable to all higher education institutions, but as analytically relevant to institutions facing similar tensions between employability and entrepreneurship. Second, although the framework is based on triangulated institutional evidence, the study does not establish causal relationships between specific initiatives and startup creation. Future research should test the framework across multiple institutional contexts and with longitudinal data. Finally, the checklist should be understood as an initial diagnostic and strategic tool, requiring further empirical validation.

4 CONCLUSIONS

This study explores the apparent contradiction between universities' claims of high graduate employability rates and relatively low levels of students' entrepreneurial activities. The findings suggest that this gap is not the result of a lack of resources, initiatives, or institutional support, but rather reflects how student behaviour is shaped by the institutional environment through its configurations and misalignments. By providing a new conceptualization of entrepreneurship in higher education as a system level outcome resulting from the alignment of four interconnected dimensions (propensity, inspiration, skills, and context), this study expands upon our current knowledge in the field. As suggested by the data collected, when there is no alignment among these four dimensions, predictable patterns emerge. For instance, students with strong entrepreneurial skills or supportive environments but low entrepreneurial propensity tend to become highly employable rather than entrepreneurial. Similarly, inspirational initiatives without clear structural pathways rarely translate into entrepreneurial action, while abundant resources without sufficient motivation remain underused. These findings reinforce the idea that entrepreneurship is not the product of isolated interventions or individual traits, but of coherent and well-aligned institutional design.

Based on this experience, the school has changed the view of what role universities play in promoting entrepreneurship. Rather than acting as simply promoters of various types of isolated entrepreneurial initiatives (like courses, innovation labs, competitions, partnerships), universities should be understood as designers of entrepreneurial systems. In this view, individual initiatives are not stand-alone drivers but components of a broader institutional system. The key challenge, therefore, is not the number of initiatives implemented, but the degree to which they operate coherently. This requires deliberate system design, ensuring that governance mechanisms, such as incentives, performance measures and partnerships, are aligned with the goal of fostering entrepreneurship. It also implies embedding entrepreneurship across the core domains of university activity: teaching and learning, research, and value creation.

The case further shows that strong employability outcomes may inadvertently shape students' choices, leading them to favour employment rather than entrepreneurship. This does not imply a contradiction

between the two paths; however, unless two are consciously aligned at least one logic will prevail. Thus, universities can progress towards a more balanced model through gradually restructuring their systems to create clearer and accessible paths towards entrepreneurship.

This study highlights the dual lens of Design Thinking, both to analyse complex issues (in this case how universities develop entrepreneurial systems) and as a way to stimulate organizational transformation (as universities redesign themselves) [16]. Design thinking was applied as an analytical tool by dividing their analyses into three stages: Inspire (analyze why people do things); Ideate (generate ideas to solve problems); Implement (develop solutions based on generated ideas), providing a practical framework for university redesign. In this way, this research serves as a bridge connecting two bodies of literature: entrepreneurial universities and design thinking.

Finally, the paper concludes that entrepreneurship in higher education is less dependent on individual ability or intention than on the extent to which institutions create contexts that facilitate entrepreneurial development. Universities seeking to foster entrepreneurial outcomes should therefore move beyond isolated interventions and adopt a systemic approach, designing coherent environments in which intention, motivation, capability, and opportunity reinforce one another. By doing so, they can transform their existing strengths in employability into broader contributions to innovation and entrepreneurship, thereby strengthening their roles within local, regional and global innovation networks.

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USE OF GENERATIVE AI TOOLS

The authors used ChatGPT (OpenAI, GPT-5.3) to assist with language editing and the creation of figures. All research design, analysis, and conclusions were developed and validated by the authors.

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