ICEM

Designing Tomorrow: New Approaches to Entrepreneurship

BOOK OF PROCEEDINGS

VNIVERSITAT DE VALÈNCIA
Facultat d' Economia

GENERALITAT VALENCIANA
Conselleria de Educación, Cultura y Universidades

VI ICEM Conference · October 19-20, 2026

Sixth edition published by RESOCEM · Research Society on Entrepreneurial Motivation, 2026

ISBN: 978-84-09-94659-4

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DE LA EFICIENCIA AL EMPRENDIMIENTO RURAL: MAPEO DE LA FRONTERA DEL CONOCIMIENTO EN LA PRODUCCIÓN LECHERA

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Resumen

Los pequeños productores lecheros desempeñan actividades económicas y sociales ligadas a los Objetivos de Desarrollo Sostenible que son relevantes en el sector rural. Sin embargo, operan bajo limitaciones de capital, adopción de nueva tecnología y el incremento de costos (Jafri et al., 2024), que dificultan su capacidad para competir con grandes productores, por lo que producir más no constituye una estrategia suficiente para asegurar su sostenibilidad. La literatura reciente plantea como posibles respuestas la cooperación, trabajar en red, la diversificación, la adopción de tecnología y la producción con mayor valor agregado (García-Cornejo et al., 2020; Sarkar & Dutta, 2021; Yu et al., 2025).

La producción desde la economía se ha abordado mediante el análisis de eficiencia basados en enfoques de frontera para estimar el desempeño relativo de explotaciones, así como para identificar brechas en la utilización de recursos. Investigaciones recientes sobre pequeños productores emplean el Análisis de Frontera Estocástica (SFA) para identificar variables relacionadas con la (in) eficiencia y derivar recomendaciones sobre alimentación, tamaño del hato, financiamiento y apoyo técnico (Bajrami et al., 2017; Gori Maia et al., 2022; Moreira V.H. et al., 2006). El Análisis Envolvente de Datos (DEA), se ha vinculado con decisiones estratégicas como la especialización de productos, la venta directa y las certificaciones de calidad en iniciativas de diversificación con valor agregado (García-Cornejo et al., 2020) y con la comparación de costos y estructura financiera entre explotaciones eficientes e ineficientes (Bassotto et al., 2023; Mareth et al., 2019).

Paralelamente, se ha estudiado el emprendimiento y la creación de valor en explotaciones lecheras. Alvarez et al. (2021) identifican diferentes estrategias de creación de valor entre productores españoles (ecológicas, producto único, innovadoras y tradicionales) a partir de un modelo de negocio que incorpora la propuesta de valor, la relación con los clientes, las cadenas cortas de comercialización y las capacidades del emprendedor, y Nogueira y Wander (2025) muestran en productores brasileños que las capacidades innovadoras operativas y gerenciales influyen significativamente sobre la competitividad y productividad.

Sin embargo, la integración sistemática de ambos enfoques es limitada; pocos estudios utilizan el perfil de eficiencia, recursos y restricciones de cada pequeño productor para identificar y evaluar oportunidades emprendedoras compatibles con sus capacidades y el contexto en el que se encuentran. Con este antecedente, la pregunta que guía esta investigación es: ¿cómo ha evolucionado la producción científica sobre eficiencia en la producción lechera y qué vínculos presenta con la toma de decisiones, la innovación, diversificación y el emprendimiento rural? En consecuencia, el objetivo es analizar la evolución del conocimiento científico sobre este tema, identificando su estructura intelectual, tendencias temáticas y vínculos con la toma de decisiones, la innovación, la diversificación y el emprendimiento rural, y discutir, a partir de la literatura revisada, sus posibles implicaciones para la gestión de pequeñas explotaciones lecheras.

Para responder la pregunta, se adoptó un diseño bibliométrico complementado con una revisión focalizada de literatura, que permite establecer hasta dónde ha avanzado conceptualmente la literatura y dónde persisten conexiones poco desarrolladas.

La información se recuperó de la base de datos Scopus (Elsevier) por su amplia cobertura global y multidisciplinaria (Baas et al., 2020) y por su representación en Ciencias Sociales y Humanidades, lo que facilita la depuración de los registros y el análisis de las redes bibliométricas. Las implicaciones de trabajar con una sola base se discuten en las limitaciones del estudio. La búsqueda se aplicó sobre los campos TITLE-ABS-KEY con la ecuación: ("dairy farm*" OR "dairy produc*" OR "milk produc*" OR "dairy farming") AND ("technical efficien*" OR "allocative efficien*" OR "economic efficien*" OR "cost efficien*" OR "productive efficien*"). La búsqueda inicial, realizada el 08 de Agosto 2026 arrojó 846 documentos. Se seleccionaron artículos (article) y revisiones (review), para identificar tanto estudios originales como síntesis de conocimiento, lo que dejó 777 documentos (732 artículos y 45 revisiones, publicados entre 1941 y 2026), equivalentes al 91,8% de las investigaciones recuperadas. Se excluyeron libros, capítulos de libro y actas de congresos con el propósito de asegurar un estándar homogéneo de revisión por pares, y no se aplicaron restricciones temporales ni de idioma. Estas decisiones se documentan para favorecer la transparencia y reproducibilidad del proceso.

El análisis se realizó con VOSviewer, software gratuito para construir y visualizar redes bibliométricas (Van Eck & Waltman, 2010), y con Bibliometrix de R (Aria & Cuccurullo, 2017) que integra métricas, visualizaciones y análisis de redes de forma reproducible. Con estas herramientas se elaboraron los análisis de producción e impacto, co-citación, acoplamiento bibliográfico, co-ocurrencia de palabras clave. El análisis de Trend Topics se aplicó al período 2016-2026, que concentra el 63% de los documentos (490 de 777) y coincide con la entrada en vigor de la Agenda 2030 para el Desarrollo Sostenible (Naciones

Unidas, 2015), con un mínimo de tres ocurrencias y hasta tres términos por año, para observar cómo se incorpora la sostenibilidad a la literatura sobre eficiencia.

Finalmente, sobre toda la base se realizó una exploración dirigida de títulos, resúmenes, palabras clave de autor para identificar conceptos que conecten la literatura de eficiencia con emprendimiento rural. Para la revisión focalizada se aplicó además acoplamiento bibliográfico con un umbral de 25 citas por documento, 189 documentos cumplieron el criterio y la red conectada resultante incluyó 121 documentos en 10 clústeres, con 714 enlaces y una fuera total de enlace de 1090. A partir de estos resultados se seleccionaron artículos que conecten dos o más dimensiones de la secuencia de eficiencia, benchmarking, decisión, innovación o diversificación y emprendimiento, con el fin de determinar su grado de integración, no de recontar conceptos.

Los 777 documentos muestran un campo metodológicamente consolidado, centrado en la eficiencia técnica, asignativa y económica y en la aplicación de métodos de frontera. Bravo-Ureta es el autor más productivo (14 documentos) y el más citado localmente (133 citas), seguido por Del Corral. (103) y Kumbhakar (79) entre otros. La co-citación de referencias evidenció una base intelectual consolidada en torno a los trabajos de Battese, Coelli, Lovell y Schmidt sobre frontera estocástica y análisis envolvente de datos (DEA). La coocurrencia de palabras clave por autor (mínimo 5 ocurrencias; 70 términos en 8 clústeres) separó los métodos de frontera, la producción y la eficiencia alimentaría, y un frente de economía, gestión y sostenibilidad, mientras que el acoplamiento bibliográfico (a partir de 5 citas,344 documentos en 16 clusters) mostró una diversificación de las líneas de investigación. Aunque la medición de la eficiencia continúa siendo el núcleo del tema, su ampliación hacia otras dimensiones del desempeño de las explotaciones lecheras sugiere una transición desde la evacuación de los recursos productivos hacia una gestión orientada a la decisión.

Para examinar la evolución temática se utilizó *Trend Topics*, considerando el período 2016-2026 a partir de tres ocurrencias para palabras clave de autor y con un máximo de tres términos representativos por año. Los términos de medición y los métodos de frontera son utilizados entre el 2016 y 2021(*bootstrap, stochastic frontier, data envelopment analysis y technical efficiency).* Entre 2022 y 2025 las dimensiones están relacionadas con desempeño económico y sostenibilidad (*economic efficiency, economic performance, sustainability, environmental sustainability*) y, entre 2023 y 2024, se habla de eficiencia biológica y calidad del producto (*feed efficiency, digestibility, milk yield, milk quality*). Términos como *entrepreneurship, diviersification o decision making* no figuran entre los de tendencia

A partir de esta evidencia temática, se realizó un análisis dirigido de proximidad conceptual sobre las 777 investigaciones (Tabla 1), que cuantificó el grado de integración de cada concepto con la eficiencia dentro de cada documento. Los conceptos con al menos 13 documentos coinciden con términos de eficiencia en 68% a 86% de los casos y los más frecuentes se relacionan con pequeños productores (57), innovación (34) entre otros. En cambio, emprendimiento aparece en 2 documentos y creación de valor en ninguno.

Tabla 1: Articulación de conceptos puente con la eficiencia

Variables	Concepto analizado	Documentos	Análisis dirigido de proximidad con eficiencia
Pequeños productores	Smallholder / family farm	57	49
Innovación	Innovation	34	26
Decisión	Decision / decision support	24	19
Gestión	Benchmarking	19	13
Adaptación estratégica	Diversification	17	14
Generación de valor	Value -added	13	9
Transformación	Digitalization /digital transformation	4	3
Emprendimiento	Entrepreneurship	2	2
Modelo empresarial	Bussines model	1	0
Creación de valor	Value creation	0	0

Este resultado nos motivó a una revisión focalizada de los documentos identificados (Tabla 2). Los estudios empelan la eficiencia para seleccionar explotaciones de referencia, orientar la asignación de insumos, evaluar la inversión digital y valorar la diversificación y el procesamiento de leche, en pequeños productores, el rezago se asocia con la mala asignación de insumos y la menor adopción tecnológica. En conjunto, la evidencia muestra una evolución desde la medición hacia aplicaciones de gestión y decisión, aunque la articulación con el emprendimiento rural y la creación de valor sigue siendo limitada, sin que ello implique ausencia de investigaciones en estos ámbitos.

Tabla 2. Estudios representativos de la revisión focalizada

Estudio y contexto	Vínculo analizado	Hallazgo
Ahikiriza et al. (2021); Flandes- Bélgica, 58 UPA	Benchmarking y decisión	Considera la heterogeneidad tecnológica mejora la identificación de explotaciones de referencia.

Kumar et al. (2026); India, 400 UPA	Asignación de recursos y restricciones de escala	Las pequeñas explotaciones presentan menor eficiencia técnica y económica, asociada con restricciones de acceso a insumos, tecnología y mercados.
Yu et al. (2025); China, 251 UPA	Transformación digital y eficiencia	La inversión digital se relaciona positivamente con la eficiencia técnica, con mayores beneficios en explotaciones clasificadas como pequeñas y medianas en la investigación.
García-Cornejo et al. (2020); Norte de España, 49 UPA	Diversificación y comercialización	La especialización en un producto con distintas variantes y la venta directa se asocian con mayor eficiencia técnica de las iniciativas de diversificación.
Jalić et al. (2026); República Srpska, Bosnia y Herzegovina, 5 UPA	Valor Agregado y evaluación de inversiones	La evaluación financiera y de opciones reales respalda la viabilidad de transformar leche en queso fresco en las explotaciones estudiadas, frente a las limitaciones económicas de vender leche cruda.
Nogueira & Wander (2025); Goiáis, Brasil, 42 UPA	Capacidades operativas y gerenciales	Las capacidades operativas y gerenciales presentan una relación positiva y significativa con la competitividad y la productividad.

Para los pequeños productores lecheros, conocer la eficiencia constituye un diagnóstico, pero no necesariamente una estrategia empresarial. Su utilidad aumenta cuando permite identificar brechas en el uso y la asignación de recursos, como las asociadas a los insumos y a la adopción tecnológica (Kumar et al., 2026) que pueden orientar a decisiones de gestión, en consonancia con la relación entre prácticas gerenciales y eficiencia analizada por Hansson & Öhlmér (2008). Sin embargo, desde la perspectiva de esta investigación, identificar estas brechas no equivale automáticamente a reconocer oportunidades emprendedoras, su potencial para generar valor, por ejemplo mediante la especialización, la venta directa o el procesamiento de leche (García-Cornejo et al., 2020; Jalić et al., 2026), depende de las capacidades del productor (Alvarez et al., 2021; Nogueira & Wander, 2025) y de las condiciones favorable de acceso a mercados, tecnología, financiamiento y servicios de apoyo (Kahan, 2012) .

La principal contribución de este estudio consiste en conectar dos perspectivas todavía débilmente articuladas: el análisis de eficiencia y el emprendimiento rural. Bajo esta mirada la eficiencia puede entenderse no solo como una medida de desempeño, sino como

información potencial para orientar decisiones y explorar alternativas de creación de valor. Esta perspectiva desplaza el análisis desde la pregunta de qué tan eficiente es el productor hacia la pregunta de cómo puede utilizarse ese conocimiento para apoyar sus decisiones.

El estudio presenta limitaciones. Primero, el uso exclusivo de Scopus puede omitir investigaciones indexadas en otras bases, como Web of Science, Dimensions o bases regionales, lo que podría excluir literatura relevante SINGH. Segundo, al incluir artículos y revisiones excluyen capítulos de libro y actas de congreso, de modo que podrían omitirse contribuciones difundidas en esos formatos. Tercero, el análisis se construyó desde la literatura sobre eficiencia, por lo que no representa exhaustivamente la investigación sobre emprendimiento rural, y la revisión focalizada no pretender ser exhaustiva. Por ello, los resultados deben interpretarse dentro de este alcance investigativo.

Palabras clave: producción lechera; eficiencia técnica; eficiencia asignativa; eficiencia económica; emprendimiento rural,

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METACOGNITIVE REFLECTIONS AND EPISTEMIC EMOTIONS OF ENTREPRENEURSHIP STUDENTS: AN EMPIRICAL STUDY

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Abstract

Entrepreneurial metacognition has received more attention in recent years. However, research efforts have primarily focused on metacognition among practicing entrepreneurs (e.g., Bastian & Zucchella, 2022; Lorenz et al., 2018; Michaelis et al., 2021), while somewhat neglecting the educational context of entrepreneurship. The nature of experiential entrepreneurial education involves students participating in activities that help them navigate the process of developing a business idea and venture creation (Lackéus, 2020; Haneberg et al., 2022). Within learning and creative contexts, these activities are known as epistemic activities (Pekrun et al., 2017; Puente-Díaz & Puerta-Sierra, 2025). Epistemic activities have a cognitive component; therefore, these activities must promote the generation of knowledge and learning (Pekrun et al., 2017). From an entrepreneurship educational lens, the interactions and comparisons in most of the cases occur within a social context through different epistemic activities, that is, through opportunity identification, creating a value proposition, building a business model, developing and using their prototype, developing market-product knowledge, getting financial knowledge, and pitching the idea (Hjelle & Bastian, 2024; Mandel & Noyes, 2016; Nabi et al., 2021). External actors can trigger emotional experiences and learning (Lackéus, 2020). In this sense, social context nourishes the entrepreneurial process of the entrepreneur. These interactions and comparisons with social capital represent an input and reflective mechanism, that is, entrepreneurs think, rethink, select, and adopt knowledge (Bastian & Zucchella, 2022). Framed within an integrative perspective of experiential learning and epistemic emotions (Pekrun et al., 2017), these social interactions act as structural inputs where epistemic activities and resulting epistemic emotions dynamically drive students' metacognitive reflection and learning. These emotional responses within knowledge and learning contexts are known as epistemic emotions. Epistemic emotions are defined as “emotions that result from information-oriented appraisals (i.e., the cognitive component of an emotion) about the alignment or misalignment

between new information and existing beliefs, existing knowledge structures, or recently processed information" (Muis et al., 2018, p.5).

The empirical literature has begun to explore how the interaction with social actors elicit cognitive and emotional processes. Recently, Bastian and Zucchella (2022) explored how nascent entrepreneurs cognitively manage their decision-making process after interacting with different contexts of uncertainty. The authors highlighted the role of social capital within metacognitive processes as a key input of thinking and reflection. Other relevant study focused on understanding the emotional responses of individuals to conflicting scenarios (Pekrun et al., 2017). In this study individuals participated in an epistemic activity. The procedure was expected to elicit cognitive conflict and to explore the epistemic emotions experienced by individuals. The authors found that pleasant and unpleasant epistemic emotions were associated to thinking and learning.

In this vein, the present study takes the opportunity and research advances to address metacognition in an educational context of entrepreneurship to explore students' responses related to thinking and reflection through an entrepreneurship experiential program. Specifically, how students respond to experts' and customers' feedback when they share their identified opportunity and value proposition. Thus, the purpose of this study is to explore the relationships between social capital feedback (through the development of epistemic activities), that is, experts´ feedback and customers´ feedback, students´ epistemic emotions, and students´ metacognitive reflections. Since the present study focuses on the students´ responses to an experiential entrepreneurship program, it is also explored the students´ entrepreneurial intention. Given the exploratory nature of the study, research questions are posited. This study seeks to make a small contribution to the literature of entrepreneurship education, metacognition, and epistemic emotions by empirically testing the students´ epistemic emotions and students´ metacognitive reflections from social capital feedback during the process of opportunity identification and development of the value proposition. The main claim is that epistemic emotions provide information that students can use to reflect on their ideas and make the appropriate adjustments. From this, the following research questions guide the study:

What is the relationship between feedback from experts and customers, and students´ positive and negative epistemic emotions?

What is the relationship between positive and negative epistemic emotions and students´ metacognitive reflections?

What is the relationship between positive and negative epistemic emotions and students´ entrepreneurial intention?

Participants were 154 students enrolled in an entrepreneurship course in Mexico, all aged 18–25 (62% female, 38% male). They represented various academic majors, including business, engineering, medicine, psychology, nutrition, arts, and design. Data were collected across three phases during an experiential entrepreneurship program. In Week 8 (Time 1), student teams presented preliminary business ideas to three experts for evaluation (Grégoire et al., 2010), followed by individual questionnaires assessing emotions (Nerantzaki &

Efklides, 2019) and metacognitive reflection on expert feedback; in Week 12 (Time 2), teams presented prototype-based value propositions to customers for feedback (Osterwalder & Pigneur, 2010), after which students individually completed the same emotion scale and a metacognitive reflection on customer insights; and at semester end (Weeks 13–14, Time 3), students completed the emotion scale, a comprehensive metacognitive reflection on their course-long learning, and an entrepreneurial intention scale (Liñán & Chen, 2009), with all open-ended metacognitive reflections independently coded by an external judge. Structural Equation Modelling (SEM) was used to model our variables. Structural Equation Modelling (SEM) was used to model our variables. The measurement and structural model demonstrated an acceptable overall fit to the data (X^2 = 637.50, p < 0.001, df = 399, RMSEA = 0.063, CFI = 0.906, TLI = 0.901). Specifically, experts' feedback significantly predicted positive emotions (β= .364, p < .05), negative emotions (β= -.192, p < .05), and metacognitive reflection at Time 1 (β= .310, p < .05). Furthermore, customers' feedback significantly predicted positive emotions at Time 2 (β = .179, p < .05), and final positive emotions strongly predicted entrepreneurial intention (β = .599, p < .05). The results indicated that experts´ and customers´ feedback generated relevant positive and negative epistemic emotions. In addition, results showed significant relationships between experts´ feedback and students´ metacognitive reflections. There was also a positive relationship between positive epistemic emotions and students´ entrepreneurial intention. Results were consistent with the idea that social capital feedback has implications on students´ emotions (Bastian & Zucchella, 2022; Lackéus, 2020; Bastian et al., 2025). In addition, the findings supported that emotions arise from cognitive activities (Pekrun et al., 2017; Muis et al., 2018). Obtaining feedback from experts and customers represented a cognitive activity, that in some cases conducted students to positive epistemic emotions and in others to negative epistemic emotions (depending on the alignment or misalignment of the information obtained, with their existing knowledge) (Muis et al., 2018). Showing that positive feedback mainly conducted to positive epistemic emotions such as satisfaction, pride, and enjoyment (time 1 and time 2). Instead, unexpected and unfavorable feedback produced negative epistemic emotions frustration, doubt, and anxiety (time 1). Contrary to Muis et al. (2015) findings, results from time 2 showed that experiencing positive epistemic emotions conducted students to reduced metacognitive reflections. Here, it is suggested that in this context of interaction with customers, positive epistemic emotions generated through positive feedback may produce certain comfort on students that hinders their reflections, thinking, and learning. While positive feedback from customers elicits positive epistemic emotions (e.g., satisfaction, pride), it might simultaneously generate a sense of information alignment that hinders cognitive conflict. Here, it is suggested that when new information perfectly aligns with existing assumptions, the absence of friction and conflict lowers the motivation for metacognitive monitoring (Muis *et al*., 2018). This can be seen as an unjustified optimistic perspective of the feedback with no needs of improvement of their value proposition. As Bastian and Zuchella (2022) suggest, feedback must provide information about what entrepreneurs do not know, including unknown difficulties. However, students did not show deep reflections from the unknowns, that is, students did not demonstrate greater reflection, for instance, regarding the feedback received on the utility of their proposal and the solution to the target market's problem, as well as its novelty, performance, or accessibility. How to improve this can be particularly relevant for entrepreneurship programs.

As it´s been discussed, this study shares similarities and differences with previous studies (Muis et al., 2015; Muis et al., 2018; Pekrun et al., 2017; Trevors et al., 2016) of epistemic emotions and their effects on thinking, reflections, and learning. However, it is important to highlight a particular contribution from this study, that is, the exploration of the relationship between positive epistemic emotions and students´ entrepreneurial intention. This makes a small contribution to the literature of epistemic emotions and entrepreneurial intention. This suggests that experiencing satisfaction, pride, and enjoyment is related to students´ entrepreneurial intention. This can provide knowledge and understanding of the emotional factors that contributes to think, feel, and even make a perspective shift that in the future, being and entrepreneur is a possibility in their lives. This can also be valuable for practical purposes in teaching experiential entrepreneurship. Finally, the present study intends to make methodological and theoretical contributions to the knowledge and understanding of epistemic activities, epistemic emotions and metacognition in the context of entrepreneurship.

Keywords: entrepreneurial metacognition; social capital; epistemic activities; epistemic emotions.

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BEYOND FORMAL REFORM: INFORMAL INSTITUTIONS AND RURAL ENTREPRENEURSHIP IN SAUDI ARABIA

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Abstract Introduction

Vision 2030 has done a considerable amount to build support for entrepreneurship in Saudi Arabia, through new financing schemes, licensing reform, and agencies such as Monsha'at (Mansour, 2020; Kayani & Alzaid, 2025). However, Scott (1995) explains that formal rules are only one part of the institutional environment. Normative and cognitive institutions shared expectations, values, and beliefs also shape how people behave, and in rural areas these may matter even more than formal policy. Most research on Saudi entrepreneurship has focused on formal, regulative institutions, while the normative and cognitive side of rural entrepreneurship has received minimal attention (Alayed et al., 2026). This study considers how family, community, trust, and religious and cultural values act as informal institutions that help shape the entrepreneurial environment itself in rural Saudi Arabia not as a

background factor alongside formal policy, but as an active force that influences who enters entrepreneurship, how a business is run, and whether it survives.

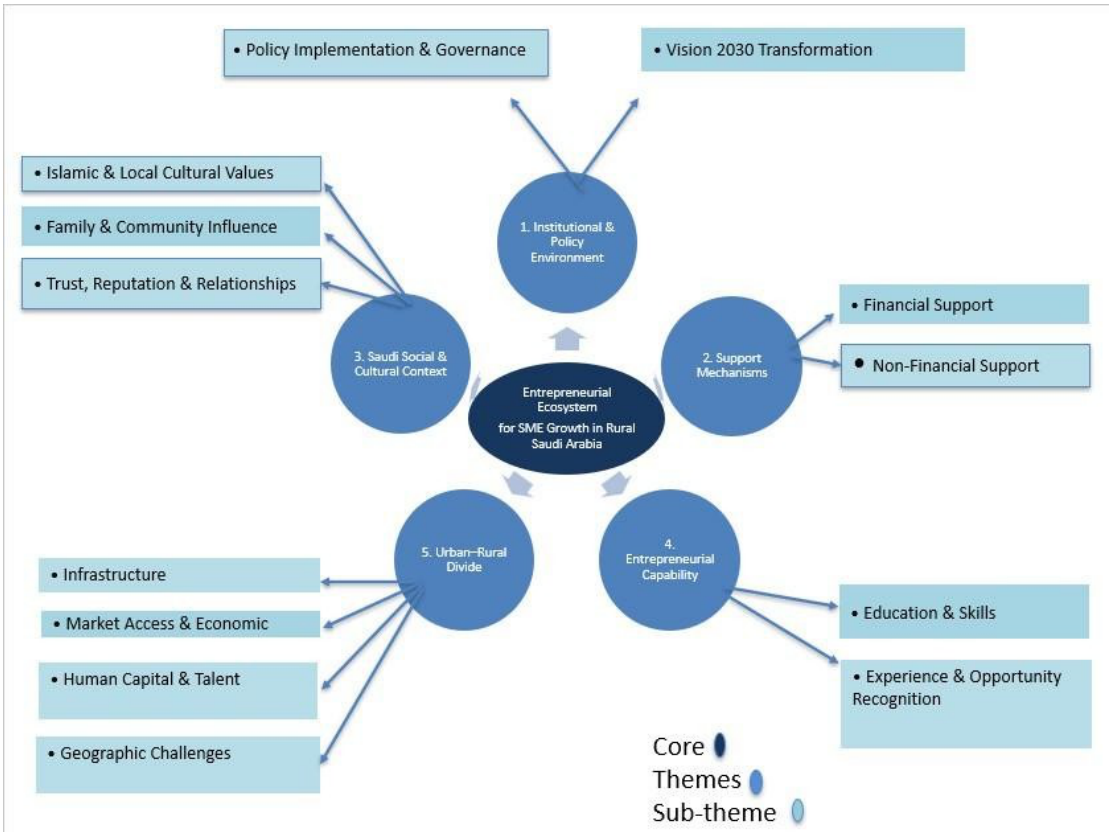
Keywords: Social Wellbeing; Informal Institutions; Institutional Theory; Rural Entrepreneurship

Research Objective

This study evaluates how informal institutions, family and trust as forms of social capital, and community expectations and religious values as normative and cognitive structures help shape the entrepreneurial environment in rural Saudi Arabia. Thereafter the study considers how the informal environment interacts with the formal reforms of Vision 2030, and what this means for the psychological and social wellbeing of entrepreneurs themselves.

Methodology

The study is based on 40 semi-structured interviews, with 30 entrepreneurs and 10 policymakers, carried out in rural and urban regions of Saudi Arabia. The interviews were analysed using Braun and Clarke's (2006) six-phase reflexive thematic analysis method. A qualitative approach was more appropriate for exploring how and why institutional conditions shape entrepreneurial experiences, rather than quantitatively measuring predefined relationships.



Key Findings

Family as Social Capital

Family support worked as a form of social capital, but mostly in an emotional way rather than a financial one. Entrepreneurs often noted that their family believed in them but could not invest money, because family members had their own financial responsibilities. One officer respondent from Monsha'at also noted that entrepreneurs with supportive families tended to be more resilient, which suggests that this kind of social capital affects not just starting a business, but keeping it going.

Community Expectations as a Normative Institution

Community expectations acted as a separate, normative institution, and this was sometimes different from family support. The founder of a women's equestrian club said her family supported her strongly, but society was her biggest challenge, so she changed her business to fit local expectations. Another entrepreneur hid their beekeeping business for two years because they feared the community's reaction. One entrepreneur (Ep18) made this difference clear: government support is the same across all regions, but the culture of the community is what differs and a weak entrepreneurial culture locally was seen, by policymakers too, as something that needs to be addressed before formal programmes can work well.

Trust as a Cognitive Institution

Trust worked as a cognitive institution. It was not something entrepreneurs inherited from their family or community; it had to be built through good performance over time. One respondent stated that our capital is our reputation, while another described how one mistake in packaging made her lose all her customers for a season. This demontrates how easily this kind of trust-based legitimacy can be lost.

Religious Values as a Normative-Cognitive Force

Religious values proved important normative and cognitive influences. They made entrepreneurship feel like an ethical activity, rather than simply a commercial one. One organic farmer and coffee producer explained that the reward is with God first, and that although providing healthy food is not always the most profitable choice, it is still the right one. A policymaker also described local crafts and traditions not as barriers to entrepreneurship, but as values that government programmes actively try to support. Notably, the most significant problems participants experienced came from community expectations, not from religious values themselves.

Cultural Preference for Government Employment

Cultural norms, separate from religion, still made government jobs seem more attractive than an entrepreneurship career, though participants said this belief was slowly changing. One policymaker described an older shame culture around manual and entrepreneurial work, which was declining but still stronger in rural families than in urban ones. One entrepreneur described using formal social-insurance registration to make his private business look more

like government employment in the eyes of his family showing how formal institutions can sometimes be used to close this gap in social acceptance.

Gendered Gatekeeping

Finally, cultural norms acted as a gatekeeper for women entrepreneurs, and this could override even completed formal support. In one case, women who finished a full government beekeeping training programme were later told by their husbands to stop selling, because they had already taken the support. In other cases, families became more supportive once a business became visibly successful, or after formal changes such as women being allowed to drive. This suggests that cultural constraints on women are not fixed, and can change alongside formal reform.

Discussion

Overall, these findings demonstrate that informal institutions are not simply a cultural backdrop to entrepreneurship in rural Saudi Arabia they are an active force that assists shape the entrepreneurial environment itself: who enters it, how a business is run, and when it is socially accepted or rejected. Family support, as social capital, builds confidence but does not replace financial capital. Community norms shape how businesses are run and, especially for women, whether they continue, sometimes even overriding formal support that has already been granted. Religious values act as a cognitive institution that supports rather than limits entrepreneurship. Trust must be earned step by step, rather than assumed from family or community reputation.

This study further develops Institutional Theory by suggesting that its regulative, normative, and cognitive pillars do not work alone, but depend on each other. A formal reform only works well when it fits with informal norms and beliefs, and the same is true the other way round. Scott (1995) usually treats these three pillars as separate parts of the institutional environment. Our findings suggest that they work together instead: a well-designed government programme, such as the beekeeping training scheme, can still fail in practice if it is not accepted by the family or community. Similarly, strong family and community support cannot replace the lack of formal financial or regulatory support. This means that institutional success in a context like rural Saudi Arabia depends less on how strong one single pillar is, and more on how well formal policy and informal social life fit together.

Conclusion

The shaping of the environment also has a direct link to entrepreneurs' psychological and social wellbeing: family support offers reassurance even without financial return, while community acceptance or rejection can directly affect whether an entrepreneur feels able to continue. This connects rural entrepreneurship to a wider idea of social wellbeing, not just economic success, and suggests that Vision 2030's formal reforms will only reach their full potential if they are matched by attention to the informal, normative, and cognitive side of entrepreneurship particularly local entrepreneurial culture and gender-related gatekeeping within families.

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FROM DESIGN TO DELIVERY: THE REGULATIVE INSTITUTIONAL GAP IN SAUDI ENTREPRENEURSHIP POLICY

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Abstract

Introduction and Rationale

Vision 2030 has introduced ambitious regulative reforms to support entrepreneurship and SME growth in Saudi Arabia, including new financing schemes, licensing reform, and agencies such as Monsha'at (Mansour, 2020; Kayani & Alzaid, 2025). Entrepreneurial Ecosystem Theory suggests that these regulative reforms are only one part of a wider system that also includes finance, human capital, infrastructure, and culture (Isenberg, 2011; Stam, 2015). However, research using this ecosystem view tends to describe the system at a broad level and does not look closely enough at how well individual policies are carried out in practice (Alarifi & Alrubaishi, 2018; Siddiqui et al., 2021). Participants in this study, both entrepreneurs and policymakers, consistently separated the ambition of reform from its delivery, arguing that the second stage, not the first, determines whether entrepreneurs

actually benefit. This paper looks closely at this implementation gap, as experienced by rural entrepreneurs and described by policymakers themselves.

Theoretical Framework

This paper uses institutional theory (Scott, 1995; North, 1990), focusing mainly on the regulative pillar: formal laws, licensing, compliance procedures, and the administrative bodies that apply them. Regulative institutions are meant to work through clear, enforceable rules, but Scott's framework also stresses that their effect depends on how consistently they are applied and trusted by those they are meant to support (Alshebami & Seraj, 2022). This is complemented by Entrepreneurial Ecosystem Theory (Isenberg, 2011; Stam, 2015), which frames government policy as one interconnected part of a larger system involving finance, institutions, and markets, but which existing research shows can remain descriptive, without closely examining institutional trust or execution quality (Almawishir, 2018). Combining these two views allows the analysis to move beyond simply describing policy design, and instead examine how regulative institutions gain or lose legitimacy at the point of delivery, through eligibility decisions, administrative procedures, and beneficiary selection.

Research Objective

This study examines the gap between the design and the implementation of entrepreneurship support policy in rural Saudi Arabia, and identifies the specific regulative and administrative mechanisms through which this gap appears in practice.

Methodology

Semi-structured interviews were conducted with 40 participants (30 entrepreneurs and 10 policymakers) in rural and urban regions of Saudi Arabia. Data were analysed thematically, following the six-phase approach set out by Braun and Clarke (2006), with particular attention paid to moments where participants described formal rules and their actual application as working differently in practice. A qualitative approach was chosen because the study aims to understand how participants experience and interpret institutional delivery in their own words, an experience that is difficult to capture through fixed survey categories or numerical data alone.

Key Findings

Vision Versus Execution

Both entrepreneurs and policymakers repeatedly separated the ambition of reform from its delivery. One entrepreneur (EP11) put it plainly: “The vision is excellent. But the problem is in execution. We are still in planning, not execution.” Another entrepreneur (EP17) gave a similar account from direct experience of implementation, explaining that those responsible for executing decisions often lack the necessary expertise and do not fully understand the intent behind them, which leads to incorrect or biased execution.

Disbursement Without Proper Assessment

One entrepreneur (EP1) described funds being disbursed to beneficiaries without prior feasibility checks, while beneficiaries were still expected to repay as quickly as possible. He contrasted this with how a specialist would have proceeded, verifying both the feasibility of the business plan and the credibility of the applicant before releasing support. Fragmented Institutional Responsibility

A further participant (EP18) identified fragmented institutional responsibility as compounding these problems, arguing that government agencies shifted responsibility between each other instead of solving problems, and that entrepreneurs are not represented in decision-making.

Eligibility Barriers Disconnected from Local Conditions

Eligibility rules were a recurring and specific barrier, especially where they did not reflect the realities of a particular sector or region. One entrepreneur in the manufacturing sector (EP25) explained that although factory support policy allowed him to employ up to 25 foreign workers, his application was refused for reasons that were never explained or documented on the ministry's website. He also noted that support for foreign labour depended on hiring Saudi workers, even though he could not find a qualified Saudi specialist for his factory, and concluded that these initiatives looked good in the media but were unrealistic in practice.

Repeated Implementation Failure Across Ventures

A related pattern was described by EP18 in relation to a separate business venture beyond her educational institution: an attempt to open a nursery. She obtained the required permit, including a police clearance, but was still refused final approval for reasons unrelated to the original requirements, stemming instead from procedures introduced informally by one government employee. She had pursued the idea because of publicised support for the sector, but concluded that in practice it failed or simply did not happen. This experience positions EP18 as a participant with direct, repeated experience of implementation failure across two distinct ventures.

Administrative Fragmentation and Digital Systems

A related pattern of administrative complexity appeared elsewhere in the data: one entrepreneur (EP4) described a year-long delay in an agricultural fund application caused by an unresolved transition between old and new digital systems, while another (EP28) described the cumulative burden of maintaining separate subscriptions across multiple, poorly-integrated government platforms.

Uniform Regulation Across Unequal Markets

A further dimension of the implementation gap concerned the uniform application of national regulations across markets of very different size and purchasing power. One entrepreneur (EP18) argued that national support policies did not consider differences between rural and major cities, since rural businesses face the same regulations as businesses in Riyadh and Jeddah despite having much weaker markets. Another entrepreneur (EP23) reported

declining to continue with a support programme because the financing offered did not match the actual need.

Non-Transparent Beneficiary Selection

Finally, implementation problems also appeared in how beneficiaries were chosen after support had already been approved. One entrepreneur (EP20) described a well-designed government programme training Saudi women in beekeeping and related products such as honey and creams, calling the policy itself excellent. However, she said it failed because participants were not selected through the intended transparent process, submission, testing, and ranking, but were instead chosen based on personal relationships with the people running the programme, none of whom had any real interest in beekeeping. Of 34 women enrolled, only three gained any lasting benefit.

Discussion

Overall, these findings suggest that the main problem facing entrepreneurship policy in rural Saudi Arabia is not a lack of regulative ambition, but a consistent gap between how policies are designed and how they are delivered. This gap shows up in several ways: unclear or undocumented eligibility decisions, national rules that do not reflect local market conditions, poor coordination between digital platforms and agencies, informal interference by individual staff, and non-transparent selection of beneficiaries. Participants across sectors, including manufacturing, education, agriculture, and beekeeping, did not blame government intentions for these problems, but pointed instead to weaknesses in coordination, technical capacity, and accountability at the point of delivery.

This study adds to institutional theory by suggesting that a regulative pillar can be formally strong while still losing legitimacy at the point of delivery. Scott (1995) treats the regulative pillar mainly in terms of the existence of rules and compliance mechanisms, but these findings suggest that consistency of application matters just as much as the rules themselves. A well-designed programme, such as the beekeeping training scheme, can still fail in practice when beneficiary selection departs from its own stated criteria, while a manufacturing entrepreneur can be refused support under rules that exist on paper but are applied inconsistently. This suggests that institutional trust in rural Saudi Arabia depends less on the existence of formal rules, and more on whether those rules are applied in a documented, consistent, and locally appropriate way.

Conclusion

Closing this gap is therefore less about introducing new policies, and more about strengthening how existing ones are delivered: clearer and publicly documented eligibility rules, region-specific standards, better-integrated digital systems, and transparent, accountable selection processes. This study contributes to the entrepreneurship literature by extending institutional theory into an under-researched rural, non-Western context, and by moving beyond ecosystem-level accounts of Saudi entrepreneurship, which tend to focus on macro-level policy and infrastructure but say little about how policies are actually delivered on the ground (Alrubaishi et al., 2020). It also responds to calls for more context-specific

institutional research (Alshebami & Seraj, 2022), offering evidence that regulative success in rural Saudi Arabia depends on implementation quality as much as policy design.

Keywords: Institutional Theory; Regulative Institutions; Policy Implementation; Institutional Trust; SME Support

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AI-ENABLED BUSINESS MODEL INNOVATION IN HEALTHCARE: A SYSTEMATIC LITERATURE REVIEW AND INTEGRATIVE FRAMEWORK

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Abstract

Healthcare systems face pressure to reconfigure how they create, deliver, and capture value as population ageing, chronic multimorbidity, and rising expenditure challenge reactive, product-centred care (Wan, 2006). Business Model Innovation (BMI) entails systemic redesign of activities, resources, processes, relationships, and partnerships (Babatunde, 2024; Ferreras-Méndez et al., 2021). Within value-based healthcare, it supports continuous, patient-centred services oriented around outcomes rather than volume (Merín-Rodrigáñez et al., 2024). Dependence on external knowledge and resources places this transformation within healthcare innovation ecosystems across organizational boundaries (Šlapáková Losová & Dvouletý, 2024).

This study examines how Artificial Intelligence (AI), Open Innovation (OI), and regulatory conditions jointly shape healthcare BMI. AI enables predictive analytics, clinical decision support, risk stratification, and continuous monitoring, potentially generating clinical and organizational value (Al-Dmour et al., 2025; Santamato et al., 2024; Mohamad et al., 2023). Implementation nevertheless depends on workflow redesign, professional role adaptation, trust, reliability, and contextual suitability (Ciecierski-Holmes et al., 2022; Karalis, 2024). The gap between algorithm development and organizational transformation positions AI-enabled BMI as an ongoing organizational translation process (Jorzik et al., 2024; Li, 2026).

OI mobilizes distributed expertise through collaboration among researchers, technology firms, clinicians, patients, public institutions, and intermediaries (Bullinger et al., 2012; Carrilho et al., 2023). Innovation laboratories, Living Labs, and collaborative hubs integrate clinical expertise, technical capabilities, and patient experiential knowledge (Centro Nacional en Sistemas de Información en Salud, 2024; Ferreras-Méndez et al., 2015; Priyadarshini et al., 2017; Santarsiero et al., 2023). These mechanisms connect academic prototypes with clinical and commercial use (Bouchard et al., 2018; Rowan, 2024), although engagement remains uneven across healthcare domains (Torab-Miandoab et al., 2024).

Regulation shapes innovation through clinical evaluation, quality management, technical documentation, and post-market requirements. The European Medical Device Regulation (EU MDR 2017/745), alongside AI governance, influences partner selection, evidence generation, contracting, and responsibility allocation (Shivakumar, 2025; Randhawa et al., 2024). Reimbursement and commercialization pathways also affect business model configurations and value capture (Weimar et al., 2025). However, these technological, collaborative, and institutional perspectives remain insufficiently integrated within BMI accounts (Giraudo et al., 2024), limiting consolidated guidance for managers and policymakers (Ojo & Kiobel, 2024; Shittu et al., 2024).

The research question is: How has the interplay between AI, OI, and regulatory conditions been addressed in healthcare BMI literature, and how can these insights inform an integrated conceptual framework? A Systematic Literature Review guided by PRISMA 2020 (Page et al., 2021) searches Web of Science Core Collection from January 2016 to September 2026. Three searches combine “business model innovation” AND “Healthcare” with: (A) “Artificial Intelligence” AND “Open Innovation”; (B) “Artificial Intelligence” AND “Regulation”; and (C) “Open Innovation” AND “Regulation”. Eligibility requires healthcare studies connecting at least two focal dimensions with BMI or related organizational reconfiguration.

Requiring the exact BMI expression defines an initial, focused mapping of literature explicitly addressing this concept. It may exclude relevant studies framed around value creation, organizational reconfiguration, digital transformation, or business-model change. Web of Science was selected as the sole database to maintain a consistent bibliographic source and reproducible procedure across the three intersections. Publications indexed elsewhere may consequently be missed. These choices establish a bounded starting point for understanding healthcare BMI ecosystems, with acknowledged limitations. Future research will broaden terminology within Web of Science and investigate the framework.

Following screening, 37 studies met the eligibility criteria and constitute the final systematic review sample. Additional references support the background and theoretical development but are not included when they fall outside the search period or do not meet the required intersection criterion. Table 1 retains the broader evidence map, encompassing both review contributions and supporting literature; its total therefore differs from the final inclusion count. This distinction separates systematically selected evidence from references supporting interpretation and framework development.

Table 1. Evidence mapping of review contributions and supporting literature.

Article	AI	OI	Reg	BMI	AI-OI	AI-Reg	OI-Reg	BMI Mechanism	Evidence Level
Al-Dmour et al. (2025)	✓	—	—	✓	—	—	—	Value Creation & Delivery	Relational Evidence
Ali Mohamad et al. (2023)	✓	—	—	✓	—	—	—	Value Proposition & Creation	Relational Evidence
Babatunde et al. (2024)	—	—	—	✓	—	—	—	Value Proposition & Capture	Construct Evidence
Bullinger et al. (2012)	—	✓	—	✓	—	—	—	Value Creation & Delivery	Relational Evidence
Carrilho et al. (2023)	✓	✓	—	✓	✓	—	—	Value Proposition & Delivery	Relational Evidence
Chomalí et al. / CPI (2024)	—	✓	✓	✓	—	—	✓	Value Creation & Capture	Relational Evidence
Ciecierski-Holmes (2022)	✓	—	—	✓	—	—	—	Value Delivery (Last-mile)	Construct Evidence
Ferreras-Méndez (2015)	—	✓	—	—	—	—	—	Absorptive Capacity (ACAP)	Construct Evidence
Ferreras-Méndez (2021)	—	—	—	✓	—	—	—	Value Creation & Capture	Construct Evidence
Gaertner (2026)	✓	—	✓	✓	—	✓	—	Value Capture & Tech File	Relational Evidence
Jorzik et al. (2024)	✓	—	—	✓	—	—	—	All Dimensions (AI-driven)	Relational Evidence

Karalis (2023)	✓	—	✓	—	—	✓	—	Ethical & Legal Constraints	Construct Evidence
Kraus et al. (2022)	✓	—	—	✓	—	—	—	Dynamic Capabilities	Construct Evidence
Li (2026)	✓	—	—	✓	—	—	—	All Dimensions (CAS coevol)	Emergent Interfaces
Ludvigsen et al. (2022)	—	—	✓	✓	—	—	—	Value Prop & SaMD qualif	Relational Evidence
MDCG / AIB (2025-6)	✓	—	✓	—	—	✓	—	Compliance & Art 8(2) map	Relational Evidence
Merín-Rodrigáñez (2024)	✓	—	—	✓	—	—	—	Value Creation, Deliv, Capt	Relational Evidence
Oderanti et al. (2021)	—	—	—	✓	—	—	—	Value Proposition & Capture	Construct Evidence
Ohya / Pestre (2019)	✓	—	✓	—	—	✓	—	Negligence Liability Alloc	Relational Evidence
Priyadarshini et al. (2017)	—	✓	✓	✓	—	—	✓	Value Creation & Delivery	Relational Evidence
Raghu Raman et al. (2024)	✓	—	—	—	—	—	—	AI Health Cluster Mapping	Emergent Interfaces
Randhawa et al. (2024)	✓	✓	✓	✓	✓	✓	✓	Value Creation & Legitimation	Relational Evidence
Rowan (2024)	✓	—	✓	—	—	✓	—	Conformity & ISO Validation	Relational Evidence
Santamato et al. (2024)	✓	—	—	✓	—	—	—	Value Creation & Efficiency	Relational Evidence

Santarsiero et al. (2023)	—	✓	—	✓	—	—	—	Value Creation (Innovation Labs)	Relational Evidence
Schiavone & Omrani (2025)	✓	✓	—	✓	✓	—	—	Value Creation & Ethics (RRI)	Relational Evidence
Shankar (2024)	✓	—	✓	—	—	✓	—	Governance of AI Risks	Emergent Interfaces
Shittu et al. / WJAR (2024)	✓	—	—	✓	—	—	—	Value Delivery & Operations	Relational Evidence
Shivakumar (2025)	—	✓	✓	✓	—	—	✓	Value Creation & Capture (MDR)	Relational Evidence
Slapakova & Dvoulety (2024)	—	✓	—	✓	—	—	—	Value Creation & Ecosystem Roles	Emergent Interfaces
Torab-Miandoab (2024)	—	✓	—	✓	—	—	—	Value Creation & Delivery	Emergent Interfaces
Volberda et al. (2021)	✓	—	—	✓	—	—	—	Dynamic Capabilities & Cognition	Construct Evidence
Wan (2005)	—	—	—	✓	—	—	—	Value Proposition & Sustainability	Construct Evidence
Warner & Wäger (2019)	✓	—	—	✓	—	—	—	Sensing, Seizing, Transforming	Construct Evidence
Weimar et al. (2025)	✓	—	✓	✓	—	✓	—	Value Capture & Delivery (DiGA)	Relational Evidence

Wells et al. (2025)	✓	—	✓	—	—	✓	—	Clinical Governance (FAIR-AI)	Relational Evidence
WJBPHS (2024)	✓	—	—	✓	—	—	—	Value Creation & Analytics	Relational Evidence

AI: Artificial Intelligence; OI: Open Innovation; Reg: regulation; BMI: Business Model Innovation. ✓ indicates coverage; — indicates no coverage assigned in the mapping.

The synthesis distinguishes individual constructs, documented relationships, and emerging interfaces. Directly reported AI–BMI relationships concern service-oriented value propositions, Software-as-a-Medical-Device (SaMD) configurations, clinical pathway redesign, operational efficiency, and resource allocation. OI–BMI relationships concern co-creation, external research capabilities, knowledge flows, and connected healthcare models (Carrilho et al., 2023; Oderanti et al., 2021). Regulatory relationships concern software qualification, classification, conformity assessment, reimbursement, and commercialization (Gaertner, 2026; Ludvigsen et al., 2022; Weimar et al., 2025). These mechanisms connect the three focal dimensions with specific changes in how healthcare organizations organize activities and generate value.

The pairwise interfaces further reveal how collaboration and accountability interact. AI–regulation links concern technical documentation, compliance coordination, and clinical governance, while OI–regulation links concern unequal responsibilities and defensive organizational routines (Shivakumar, 2025; MDCG, 2025-6). Technological legitimation combines "solution selling," demonstrating practical, economic, or operational value, with "issue selling," addressing ethical, cognitive, and governance concerns (Randhawa et al., 2024; Wells et al., 2025). Responsible transformation connects these practices with openness and stakeholder responsibility (Schiavone & Omrani, 2025). Technological opportunity requires organizational translation.

Cross-study interpretation identifies two interconnected tensions. Agility–compliance concerns iterative AI development alongside evidence generation, controlled change, and assessment requirements. Openness-liability concerns ecosystem knowledge sharing alongside asymmetric accountability. Selective openness, innovation fatigue, and shadow innovation are reported responses to these pressures. The resulting friction can influence partner access to technical information, resource commitments, and collaborative participation. These tensions are patterns synthesized across contributions rather than universal causal effects. They explain why technological opportunity, ecosystem collaboration, and regulatory demands need to be considered together when interpreting business model reconfiguration.

The authors' conceptual contribution integrates these findings into a simultaneous, multi-level architecture linking AI opportunity, OI collaboration, and regulatory conditions to BMI. Dynamic Capabilities Theory provides a sensitizing lens rather than an inclusion criterion or fixed coding framework (Kraus et al., 2022; Volberda et al., 2021; Warner & Wäger, 2019).

Dynamic capabilities and absorptive capacity are proposed as organizational mechanisms connecting the three forces. Sensing identifies opportunities, partners, and institutional requirements; seizing mobilizes resources and establishes collaboration; transforming revises workflows, governance, and business arrangements. Absorptive capacity supports recognition, assimilation, and application of external knowledge (Ferreras-Méndez et al., 2015, 2021).

The framework connects value proposition, value creation, value delivery, and value capture. Responsibility and commercialization arrangements may reshape ecosystem participation and resources, subsequently affecting SaMD care pathways and patient-centred outcomes. This interconnected architecture and the proposed connecting mechanisms represent the authors' integration, whereas individual relationships and organizational responses originate in the reviewed literature. The model appears in Figure 1. Its propositions require empirical investigation; the synthesis does not establish that dynamic capabilities resolve the identified tensions or that anticipated clinical benefits become demonstrated outcomes.

The study contributes a synthesis of principal mechanisms, recurring tensions, and research gaps, together with a framework for examining their interdependence. For healthcare organizations, technology providers, innovation intermediaries, and policymakers, it supports coordinated consideration of clinical usefulness, collaboration, evidence generation, accountability, and organizational viability. Its contribution is bounded by the search vocabulary and single-database coverage. Future research will investigate how the proposed mechanisms operate across organizational and regulatory contexts, examine their development over time, and assess the conditions under which ecosystem participation supports sustainable AI-enabled healthcare BMI.

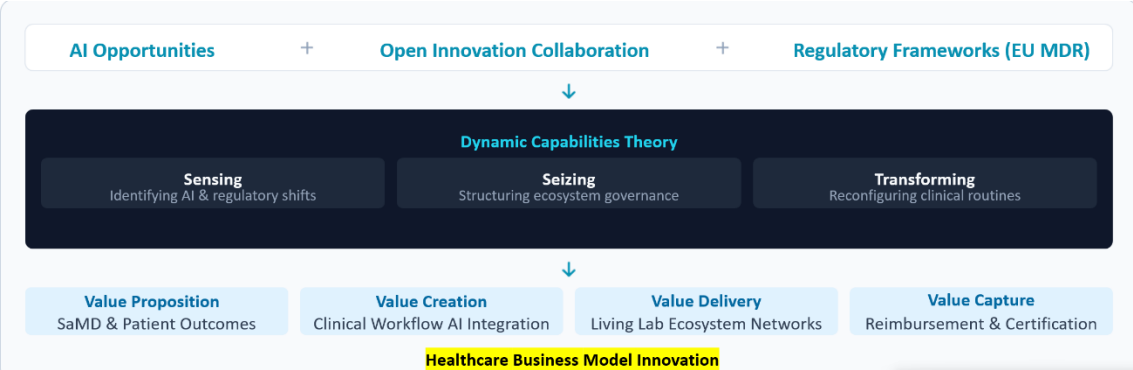


Figure 1 Model of the integrative framework

Keywords: Business Model Innovation; Artificial Intelligence; Open Innovation; Healthcare Regulation; Dynamic Capabilities.

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DESIGNING ENTREPRENEURIAL CAREERS AND LIVES UNDER UNCERTAINTY: CREATIVE AGILITY AS A META-COMPETENCE FOR ENTREPRENEURSHIP EDUCATION

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Abstract

Entrepreneurship education increasingly addresses more than venture creation. It is also expected to prepare learners to construct meaningful professional identities, navigate discontinuous careers, work with emerging technologies, and act entrepreneurially when future pathways cannot be predicted in advance. Entrepreneurial Life Design (ELD) responds to this shift by combining career construction, design thinking, effectuation, positive psychology, and entrepreneurial agency (Savickas et al., 2009; Burnett & Evans, 2016; Sarasvathy, 2001; Wolf et al., 2024). Yet one pedagogical problem remains insufficiently specified: how can learners remain capable of action in the "messy middle" of career and life design, when identities, options, emotions, and criteria for good decisions are themselves uncertain? This question becomes more pressing in AI-mediated labour markets, where technological change simultaneously expands possibilities and destabilises professional roles, expertise, and self-understanding.

This study examines Creative Agility as a meta-competence for Entrepreneurial Career and Life Design (ECLD) in higher education. Creative Agility is defined as the practice, capacity, and mindset of remaining action-capable in the unknown and transforming uncertainty into a possibility space for responsible, co-creative future-making. Following recent conceptual refinement, it is not treated as an umbrella term for desirable future skills, nor as a synonym for ambiguity tolerance, resilience, design thinking, or futures literacy. Its distinctive function lies in the situated mobilisation and recalibration of reflective, relational, emotional, ethical, narrative, creative, and futures-oriented competences when no single competence or predefined method is sufficient. It therefore connects inner self-authorship (Magolda, 2008) with outward entrepreneurial experimentation and moves dynamically between sensing and acting, opening and framing, divergence and provisional commitment. The study asks: How can Creative Agility be operationalised as a meta-competence for entrepreneurial career and life design, and what cross-case patterns of perceived competence development, narrative

self-authorship, and action under uncertainty emerge across different higher-education learning environments?

Empirically, the contribution uses an exploratory comparative mixed-methods design across three educational cases at the Zurich University of Applied Sciences. The first is a compulsory 2-ECTS BA module, Career Design, for final-semester students in Multilingual Communication. Students explore values, strengths, professional identities, alternative career scenarios, and self-positioning through design-based portfolio work, reflective journalling, peer feedback, and one-minute future-self pitches. The second is the 3-ECTS MSc module Narrating Entrepreneurship for students in Innovation and Entrepreneurship, in which entrepreneurial storytelling is treated as narrative design practice. Students analyse discourse and narratives, develop multimodal communication prototypes for their own or real-world entrepreneurial cases, and iteratively negotiate entrepreneurial identity, legitimacy, and value creation. The third is an interdisciplinary 2–4-ECTS Living Lab on Creative Agility and Futures Literacy, bringing together students from communication, social work, and psychology in an intensive experimental setting using arts-based inquiry, embodied experimentation, AI reflection, speculative design, and futures prototyping.

Across all three cases, evolving versions of the project's Creagile Futures Literacy competence framework (CAFL; Borghoff et al., in press) informed reflective pre/post self-assessments conducted through the digital self-assessment platform Rflect. Quantitative samples comprised 48 pre and 44 post responses in Career Design, 9 pre and 7 post responses in Narrating Entrepreneurship, and 28 matched pre/post responses in the Living Lab. Open qualitative reflections were available before and after the interventions in all three cases. Quantitative results are interpreted descriptively rather than inferentially because the cases differ in duration, cohort size, pedagogical intensity, and framework version. The three cases are therefore compared as distinct pedagogical ecologies rather than treated as equivalent interventions. Qualitative material is analysed from an interpretive and discourse-analytic perspective, focusing on recurrent patterns of self-positioning, uncertainty, emotional experience, professional identity, AI-related judgement, and future-oriented agency. For the Living Lab, a small six-month matched follow-up (n=7) provides supplementary, explicitly exploratory evidence about persistence.

The cross-case findings show development, but not as a linear accumulation of skills. In Career Design, the strongest descriptive increases occurred in dealing with AI and digital reflection, reflective and critical thinking, diversity of perspectives and systems thinking, collaboration, and dealing with uncertainty and complexity; adaptability and resilience was the only domain that decreased. Qualitative reflections nevertheless indicate growing clarity about career goals, more differentiated awareness of emotions and uncertainty, and stronger narrative self-authorship. Students increasingly articulated career design as an iterative process rather than a one-time decision and used portfolios and pitches to make provisional future selves discussable and revisable.

Narrating Entrepreneurship produced a more ambivalent profile. AI and digital reflection, adaptability and resilience, emotional intelligence, and Creative Agility, innovation and futures literacy increased, whereas systems thinking, reflective and critical thinking, collaboration, ethics, and dealing with uncertainty were rated lower after the module. Given

the small sample, these movements cannot be generalised. Yet the qualitative accounts suggest a competence paradox rather than straightforward regression: as students engaged more deeply with entrepreneurial narratives, AI, teamwork, and open experimentation, they often became more critical of their own competence and more aware of what responsible entrepreneurial communication requires. Greater reflexivity could therefore coexist with lower self-ratings.

The Living Lab showed the strongest immediate movements in emotional self-awareness and relationship intelligence, linguistic-communicative transformation competence, technological and design expertise, digital judgement and reflection, and dealing with uncertainty and complexity; ethical and sustainable responsibility showed a slight decrease. Qualitative interpretation reconstructed an overarching movement from seeking certainty towards becoming action-capable without certainty. Participants described a reactivation of creativity, greater trust in situational judgement, more differentiated human–AI agency, and a growing ability to treat ambivalence as material for inquiry rather than as failure. The small six-month follow-up suggests that 15 of 17 competence domains remained above participants' own baseline, although trajectories varied and the sample is too small for claims of sustained effects.

Across the three settings, three contributions emerge. First, Creative Agility makes uncertainty itself pedagogically workable: it reframes not-knowing, emotional ambivalence, and disrupted professional identities as learning material rather than disturbances to be eliminated. Second, it links entrepreneurial self-authorship to action through narrative and material prototypes. Portfolios, stories, pitches, role plays, and future artefacts allow learners to externalise possible selves, test them socially, revise them, and connect personal meaning with entrepreneurial value creation. Third, the findings challenge linear interpretations of competence development. Lower post-ratings may reflect fatigue or limited intervention effects, but they may also indicate response shifts in which learners develop more demanding standards and more realistic self-appraisals. Entrepreneurship education therefore needs assessment designs that capture reflective maturation as well as upward scores.

The practical implication is to design entrepreneurship education as structured openness: learning environments should be safe enough for experimentation but open enough to require judgement. ECLD curricula can deliberately oscillate between "open-sea" phases of exploration and "swimming-pool" phases of framing, decision, and prototyping; combine narrative reflection with entrepreneurial action; and use CAFL-type self-assessments as dialogical reflection tools rather than rankings. Such designs broaden entrepreneurship education from opportunity recognition and venture skills toward first-person transformation, relational responsibility, and future-oriented agency (Dimov & Pistrui, 2020). They are also relevant to social well-being because the capacity to act under uncertainty should not be individualised as a demand for permanent resilience: emotional, relational, sensory, and institutional conditions shape whether people can use what they have learned.

The study is limited by a single institutional context, small and unequal samples, self-report measures, different CAFL versions, short intervention periods, and researcher involvement in design and analysis. CAFL remains a developmental rather than psychometrically validated instrument. Future research should combine self-assessment with observation,

behavioural indicators, independent qualitative analysis, and longitudinal career trajectories, and compare how Creative Agility is enacted across institutions, cultures, and professional contexts. Within these limits, the study proposes Creative Agility as a promising meta-competence for designing entrepreneurial careers and lives: not by removing uncertainty, but by enabling learners to move responsibly, reflectively, and imaginatively within it.

Keywords: Creative Agility; Entrepreneurship Education; Entrepreneurial Career and Life Design; Narrative Self-Authorship; AI Literacy

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AUTHENTICITY AND REGENERATIVE ENTREPRENEURSHIP IN THE CASTELFALFI DESTINATION ECOSYSTEM

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Abstract

Tourism destinations can be understood as complex systems whose development depends on relationships among organisations, communities, and territorial resources. Research on destination governance highlights the importance of network structures and adaptive coordination in understanding these relationships (Baggio et al., 2010). Regenerative tourism extends this perspective by connecting tourism development with the renewal of social and ecological systems (Bellato et al., 2023; Inversini et al., 2024). For rural heritage destinations, this raises an entrepreneurial question: how can investment support economic viability while sustaining the conditions that make a place distinctive? This study addresses the following

research question: How does authenticity guide entrepreneurial regeneration and value creation across an integrated rural destination ecosystem?

The study examines Castelfalfi, a 1,100-hectare estate in Tuscany, following its acquisition in 2021. The destination encompasses a medieval village, hospitality facilities, vineyards, olive groves, agricultural production, golf courses, historic farmhouses, and residential properties. At the beginning of the transformation, the new ownership and leadership identified opportunities to strengthen connections among these assets, develop a shared destination identity, and align organisational capabilities with their long-term vision. Their approach involved enhancing hospitality quality, supporting agricultural continuity, and renewing heritage and community functions. The case offers an opportunity to examine entrepreneurial development through the integration of existing territorial assets and relationships.

Conceptually, the study connects authenticity, regeneration, and stakeholder value creation. Authenticity is understood as continuity between the destination's identity and its actual practices, including agricultural work, heritage use, community engagement, and organisational behaviour. Derchi and De Stefano (2026) distinguish different ways of incorporating regeneration into business models, including integration into operational processes, governance, and stakeholder relationships. This provides a lens for examining how regeneration informs everyday value creation. A value-based strategy perspective further supports the analysis of benefits generated for different stakeholders (Brandenburger & Stuart, 1996).

The framework also considers how shared purpose connects organisational identity with action. Derchi's (2025) systematic review of Massive Transformative Purpose links purpose to internal and external organisational dimensions. This offers a complementary perspective on the relationship between identity and strategic coherence, without assuming that Castelfalfi formally adopts that framework. Within hospitality, the SPARK proceedings discuss collaborative learning and regenerative thinking as responses to industry transformation (Derchi et al., 2026). Together, these contributions motivate attention to shared direction and collaboration. Groysberg et al. (2018) provide an additional organisational culture lens for examining employee care, learning, and performance expectations.

The research adopts a qualitative, exploratory single-case approach. The empirical material comprises semi-structured interviews conducted in June 2026 with representatives of ownership, executive leadership, departmental and operational functions, and the Municipality of Montaione. Interviews are supplemented by company information, internal materials concerning brand identity and organisational practices, and publicly available sources. The analysis examines strategic priorities, stakeholder relationships, and the integration of destination activities. Comparing organisational accounts with the municipal perspective broadens the interpretation, although the evidence remains predominantly organisational. The abstract presents qualitative observations without reproducing internal financial figures, individual guest records, or detailed performance measures.

The findings identify four interconnected mechanisms. First, authenticity provides a criterion for entrepreneurial decision-making. Management sought to strengthen the estate's Tuscan character through the restoration and continued use of buildings, productive activities, and social spaces. The reopening of the village church was associated by interviewees with renewed community life and connections to the surrounding territory. Heritage research and the adaptation of historic buildings similarly connected preservation with contemporary use. These choices suggest that regeneration involves maintaining the social meaning of a place alongside its physical renewal. Authenticity becomes actionable when it informs what is restored, how it is used, and how people participate.

Second, agriculture, hospitality, community life, and real estate operate through mutually reinforcing relationships. Wine and olive oil production connect the destination to its agricultural traditions, while dining, tastings, and seasonal experiences allow guests to encounter this identity. Hospitality supports the visibility of agricultural production, and residential participation provides another form of engagement with the destination. Community relationships contribute knowledge, cultural continuity, and social vitality. Each element contributes to and benefits from the wider ecosystem. The entrepreneurial opportunity lies in coordinating these interdependencies while preserving the distinctive contribution of each activity.

Third, organisational development supports the delivery of this integrated proposition. Interviewees describe attention to employee wellbeing, professional development, and shared service expectations. These priorities address the capabilities required to operate across hospitality, agriculture, heritage, and residential activities. Through the perspective of Groysberg et al. (2018), this approach combines employee care with learning, accountability, and performance objectives. A destination's identity is expressed through everyday interactions among employees, guests, residents, and local partners. Investment in people therefore helps translate strategic intentions into experiences and supports continuity between the destination's character and its operations.

Fourth, stakeholder coordination connects entrepreneurial development with territorial relationships and environmental stewardship. Cooperation with municipal authorities concerns planning, infrastructure, and access, while community initiatives support relationships with surrounding residents. Water management, wastewater treatment, and the use of renewable energy in parts of the estate's activities illustrate the importance of managing operational dependencies. Water availability, infrastructure capacity, and environmental quality constitute continuing strategic considerations for coordinating development. They also offer opportunities for learning, operational improvement, and cooperation. This interpretation is consistent with the emphasis on adaptive coordination in destination governance research (Baggio et al., 2010).

Taken together, the findings suggest that authenticity connects investment choices, organisational practices, and stakeholder relationships within a coherent destination proposition. However, while the process of monitoring and measuring ecological impact is ongoing, the evidence available within this study does not isolate the effect of authenticity from renovation expenditure, leadership changes, service improvements, or market conditions. Nor does this study establish a measured net-positive ecological impact. These

qualifications concern the scope of the research and the evidence analysed, rather than the existence of monitoring activities at Castelfalfi.

The case contributes to entrepreneurship research by identifying authenticity as an organising principle for resource recombination and stakeholder coordination. Agriculture, hospitality, heritage, and residential activities participate in a shared process of value creation, with their continuing vitality depending on the quality of their connections. The resulting proposition is that regeneration may support entrepreneurial advantage when development strengthens the distinctive systems from which the destination derives its value. This interpretation connects the destination's organisational practices with the broader regenerative tourism perspective developed by Bellato et al. (2023).

For entrepreneurs and destination managers, the findings encourage investment decisions that account for relationships among commercial activities, communities, and natural resources. For public authorities, the case highlights the value of continuing dialogue around access, infrastructure, and community connections. As Castelfalfi develops, coordinating visitor experiences, residential expectations, workforce capabilities, and environmental stewardship offers opportunities to deepen its integrated approach. The single-case design, retrospective accounts, and concentration on organisational sources constrain generalisation. Further research could incorporate broader resident perspectives, comparative cases, and longitudinal evidence, including findings from ongoing monitoring. Castelfalfi illustrates how entrepreneurial regeneration can make authenticity actionable while remaining a continuing process of development, learning, and renewal.

Keywords: Regenerative entrepreneurship; authenticity; entrepreneurial ecosystems; rural destination regeneration; stakeholder value creation.

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THE IMPACT OF DIGITALIZATION AND MACROECONOMIC FACTORS ON OPPORTUNITY ENTREPRENEURSHIP: AN ANALYSIS OF SELECTED EU COUNTRIES

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Abstract

Opportunity entrepreneurs are those who, rather than being compelled to do so, launch a company in order to seize an opportunity. Typically, people launch the company in order to become more independent or to increase their income (Angulo-Guerrero et al., 2017). In contrast to necessity entrepreneurship, opportunity entrepreneurship features those who have alternative career choices but decide to pursue entrepreneurship. However, macroeconomic factors affect both kinds of entrepreneurial motives (Gaies et al., 2025). By raising the demand for products and services, economic quality has an impact on the expansion of opportunity entrepreneurship (Jabeur et al, 2022). In times of high taxes and recession, opportunity entrepreneurs could cut down on spending and postpone expenditures (Audretsch et al, 2022). The business environment has been changing due to the continuous development of digital technologies . This has created a variety of opportunities that contribute to novel ways of pursuing entrepreneurship (Lamine et al, 2023). Opportunity-driven entrepreneurship may rise as a result of digitalization's transformative consequences, which might provide new business possibilities in professions (Fossen and Sorgner, 2021).

This research aims to examine how opportunity entrepreneurship is affected by macroeconomic variables and digitalization in selected EU member states. Ten EU nations—Croatia, Germany, Greece, France, Italy, Latvia, the Netherlands, Slovenia, Spain, and Sweden—were examined in the research. The availability of data for these countries—for the data range examined and the variables included in the model—was a key factor in their selection. Data from 2005 to 2024 were examined in the research. The research utilized annual data. The analysis was conducted using the Method of Moments Quantile Regression (MMQR) approach developed by Machado and Silva (2019). Robustness tests were also included in the research. In this study, “perceived opportunities”—as published annually by the Global Entrepreneurship Monitor—were used as the dependent variable and as an indicator of opportunity entrepreneurship. The model for the research includes the digitalization indicator and the independent variable "Individuals using the Internet (% of population)." As macroeconomic factors and other independent variables, the research also included GDP per capita, foreign direct investment (net inflows as a percentage of GDP), the

unemployment rate, the level of urbanization, the rate of inflation, and public spending. The data for all of these independent variables were obtained through the World Development Indicators (World Bank, 2026). The Stata 17 software program was used for the analyzes carried out as part of this investigation.

The study's conclusions showed that internet use had a positive effect on opportunity entrepreneurship at all quantile levels in the ten EU nations that were chosen. For all of the middle quantile levels (0.40, 0.50, 0.60), the majority of the high quantile levels (0.70, 0.80), and a few of the low quantile levels (0.30), this result is statistically significant. Additional evidence shows that although urbanization boosts opportunity entrepreneurship at all quantile levels, unemployment decreases it. For every quantile level, these results are statistically significant. On the other hand, opportunity entrepreneurship at all quantile levels is decreased by public expenditure. All quantile levels—aside from the 0.10 and 0.90 quantile levels—show statistically significant results. There exists a positive relationship between GDP per capita and opportunity entrepreneurship across all quantiles, statistically significant at all levels except for 0.70, 0.80, and 0.90. Moreover, whereas other results suggest that foreign direct investment enhances opportunity entrepreneurship at every quantile level, inflation diminishes it across all quantile levels; nonetheless, these findings lack statistical significance.

Additionally, the research used Arshed's (2026) XTQRPLOT module to estimate entity-specific marginal effects. As a result, depending on where they are located in the dependent variable's distribution, nations are allocated to specific quantile windows, and the estimated coefficients for that quantile are then matched to the appropriate nation. Accordingly, the 10 countries included in the study are assigned to 9 quantile levels (0.10, 0.20, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80, 0.90). Sweden has the greatest "opportunity entrepreneurship" regimes among the nations examined, while Greece and Spain have the lowest. Sweden is the nation where internet use has the most influence on opportunity entrepreneurship, according to research demonstrating country-specific marginal effects. Greece and Spain are the nations where this impact is least pronounced. This result implies that under regimes like Greece and Spain, where opportunity entrepreneurship is low, the marginal effect of digitization is rather small. For the variables of foreign direct investment and inflation, the marginal effects found are statistically insignificant. The marginal effects illustrating the relationship between opportunity entrepreneurship and GDP per capita, one of the macroeconomic variables, show that the positive coefficients indicating the marginal effect of GDP per capita on opportunity entrepreneurship are larger in nations with low levels of opportunity entrepreneurship, like Greece and Spain. In nations like Croatia, the Netherlands, and Sweden that have high levels of opportunity entrepreneurship, the positive marginal impact of GDP per capita on opportunity entrepreneurship decreases. The highest negative marginal impact of unemployment is found in Sweden, whereas the least negative marginal effect is found in Greece and Spain when country-specific effects on the link between unemployment and opportunity entrepreneurship are investigated. This evidence suggests that increased unemployment may encourage people to necessity entrepreneurship based on need rather than opportunity, which would lower the prevalence of opportunity entrepreneurship. Other results also show that the government spending variable has negative marginal effects, but the urbanization variable has positive marginal effects in every country. For Internet use,

GDP per capita, unemployment, urbanization, and government spending, the marginal effects seen at the national level are statistically significant.

The Driscoll-Kraay (1998) robust estimator was also used in the research to assess for robustness. The results of the Method of Moments Quantile Regression and the Driscoll-Kraay estimator are likewise in agreement. Opportunity entrepreneurship rises as the degree of digitalization increases in ten chosen EU nations, according to results derived using the Driscoll–Kraay robust estimator. Additionally, the result is statistically significant. According to other findings, GDP per capita and urbanization boost opportunity entrepreneurship, whereas unemployment and government expenditures decrease it. All of these findings are statistically significant. While it has been observed that foreign direct investment enhances entrepreneurial opportunities, while inflation diminishes them, these results lack statistical significance.

Based on these results, measures should be put into place to further expand the digital infrastructure and so increase opportunity entrepreneurship, and policies targeted at improving entrepreneurs' digital abilities should be developed. The implementation of policies that promote sustainable economic development should be prioritized in order to foster an atmosphere that is conducive to opportunity-driven entrepreneurship. Policymakers should prioritize mentoring and training programs that will encourage unemployed individuals to pursue opportunity entrepreneurship. It is important to draw attention to the programs that assist urban entrepreneurial ecosystems in the ten EU nations that were chosen for analysis. Policies should also be put in place to provide public funds to productive sectors including R&D, innovation, digital infrastructure, and entrepreneurial education. Due to the restricted data availability, one of the study's major limitations is its small data range. The majority of EU nations were also unable to be included in the research due to a lack of regular data, especially with relation to opportunity entrepreneurship. This draws attention to yet another important research constraint. Potential determinants of opportunity entrepreneurship have not been able to be included in the model due to data constraints. Another limitation of the study is that it includes only “Individuals using the Internet (% of population)” as an indicator of digitalization.

Keywords: Opportunity Entrepreneurship, Digital Transformation, Macroeconomic Determinants, EU Countries, Method of Moments Quantile Regression,

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PERCEIVED ENTREPRENEURIAL PSYCHOLOGICAL WELLBEING: A PERSPECTIVE ON ENTREPRENEURIAL INTENTION

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Abstract

Entrepreneurship plays pivotal role in economies through stimulating innovation, generating jobs and contributing to societal development (Eckhardt and Shane 2003; Kautonen et al., 2013; Zarkua et al., 2025). Considering much of entrepreneurship is intentional behavior and as antecedents of future venture creation, intention has been addressed in much of the literature so far starting from 1980s (Bird, 1988; Krueger et al., 2000; Van Gelderen et al., 2008). Traditionally entrepreneurial intention/behaviors focuses implicitly on the economic driver such as calculated risk taking, market opportunity and resource availability (Giddens 1981; Kahneman 2011), However, a recent evidence shows the importance of deeper psychological motivation as a critical psychological and social resource or trigger of entrepreneurial action, (Lyubomirsky, King, and Diener 2005; Pathak 2020; Wiklund et al. 2019), as entrepreneurship is pursued not only for economic returns but also for reasons linked to personal growth, the search for meaning, human processes, sustainable performance, and idiosyncratic motivations (Wiklund et al., 2019; Barbosa et al., 2024; Ryff, 2019). Thus, psychological well-being has gained prominence in the field of entrepreneurship (Shepherd & Haynie, 2009; Uy et al., 2013). However, our knowledge about intersection between psychological well-being and entrepreneurial intention is limited, remains theoretically and conceptually fragmented and dispersed and new studies are likely to contribute to understanding of well-being as an essential psychological resource and mechanism in entrepreneurship (J. Wiklund et al, 2019; Stephan, 2018; Perez-luno et al., 2025)

Thus, in response to growing importance of psychological foundation, and call for more inter-disciplinary research on the role of psychological well-being in entrepreneurship research (Wiklund et al., 2019), prior study predominantly emphasized examining the relationship from two perspectives: focusing on psychological wellbeing, and basic psychological needs satisfaction/self-determination theory as antecedents of entrepreneurial intention, with some studies extending Theory of planned behavior (Chu et al., 2026;; Wang *et al*. 2021; Sarfraz *et al.* 2025; Nadav *et al*. 2024; Zhang *et al.* 2015; Beatrice *et al.* 2024; Xanthopoulou *et al*; 2024; Sharma *et al.* 2025; Vasilios *et al*. 2024; M. Camino *et al*. 2019; Ibrahim Al-jubari,

2019;; Saurav Pathak, 2021), while others studied the relationship using psychological wellbeing, and basic psychological needs satisfaction/self-determination theory as mediation/moderation between attitude towards entrepreneurship and entrepreneurial intention (Chu & Tran , 2025; Irene Chu et al., 2025; Maike *et al*., 2022; Vu Tuan et *al*., 2025; Ibrahim *et al*. 2019; William E. *et al*. 2023; Murat *et al*. 2025). The findings underpin there is positive relationship between individuals who have strong psychological well-being and entrepreneurial intention with little variation which highlights negative and unrelated relationship. On the other hand some studies explored psychological wellbeing outcome from entrepreneurial engagement (shir et al., 2024; Stephan et al., 2022). Further the conceptual studies of Shir & Ryff (2022); Wiklund et al, (2019) and Ryff (2019) underpin conceptual foundation on how psychological well-being and entrepreneurship intertwine under entrepreneurial experience and venture creation phases.

Entrepreneurial work offer self-determination and personal fulfillment, providing individuals freedom and control that allow them to work around their disabilities and turn a bad situation around (Wiklund et al, 2019), lead to a fulfilling and fully functioning life and increase psychological well-being (shir et al., 2018). Despite its potential to increase psychological well-being, entrepreneurship can also leads to high level stress, fear and grief (Monsen and Wayne Boss, 2009; Mitchell et al., 2008; Jenkins et al., 2014), because of uncertainty and high work load (Lerman et al., 2021; Rauch et al., 2018). Even though both well-being and ill-being prevail in entrepreneurship, entrepreneurial work is inclined more towards positive well-being based on institutional context (Stephan et al, 2022). In this respect, any aspiring students/individual wants to create venture, their formation of intention is based on beliefs/perception they hold as belief is considered to be the prevailing determinants of a person's intentions and actions (Ajzen's ,1991). Given this importance and beliefs, how aspiring students perceive the relationship between entrepreneurship and psychological well-being, and how their perception determine entrepreneurial intention is insufficiently understood, because the prior studies failed to capture the perception of aspiring students. Thus, we are uncertain and do not know if it is only individual who have strong psychological wellbeing develop entrepreneurial intention or those who perceive entrepreneurship contribute to their psychological wellbeing enhancement also develop the same intention. Therefore, this study aims to shifts analytical focus distinctively towards aspiring students forward looking expectations of psychological well-being benefit from entrepreneurship to find answer to the question of how do students perceive the relationship between entrepreneurship and psychological well-being and does their perception of psychological well-being benefit entrepreneurship offers predict their entrepreneurial intention?

Accordingly, using Ajzen's (1991) Theory of planned behavior as a theoretical foundation to explain the assessment of beliefs/perception and intention, examining this perceptual perspective is important and relevant, given that the aspiring entrepreneur typically makes a decision to start a venture creation under limited experience in the field of business, and perception influence their decision. we suppose that decision to start a venture creation involve expectation and will be linked to an evaluation and view that entrepreneurship yields not only economic outcomes but also represent an intentional engagement leading the individual to a state of optimal personal functioning, enabling them to live independently and in alignment with their values and convictions (Ryff, 2019; Shir & Ryff, 2022), consequently, the one who perceive and believe entrepreneurship will contribute to their psychological

wellbeing tend to develop a favorable assessment of entrepreneurial engagement and that may drive entrepreneurial intention.

This study adopts theoretical-conceptual research design with the positivist epistemological perspective and scope of positive psychology. By synthesizing relevant and existing literature on psychological wellbeing, entrepreneurship, and entrepreneurial intention, we proposed entrepreneurial engagement can provide psychological wellbeing that are operationalized through autonomy, self-acceptance, purpose in life, environmental mastery, positive relation with others, and personal growth, which in turn influence entrepreneurial intention. However, before empirically testing the proposed relationship among variables, scale development and validation of perceived psychological wellbeing adapting from Ryff (2019) psychological well-being dimension will be conducted.

Accordingly, this essay encourages a debate about perceived entrepreneurial psychological wellbeing, as it invites broader understanding of psychological wellbeing in entrepreneurship and entrepreneurial intention by moving current individual psychological wellbeing states into consideration of the belief or expectation hold by aspiring students. In this aspect, we believe that entrepreneurship is pathway to psychological wellbeing and even, individuals with lower psychological wellbeing and tied to low socioeconomic standing may also flourish once engaged in entrepreneurial activity with perseverance and purpose driven endeavor.

The results will contribute to the theory of entrepreneurial intention by introducing "perceived entrepreneurial psychological well-being" as a new psychological construct, positing that the positive perception of these well-being-promoting factors drives the pursuit of entrepreneurship. Furthermore, from a practical and managerial perspective, the study's results will help universities, agencies responsible for public entrepreneurship policies, and entrepreneurship training centers rethink the design of their teaching and outreach programs in the field.

Finally, we recognize that through various logical arguments we have offered some assumption on new psychological constructs, with data yet to be collected. However, this assumption and framework provides a starting point, and we hope to create a systematic body of information about the interplay among entrepreneurship, perceived entrepreneurial psychological wellbeing, fear of entrepreneurial failure and entrepreneurial intention on which many scholars from many different fields join us

Keywords: entrepreneurship; perception; entrepreneurial psychological wellbeing; entrepreneurial intention

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ARTICULACIÓN INSTITUCIONAL Y REDES DE APOYO EN LA ECONOMÍA POPULAR Y SOLIDARIA EN ECUADOR

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Resumen

La Economía Popular y Solidaria (EPS) en Ecuador se concibe como un sistema en el que las organizaciones no actúan como entes aislados, sino que se relacionan con instituciones y estructuras de apoyo que articulan procesos de regulación, supervisión, financiamiento, capacitación, generación de información y acceso a mercados. Desde esta perspectiva, la investigación responde a la pregunta de cómo contribuye la articulación institucional al funcionamiento y fortalecimiento del ecosistema de la EPS en Ecuador. El supuesto de partida es que comprender el sector exige observar no solo las capacidades individuales de

cada organización, sino las conexiones que permiten la circulación de recursos, información, conocimientos y oportunidades.

La institucionalidad de la EPS se enlaza con el marco constitucional y legal ecuatoriano: la Constitución de la República reconoce el sistema económico como popular y solidario, y la Ley Orgánica de Economía Popular y Solidaria (LOEPS) establece el marco jurídico de las organizaciones del sector. Dentro de ese sistema, la Superintendencia de Economía Popular y Solidaria (SEPS) es el órgano técnico encargado de supervisar y controlar tanto a las organizaciones de la EPS como a las entidades del Sector Financiero Popular y Solidario (SEPS, 2026).

El estudio responde a un diseño cualitativo de alcance descriptivo, basado en el análisis documental de fuentes normativas e institucionales oficiales del ecosistema de la EPS ecuatoriana. La unidad de análisis no es la organización individual, sino la relación entre la organización y las instituciones de su entorno.

La selección de fuentes aplicó un criterio explícito: se incorporó únicamente documentación oficial de los actores que la propia LOEPS reconoce como parte del sistema institucional del sector, y se excluyó la literatura secundaria no vinculada a esos actores, con la excepción de un estudio de caso documentado académicamente. El corpus resultante está integrado por catorce documentos: tres instrumentos normativos (la Constitución de la República, la LOEPS y su Reglamento General), cinco documentos institucionales de la SEPS, cuatro de la Corporación Nacional de Finanzas Populares y Solidarias (CONAFIPS), uno del Servicio Nacional de Contratación Pública (SERCOP) y un estudio académico de caso.

El procedimiento analítico se organizó en cuatro pasos encadenados. Primero, se identificaron los actores institucionales reconocidos en el marco normativo. Segundo, se revisaron los instrumentos de apoyo que cada actor pone a disposición de las organizaciones. Tercero, esos instrumentos se clasificaron según la dimensión de articulación a la que corresponden, obteniéndose cinco dimensiones: supervisión y control, generación de información, integración económica, financiamiento y acceso a mercados. Cuarto, se analizaron las relaciones de complementariedad e interdependencia entre esas dimensiones, lo que permitió derivar las conclusiones del contraste entre los mecanismos previstos en la norma y las condiciones que su funcionamiento efectivo requiere.

El diseño declara de manera explícita su alcance: permite identificar y caracterizar los mecanismos de articulación previstos y sus relaciones de complementariedad, pero no permite estimar la cobertura ni la efectividad de cada mecanismo. Dicha estimación exigiría la explotación estadística de los microdatos del sector publicados por la Superintendencia.

La SEPS concentra las dos primeras dimensiones. Además de supervisar y controlar, cuenta con sistemas estadísticos que permiten caracterizar a las organizaciones y a sus socios y analizar variaciones en su distribución y composición a través del DATA SEPS (SEPS, 2025). La información opera así como un mecanismo de articulación y no solo como un registro, porque hace visible un ecosistema difícil de comprender cuando las organizaciones se observan de manera individual, y sirve de insumo para la planificación y la toma de decisiones de los demás actores.

La tercera dimensión es la integración económica. La LOEPS establece que esta busca complementar las operaciones de las organizaciones afiliadas mediante negocios conjuntos de producción, adquisición, administración o comercialización, y contempla cadenas o circuitos de producción y comercialización y el desarrollo conjunto de capacidades mediante alianzas estratégicas, consorcios, redes o grupos. Estas figuras permiten a las organizaciones de menor escala intercambiar información, capacitación, proveedores y canales comerciales. Sin embargo, la existencia formal de una red no implica que sus ventajas se materialicen: su eficacia depende de la participación de sus componentes, de la capacidad de coordinación y de la existencia de objetivos comunes.

La cuarta dimensión es el financiamiento. El Sector Financiero Popular y Solidario forma parte del sistema de la EPS e incluye cooperativas de ahorro y crédito, cajas centrales y mutualistas. En este campo, CONAFIPS actúa como institución pública de promoción y el financiamiento circula a través de una red de funciones complementarias: CONAFIPS aporta recursos y productos financieros, las organizaciones financieras actúan como intermediarias y los beneficiarios aplican los recursos a sus actividades. Su línea Crédito para la economía popular y solidaria contempla operaciones de hasta USD 85.000 individuales y hasta USD 200.000 asociativas, con un límite de USD 10.000 por beneficiario en estas últimas y plazos de hasta 72 meses (CONAFIPS, 2026). Disponer de recursos, no obstante, no garantiza por sí mismo el fortalecimiento organizacional: requiere combinarse con gestión, capacitación y asistencia técnica.

La quinta dimensión es el acceso a mercados, que opera por dos vías. La pública se canaliza mediante los Catálogos Dinámicos Inclusivos gestionados por el SERCOP, que permiten seleccionar proveedores de bienes y servicios normalizados y contemplan la participación de actores de la EPS cuando cumplen las condiciones correspondientes (SERCOP, s. f.); funcionan como puente entre la producción de las organizaciones y la demanda institucional del Estado. La segunda vía es la articulación en red de base territorial, que ilustra el Grupo Salinas en la provincia de Bolívar, cuya red comunitaria y de empresas asociativas transformó la economía local mediante la producción y exportación láctea (Pérez-Pérez et al., 2026). En ambas vías rige la misma condición: la existencia de oportunidades comerciales no garantiza su aprovechamiento, pues las organizaciones requieren capacidades productivas, administrativas y financieras previas.

El análisis muestra que el ecosistema de la EPS no depende de una sola institución, sino de una estructura de interdependencia: la SEPS aporta supervisión e información; CONAFIPS y el sector financiero conectan con los recursos crediticios; los organismos de integración favorecen las relaciones horizontales; y la contratación pública vincula con espacios de comercialización. La secuencia que revela esa interdependencia es concreta: una organización puede tener capacidad productiva y requerir financiamiento para expandirse; puede disponer de financiamiento y necesitar capacitación para fortalecer su gestión; y puede desarrollar productos o servicios y necesitar mecanismos de comercialización que la conecten con compradores. Las redes de apoyo funcionan, por tanto, como canales de circulación de recursos, información, conocimientos y oportunidades: fortalecen las relaciones horizontales entre organizaciones, mientras las instituciones públicas y financieras constituyen canales verticales de conexión con el entorno, permitiendo avanzar de capacidades individuales a capacidades colectivas.

La investigación también muestra que una estructura institucional amplia no asegura por sí sola una articulación efectiva, porque persisten desafíos relacionados con la informalidad, las capacidades de gestión, las diferencias territoriales y el acceso real a los mecanismos de apoyo.

En conclusión, la articulación institucional constituye una parte indispensable del ecosistema de la Economía Popular y Solidaria en Ecuador. Fortalecerlo no implica multiplicar instituciones o programas, sino mejorar la capacidad de conectar a los actores existentes para que los recursos se ajusten a las necesidades de las organizaciones. La integración de supervisión, información, integración económica, financiamiento y acceso a mercados es lo que permite que las capacidades individuales se conviertan en colectivas.

Finalmente, el diseño de este estudio señala su propia continuación. Estimar la cobertura y la efectividad de cada mecanismo de articulación, y cuantificar la dimensión territorial del apoyo identificada aquí como desafío persistente, requiere la explotación estadística de los microdatos que publica la Superintendencia. Esa línea de trabajo constituye la agenda de investigación derivada de estos hallazgos.

Palabras clave

Economía Popular y Solidaria; Articulación Institucional; Redes de Apoyo; Ecuador; Contratación Pública.

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TECHNOLOGY FOR SURVIVAL? ANALYSING THE AIS MODEL ON SMALLHOLDER

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Abstract

In the agri-food sector the technology is associated with high and low technology, with 'high-tech' encompasses all modern farming practices, the most common being precision agriculture and the Controlled Environment Agriculture (CEA). The precision agricultural represents the optimization of the efficiency of agricultural production systems (Gallardo et al., 2019) and their uses permit detects diseases at early time (Mamabolo et al., 2025) and enables the early detection of diseases across various types of products, such as a fresh fruit (Ramalho Marques et al., 2021). While the initial cost of adopting this technology may be higher than other options, it serves as strategy for reducing labor costs (Evans & Kumar, 2026). The CEA is increasing the uses, is indoor systems to help the food security. (Alhassan et al., 2026). Conversely, low technology is the basic equipment, relies on traditional agriculture and family farms (Senesi et al., 2017; Heintze et al., 2024). Digitalization involves automating production systems and forces incorporate technology (Hou, et al., 2023).

The Agricultural and Innovation System (AIS) model promotes knowledge transfer among actors from both private and public institutions, focus on introduction a new practices and products (Chave et al., 2012) and new mechanism to influence the adoption of innovation (Moreddu, et al., 2017).

In this study, five actor groups are recognized (Figure 1): farmers, Extension Programs, non-governmental organizations (NGOs), United States Department of Agriculture (USDA), and universities, those actors interact with one another and create knowledge (Chave et al., 2012)

The goal of this project is to describe the types of technology adopted by smallholder farmers as a survival strategy and examine how actors within the AIS model contribute to knowledge transfer in the United States.

The methodology comprises in-deep interviews were conducted in English with farmers and specialist/expert participants. Data were gathered in the South and Midwest U.S. during in-person summer field days (June and August 2025), and at the 2025 American Society for Horticultural Science (ASHS) conference in New Orleans.

Two analytical categories were used: deductive and inductive coding. The sample consisted of farmers and experts from Extension programs, NGOs, USDA, and universities (n = 17). Data analysis was conducted using NVivo software. The main results and discussion include the AIS model that supports multidirectional, non-linear knowledge exchange among actors, where the Extension program and the universities are key in the knowledge transfer, they are help to technical support through the

Figure 2 illustrates three types of technology adopted by smallholders: high-tech, low-tech, and Information and Communication Technology (ICT). Smallholders generally associate 'high technology' with GPS and drones. Interestingly, although GPS is highly regarded as a relevant high-tech tool, it is actually used by very few farmers. An example of low technology is the tractor, which remains highly useful. Meanwhile, ICT operates on two fronts: first, it strengthens collaborative networks to support knowledge transfer; and second, it drives process innovation by improving product commercialization dynamics.

In our study in the U.S., according to the AIS model, five actors serve as channels for transferring knowledge (farmers, Extension Programs, NGOs, USD, and universities). Extension programs, in particular, connects the university with farmers and sometimes they teach farmers how to track soil temperature, support them in diversifying production, although the universities act as educators, for example. In some situations, the NGOs provided access to the agricultural market and established links with other farmers, who in turn share practical information with one another; for example, when they implement a new technology, the advantages and disadvantages of adopting it are explained at field days organized by these organizations. For these reasons, these actors play a key role in knowledge transfer within this model.

In conclusion, the AIS approach in small-scale agri-food systems promotes knowledge exchange among NGOs, Extension programs, and farmers. This flow of knowledge supports the adoption of innovation that improves farm management, strengthens production planning, reduces labor requirements, and optimizes resource use.

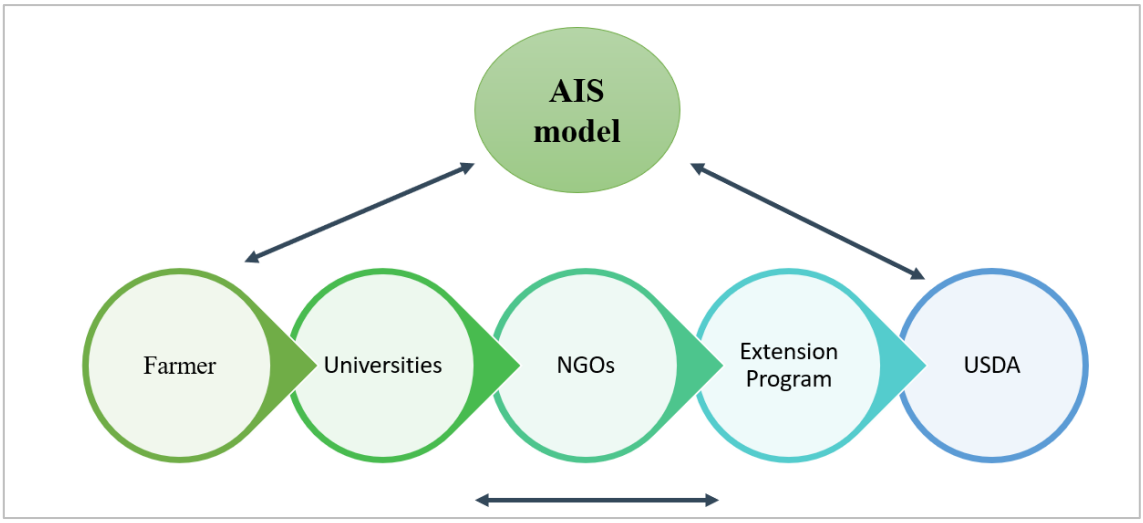


Fig. 1 Actor in the Agricultural Innovation System. Each circle represents an actor, while the bidirectional arrows indicate multi-actor knowledge transfer. This illustrates a system where all actors actively contribute to the exchange of information, ensuring a continuous flow of knowledge.

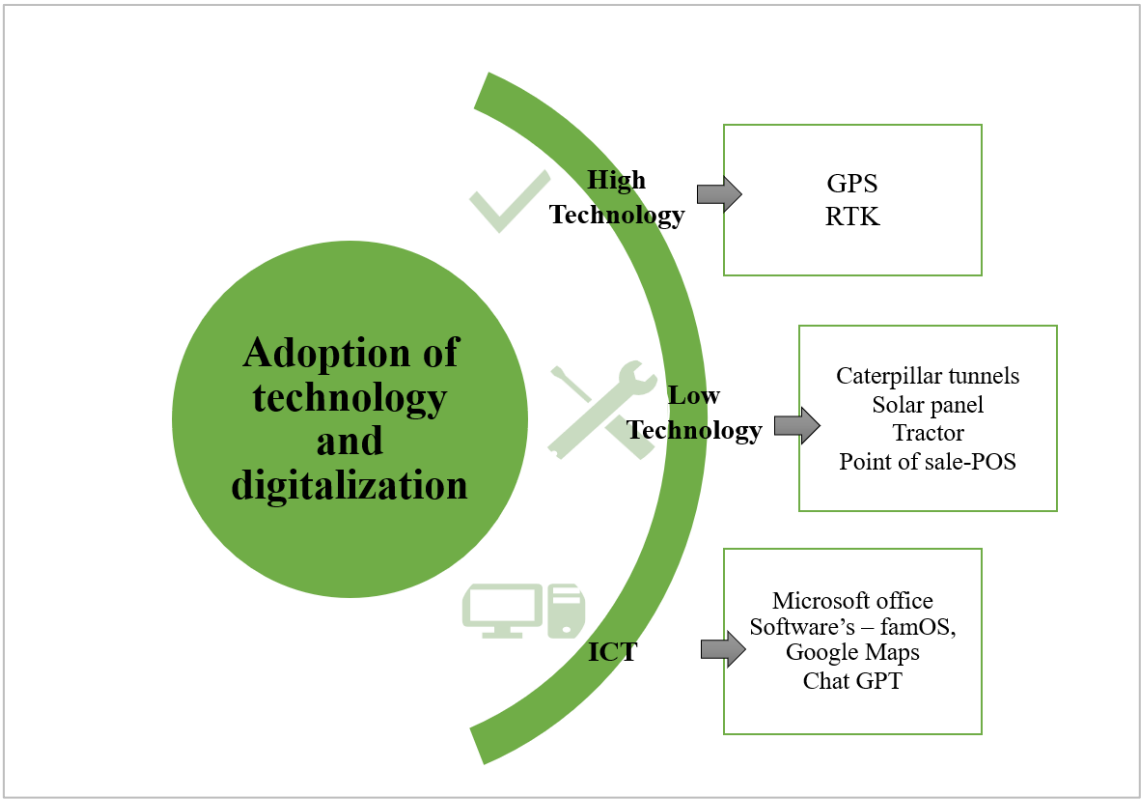


Fig. 2. Types of technology and digitalization adopted by smallholder

Keywords: agricultural and innovation system, agri-food, innovation, digitalization, small-scale farm

Acknowledgements

This study was funded by Arequipa Nexus Institute and a grant from the U.S. Department of Agriculture's National Institute of Food and Agriculture (USDA-NIFA-OREI_ program - Grant # 2024-51300-4337, and the PID2023-150150OA-C32 project funded by MICIU/AEI/10.13039/501100011033 and FEDER, UE

We also thank Purdue University, United States, the National University of San Agustin of Arequipa (UNSA), Peru [Universidad Nacional de San Agustín de Arequipa], and the Polytechnic University of Valencia, Spain [Universitat Politècnica de València].

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BUILDING REGIONAL GREEN HYDROGEN ENTREPRENEURIAL POTENTIAL INDEX (RGHEPI)

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Abstract

Entrepreneurial opportunity theory provides a foundation for assessing specific business endeavours (Ardichvili et al., 2003). Entrepreneurial opportunities arise from external environmental conditions (Alvarez et al., 2013); however, entrepreneurs must evaluate their attractiveness, feasibility, and risks before pursuing them (Shane & Venkataraman, 2000; McMullen & Shepherd, 2006). Such an evaluation requires information on market, institutional, technological, and resource conditions (Keh et al., 2002; Edelman & Yli-Renko, 2010). Within this theoretical perspective, the entrepreneurial potential of regional green hydrogen can be assessed.

This study addresses the question: How can regional ecosystem conditions and project feasibility be integrated to assess green hydrogen entrepreneurial potential?

The research aims to develop a tool for assessing green hydrogen development potential across regions and countries. To achieve this objective, the study employs the Political, Economic, Social, Technological, Environmental, Legal, and Infrastructure (PESTEL-I) framework to operationalise external regional determinants alongside project-level techno-economic assessment (TEA) of green hydrogen entrepreneurial opportunities. Project-level techno-economic feasibility is examined using capital expenditure (CAPEX), operating expenditure (OPEX) and the levelized cost of hydrogen (LCOH) etc. (Sadiq et al., 2023; Sawhney et al., 2023). Finally, PESTEL-I and TEA determinants are weighted using Analytic Hierarchy Process (AHP) to establish an evidence-based weighting system.

AHP, developed by Thomas Saaty in the late 1970s, provides a structured approach for prioritising multiple criteria through pairwise comparisons and ratio-scale weighting. AHP pairwise comparisons are derived from existing scientific literature and policy evidence instead of expert surveys. Integrating PESTEL-I, TEA and AHP connects regional

entrepreneurial opportunity conditions with project feasibility and criterion importance, forming the Regional Green Hydrogen Entrepreneurial Potential Index (RGHEPI) for regional green hydrogen entrepreneurship comparison.

The PESTEL-I and TEA criteria are weighted according to their importance for green hydrogen development and project feasibility. Judgements are converted to Saaty's 1–9 scale, where 1 represents equal importance and 9 represents extreme importance. Intermediate and reciprocal values reflect the relative importance of the compared criteria. Pairwise comparisons are documented with supporting sources (scientific studies, policy documents, and assessment reports) and justifications for the assigned values. AHP weights are calculated, with consistency assessed using the Consistency Ratio (CR). Values below 0.10 are acceptable, ensuring reproducibility.

This study adopts a modified PESTEL framework to assess green hydrogen ecosystems and regional readiness. Although the social dimension is an important component of the conventional PESTEL framework, it is excluded because RGHEPI focuses on measurable regional ecosystem conditions and project-level techno-economic factors directly influencing hydrogen entrepreneurial opportunities and investment feasibility. Social aspects, such as public acceptance and engagement, remain relevant but are beyond the current scope, particularly due to challenges in ensuring consistent and comparable measurement across regions. The modified PESTEL-I includes infrastructure while leaving social indicators for future research. PESTEL-I is structured into four business-oriented groups comprising 14 criteria and 44 indicators.

AHP assigns criteria weights using Saaty's 1–9 scale.

The normalized priority weight for matrix $A = [a_{ij}]$ is calculated as:

$$w_i = \frac{1}{n} \sum_{j=1}^{n} \frac{a_{ij}}{\sum_{k=1}^{n} a_{kj}}$$

where a_{ij}denotes the relative importance of criterion i over j, n is the number of criteria, and $\sum_i w_i = 1$.

For hierarchical criteria, the global weight:

$$G_{ij} = W_i w_{ij}$$

where $W_i$is the parent weight and $w_{ij}$is the local indicator j weight.

The consistency of the judgments is evaluated as:

$$CR = \frac{(\lambda_{\max} - n)/(n-1)}{RI}$$

where λ_{max} is the maximum eigenvalue and RI is the Random Index. A value of $CR < 0.10$ indicates acceptable consistency.

AHP Assessment of PESTEL-I Indicators

Criteria of Analyses	Weight within criteria (%)	Overall weight (%)
Economic and Market		**35**
1. Current hydrogen demand	**30**	10.5
H_2 demand, regional (t H_2/year)	55	5.775
H_2 demand, international (t H_2/year)	45	4.725
2. Hydrogen-relevant industries	**35**	12.25
H_2-relevant companies (number)	35	4.288
Industrial H_2 demand potential (t/year)	65	7.963
3. Future local market development potential	**35**	12.25
Expected H_2 demand growth, regional (%/year)	30	3.675
Expected H_2 demand growth, international (%/year)	20	2.450
Planned H_2 production projects (number)	50	6.125
Resource and Regional Conditions		**30**
4. Renewable-energy potential	**30**	9
Photovoltaic potential (kWh/day)	35	3.15
Wind energy potential (W/m²)	40	3.6
Hydropower potential (TWh/year)	25	2.25
5. Renewable-electricity generation	**25**	7.5
Hydropower (GWh/year)	30	2.25
Wind energy (GWh/year)	35	2.625
Solar power (GWh/year)	35	2.625
6. Planned electricity plants	**25**	7.5
Solar plants, capacity ≥2 MW (MW)	40	3
Wind farms, capacity ≥10 MW (MW)	35	2.625
Hybrid plants, capacity ≥2 MW (MW)	25	1.875
7. Water-resource availability	**20**	6
Freshwater resources (m³/year)	60	3.6
Water stress level (%)	40	2.4
Policy and Regulatory Environment		**15**
8. Government support	**40**	6
H_2 planning documents (number)	25	1.5
Support programmes (number)	25	1.5
Available financial support (euro)	50	3
9. Regulatory framework	**35**	5.250
Regulatory acts (number)	60	3.150
H_2 working groups (number)	40	2.10

10. Permitting conditions	**25**	3.750
Permits required (number)	40	1.5
Average permitting time (years)	60	2.25
Technical and Infrastructure		**20**
11. Electricity-grid accessibility and capacity	**25**	5
Grid connection capacity (MW)	45	2.25
Electricity grid density (km/1000 km^2)	20	1
Average grid connection time (years)	35	1.75
12. Renewable electricity availability	**25**	5
Hydropower plants, capacity ≥5 MW (GWh/year)	20	1
Wind turbines, capacity ≥600kw (GWh/year)	30	1.5
Solar parks, capacity ≥2MW (GWh/year)	30	1.5
Renewable electricity cost (€/MWh)	20	1
13. Hydrogen and natural gas transport and storage	**30**	6
H_2 fuel stations (number)	8	0.48
Ports (number)	8	0.48
NG network (% of territory)	12	0.72
H_2 pipeline network (km)	20	1.2
Cities with NG network, pop. ≥5,000 (%)	12	0.72
NG storage, capacity ≥ 1 million m³ (number)	8	0.48
H_2 storage, capacity (m³)	20	1.2
H_2 storage facilities, capacity ≥1,000 m³ (number)	12	0.72
14. Planned hydrogen infrastructure	**20**	4
H_2 production sites (t/year)	35	1.4
H_2 infrastructure projects (number)	30	1.2
H_2 refuelling stations (number)	20	8
LNG terminals (number)	15	6

Due to their multi-faceted nature, hydrogen projects often involve derivative production (ammonia, synthetic fuels, fertilizers, etc.) and energy supply. Consequently, TEAs must accommodate different criteria. The framework ensures flexibility and scalability beyond individual project conditions.

Project-Level TEA Criteria Model

Criteria of Analyses	**Weight within criteria (%)**	**Overall weight (%)**
CAPEX		**16.4**
1. Total project (euro)	25	4.1
2. Electrolyzer equipment (euro/kW)	50	8.2
3. Energy installations (euro/kW)	25	4.1
OPEX		**19.7**
4. Electricity cost (euro/MWh)	57.3	11.28
5. Water cost (euro/m³)	10.7	2.11

6. Fixed OPEX (euro/year)	17.9	3.53
7. Variable OPEX (excl. electricity) (euro/kg H_2)	14.1	2.78
Revenue and Profitability		**31.16**
8. H_2 selling price (euro/kg H_2)	14.6	4.55
9. Annual H_2 revenue (euro/year)	11.3	3.51
10. Levelized H_2 Cost (LCOH) (euro/kg H_2)	22.6	7.03
11. Net Present Value (NPV) (euro)	20.2	6.28
12. Internal Rate of Return (IRR) (%)	11.3	6.28
13. Payback period (years)	11.3	3.51
Production and Performance		**22.92**
14. Annual H_2 production (t H_2/year)	30.5	6.99
15. Electrolyzer utilization (%)	30.5	6.99
16. Specific electricity consumption (kWh/kg H_2)	27.7	6.35
17. Electrolyzer lifetime (years)	11.3	2.59
Sensitivity		**9.84**
18. Electricity-price (% /euro/kg H_2)	41.3	4.08
19. H_2 selling-price (% /euro/kg H_2)	32.7	3.21
20. CAPEX (% /euro/kg H_2)	26	2.55

The existing literature consistently identifies economic factors as dominant in green hydrogen industry development, accounting for about 30-40% of the overall weighting (Hamoud et al., 2026; Rouzbahani et al., 2026; Rocha et al., 2025). Within this perspective the TEA assesses ROI, CAPEX and OPEX to determine project viability and long-term competitiveness.

The RGHEPI is developed using a multi-criteria decision-making approach based on AHP, integrating two dimensions PESTEL-I (P) and TEA (T). Indicators are Min–Max normalised to ensure comparability, with higher scores for desirable benefits and lower scores for cost and risk factors. The normalised indicators are combined by AHP derived weights and the weighted PESTEL-I and TEA scores are integrated to obtain the final RGHEPI score. Higher values indicate higher green hydrogen ecosystem potential.

Min-Max Normalization

$$z_{ij} = \begin{cases} \dfrac{x_{ij} - \min(x_j)}{\max(x_j) - \min(x_j)}, & \text{benefit} \\ \dfrac{\max(x_j) - x_{ij}}{\max(x_j) - \min(x_j)}, & \text{cost/risk} \end{cases}$$

where x_{ij} is the raw criterion value and z_{ij} is the normalized value $[0, 1]$.

Weighted Aggregation

$$S_{ir} = \sum_{j=1}^{n} w_j \, z_{ijr}$$

where S_{ir} is the weighted dimension score, w_j is the AHP weight, and z_{ijr} is the normalized indicator value.

RGHEPI Calculation

$$RGHEPI_r = \sum_{i=1}^{m} W_i \, S_{ir}$$

where W_i is the global AHP weight and S_{ir} is the dimension score.

Weight Constraint

$$\sum_{i=1}^{m} W_i = 1$$

where W_i represents the relative importance of dimension i, with $i = \{P, T\}$ for PESTEL-I and TEA.

The main methodological limitation is the potential distortion of criterion weights by the unequal number of indicators and correlated determinants, even when AHP normalisation is used, thus requiring a balanced selection of essential indicators.

Some TEA indicators are not fully independent, as several financial measures are derived from common underlying variables. This may cause partial double counting, requiring careful indicator selection and correlation analysis.

Min–Max normalization scales scores relative to the observed regional range. Consequently, RGHEPI values may be sensitive to the addition or removal of regions, limiting direct comparability across different datasets or assessment periods.

The proposed index has not yet been empirically tested in specific regions or countries. Future research should focus on pilot applications and sensitivity analysis to evaluate its robustness and practical applicability.

Keywords: entrepreneurial opportunity, green hydrogen, techno-economic assessment, analytic hierarchy process

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MEASURING REGENERATIVE ENTREPRENEURSHIP: A CONCEPTUAL FRAMEWORK LINKING STRATEGIC ORIENTATION TO VERIFIED SOCIOECOLOGICAL OUTCOMES

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Abstract

Regenerative entrepreneurship raises a fundamental question for business research: how can enterprises demonstrate that they contribute to renewing the social and ecological systems on which they depend? As regeneration enters corporate strategies, business models, and investment narratives, measurement becomes essential for distinguishing ambition from demonstrated outcomes. Existing approaches provide complementary insights into strategic orientation, organisational practices, and environmental performance, but these dimensions should not be treated as interchangeable. Strong regenerative intentions do not necessarily produce observable improvements, while restoration projects may coexist with damaging activities elsewhere. This paper addresses the research question: How can regenerative entrepreneurship be assessed through a framework connecting strategic orientation, business model implementation, and verified socioecological outcomes?

Regeneration is understood as the renewal of the capacity of social and ecological systems to sustain life, wellbeing, and resilience. Applied to entrepreneurship, it directs attention towards how businesses create and distribute value through their relationships with nature and society. Konietzko et al. (2023) describe regenerative business models as oriented towards planetary health and societal wellbeing, involving multiple stakeholder levels

(Pratticò et al., 2025). Drupsteen and Wakkee (2024) further emphasise human–nature interdependencies and restoration in characterising these models. This perspective extends assessment beyond organisational efficiency to changes in the systems within which enterprises operate. Resource efficiency and harm reduction remain necessary, but improvements in these areas alone cannot establish that ecological functions or community capabilities have been restored.

The paper develops a conceptual framework through a focused synthesis of academic literature and a practitioner white paper. The materials cover regenerative business models, the Regenerative Orientation scale, performance measurement systems, and monitoring, reporting, and verification in regenerative agriculture. Derchi and De Stefano (2026) provide a complementary perspective on how regeneration enters value creation through core offerings, integrated processes, or activities financed by business revenues. The synthesis compares what these approaches measure, their units of analysis, and the evidence required to support their claims. It does not constitute a systematic literature review or report new survey findings. Its contribution is an integrative framework for empirical testing.

The first analytical result is the distinction between regenerative orientation and regenerative impact. Fischer-Kreer et al. (2026) developed a 12-item Regenerative Orientation scale comprising six social and six ecological items, assessed through seven-point agreement responses. Scale refinement and validation involved two samples totalling 1,680 responses. The instrument addresses organisational embeddedness, social responsibility, ecological restoration, environmental learning, and strategic adaptation. It assesses a firm's reported strategic positioning. However, psychometric validity does not establish that ecological or social improvements have occurred. Likewise, the reported association with firm performance does not demonstrate causality or verify net-positive impact. The study's geographical scope and reliance on organisational respondents also matter when transferring the instrument to other settings.

Building on this distinction, the proposed framework connects three measurement levels: orientation, implementation, and outcomes. At the orientation level, the existing scale offers a starting point for examining how regenerative principles inform corporate priorities. Social and ecological dimensions should remain visible separately so that strength in one does not conceal weakness in the other. Repeated assessment could track changes, while comparisons across organisational functions could reveal internal inconsistencies. Such extensions would require validation, particularly when modifying respondent groups, wording, or language. Survey responses should also be considered alongside strategic documents, investment decisions, and stakeholder accounts.

At the implementation level, measurement examines whether regenerative commitments shape the business model. The three architectures described by Derchi and De Stefano (2026) help specify different pathways. Where regeneration forms the core offering, assessment should connect sales and delivery to promised restoration outcomes. Where regeneration is integrated into production, attention shifts to sourcing, operational decisions, governance, and stakeholder relationships. Where commercial revenues finance external regenerative activities, evaluation should trace funding through to project results while accounting separately for the underlying business footprint. These architectures identify where to

investigate the relationship between economic activity and regeneration; they do not certify that a business is regenerative.

Implementation indicators could include procurement covered by verified restoration requirements, resources allocated to ecological recovery, or community participation in decisions. These indicators describe commitments and practices. They should be linked through an explicit theory of change to expected outcomes rather than treated as impact measures themselves. Hectares enrolled in a programme indicate its reach, whereas changes in habitat condition indicate ecological results. Training expenditure records an input, while improved employment security concerns social outcomes. This distinction supports the integration of planning, measurement, analysis, and improvement in regenerative performance management discussed by Krstić et al. (2025).

At the outcome level, measurement assesses changes in the affected systems. Ecological indicators should reflect local conditions and material pressures, potentially including soil organic carbon stocks, habitat condition, water quality, and biodiversity. Social indicators could address livelihood stability, health, equitable access to resources, and community agency. Economic indicators remain relevant to business durability and benefit distribution, but profitability cannot substitute for evidence of social or ecological recovery. Research on sustainability performance measurement also supports integrating indicators with stakeholder perspectives and making tensions visible rather than reducing assessment to reporting (Vitale et al., 2025).

Credible outcome assessment requires explicit boundaries, baselines, time horizons, and reference conditions. A baseline records the initial situation; a counterfactual estimates what would have happened without the intervention. Their distinction matters because observed improvements may reflect external developments rather than entrepreneurial action. Reference conditions and locally relevant ecological or social thresholds help assess whether improvement is sufficient. The framework therefore proposes examining additionality, durability, displacement of harms, and uncertainty. Benefits arising through partnerships require transparent allocation of contributions to avoid double counting. Financial gains should not automatically compensate for ecological losses, nor should improvements for one stakeholder group conceal deterioration for another.

Monitoring, reporting, and verification provide the evidence infrastructure connecting these levels. Lakatos et al. (2025) discuss combining direct measurements, sensors, and remote sensing in regenerative agriculture. This offers methodological guidance, although agricultural metrics cannot simply be transferred to every sector. The proposed framework combines context-specific measurements with documented protocols, stakeholder evidence, and independent verification proportionate to the claim. A shared measurement structure can support comparison while retaining local indicators. For smaller enterprises, a limited set of material measures may be more practical than extensive reporting, provided that boundaries, missing evidence, and uncertainty remain explicit.

The framework's main contribution is to explain regeneration as an evidence chain connecting intention, action, and system change. For entrepreneurs, it can guide investment and identify gaps between ambition and delivery. For investors and public institutions, it

clarifies the evidence needed to assess claims and support learning. Its principal limitation is its conceptual status: the integrated framework has not been empirically validated, and thresholds and attribution remain context-dependent. Future research should test whether reported orientation predicts implementation and whether implementation produces durable outcomes, using longitudinal data and independent stakeholder perspectives. Measuring regeneration ultimately requires showing how entrepreneurial activity contributes to the continuing capacity of social and ecological systems to renew themselves.

Keywords: Regenerative entrepreneurship; regenerative orientation; impact measurement; socioecological systems; monitoring, reporting and verification.

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DIGITAL TECHNOLOGY AND ENTREPRENEURSHIP IN TOURISM: HOW CONSUMER BEHAVIOR SHAPES THE STRATEGIES OF TRAVEL AGENCIES

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Abstract

A traveller today can research a destination, compare hotels, read online reviews and organise an entire trip without ever speaking to a travel agent. This has changed the competitive environment of tourism and raises a question for small travel agencies: if customers can do so much on their own, where does the entrepreneur still create value?

This paper examines how digital technology and changing consumer behaviour are perceived to shape entrepreneurship in the travel agency sector. It treats digital transformation not simply as the adoption of new technologies, but as a broader change in how tourism businesses create value, compete and build relationships with customers. Drawing on the literature on disintermediation and reintermediation and on dynamic capabilities theory, the paper addresses three research questions about the role of agencies in the digital customer journey, the conditions under which customers seek professional help, and the capabilities agencies need.

The study uses a mixed-method design: an online questionnaire completed by 50 tourism professionals from Europe (primarily Romania) and Asia (primarily India), five written qualitative interviews with owners and managers of travel agencies (focused on the Romanian market), and participant observation based on the author's experience of managing a small travel agency in Romania. All three sources reflect the supply side of the market; no consumers were surveyed, and the findings therefore concern agencies' perceptions of customer behaviour rather than customer behaviour itself.

The findings indicate that digitalisation has changed, rather than removed, the reasons for which customers work with agencies. Interviewees perceive the need for advisory support to grow as trips become more complex, uncertain, time-constrained or associated with greater responsibility, while 90% of surveyed professionals rate digitalisation as highly important and the lack of qualified personnel is the most frequently cited barrier. On this basis the paper proposes the concept of *staged consumer autonomy* as a proposition to be tested in future consumer-side research. For small and medium-sized agencies, the results point towards a consultancy-oriented model built on niche specialisation, expertise and trust, with technology supporting, rather than replacing, the value proposition.

Keywords: digital technology; tourism entrepreneurship; digital transformation; consumer behavior; travel agencies; dynamic capabilities; reintermediation

1. Introduction

The internet has profoundly changed how tourism products are distributed, priced and consumed. Information that was once held by travel agents, such as timetables, hotel descriptions and fares, is now available to anyone with a smartphone, and online reviews give travellers a view of the experience of other customers before they buy. Digitalisation has altered distribution channels, increased price transparency and given consumers much greater access to tourism information, creating new opportunities while also putting pressure on traditional intermediaries (Bekele & Raj, 2024; Navío-Marco et al., 2018; Pencarelli, 2020).

For small travel agencies this is not an abstract trend but a daily commercial question. Competing with large online platforms on price, scale or the number of products offered is difficult for a small business. The entrepreneurial problem is therefore to identify where, in a market in which customers can act independently, a small agency can still create and capture value.

Existing research documents the transformation of tourism intermediation well, but it pays less attention to how small agencies, as entrepreneurial firms, respond in practice, and it rarely combines evidence from more than one national context. This paper contributes to that discussion in three ways. First, it frames the agency's response to digitalisation as an entrepreneurial and capability question rather than a technology-adoption question. Second, it combines survey, interview and observational evidence from the supply side, in two regions, Europe (primarily Romania) and Asia (primarily India). Third, it proposes the concept of staged consumer autonomy to describe how digital channels and human advisors may play complementary roles at different stages of the same customer journey.

The paper is explicit about its limits. Because the empirical material comes from agency professionals and from the author's own practice, it shows how agencies perceive and respond to customer behaviour; it does not measure customer behaviour directly. The central claims are accordingly presented as propositions that future consumer-side research should test (Section 6).

The remainder of the paper is organised as follows. Section 2 reviews the literature and states the research questions. Section 3 describes the methodology, including the author's position as researcher and practitioner. Section 4 presents the findings. Section 5 discusses implications for tourism entrepreneurship, Section 6 sets out limitations and directions for future research, and Section 7 concludes.

2. Theoretical background and research questions

2.1 Disintermediation and reintermediation in tourism

Early work on e-tourism predicted that the internet would remove intermediaries from the tourism value chain, allowing suppliers such as airlines and hotels to sell directly to

customers (disintermediation). A later and more nuanced line of research showed that new kinds of intermediaries emerged, including online travel agencies, metasearch engines and review platforms (reintermediation), and that traditional intermediaries survived where they offered something that direct channels did not (Buhalis & Licata, 2002; Buhalis & Law, 2008). Reviews of three decades of research on information technology and tourism management confirm that technology has transformed the structure of the tourism market and the relationship between consumers and traditional intermediaries (Navío-Marco et al., 2018), and more recent syntheses stress that digital transformation is a broad organisational change rather than a collection of tools (Pencarelli, 2020; Bekele & Raj, 2024). The question is therefore not whether the traditional agency is disappearing, but in what form, and with what value proposition, it continues to exist.

2.2 Consumer behaviour and online information

Travellers increasingly begin the purchasing process independently: they search for destinations, compare alternatives and form expectations before contacting any business. Online consumer reviews have become an important part of this process and shape how travellers evaluate tourism products and services (Štefko et al., 2021). Greater access to information, however, does not by itself remove the need for help. Information has to be interpreted, compared, combined and trusted, and when something goes wrong someone has to take responsibility for solving it. This suggests that the value of an intermediary may shift from providing information to providing judgement, coordination and reassurance.

2.3 An entrepreneurial lens: dynamic capabilities

Dynamic capabilities theory explains how firms respond to changing environments by sensing opportunities and threats, seizing them, and reconfiguring their resources accordingly (Teece, Pisano & Shuen, 1997; Teece, 2007). The theory is a natural lens for the present problem. A small agency that observes changes in customer behaviour (sensing), decides to concentrate on a niche or an advisory service (seizing), and adapts its staff, processes and digital tools to support that choice (reconfiguring) is exercising precisely the capabilities that the theory describes. Using this lens allows the paper to ask not only what agencies do, but which organisational capabilities enable them to do it, which is directly relevant to the finding, reported below, that the lack of qualified personnel is the most significant barrier to digital development.

2.4 Research questions and propositions

On the basis of this background the study addresses three research questions:

RQ1. How do tourism professionals perceive the effect of digitalisation and changing customer behaviour on the role and value proposition of travel agencies?

RQ2. Under which trip conditions do professionals perceive customers to seek professional assistance in spite of their ability to research and book independently?

RQ3. Which capabilities and barriers do agencies identify in using digital technology to strengthen their position, and do these differ between the Romanian and Indian contexts?

The study is exploratory. In line with RQ2, it develops the following propositions, which are stated so that they can be tested with consumer data in later work:

P1. The perceived need for an agency increases with the number of components in a trip (for example flights, accommodation, transfers and activities).

P2. The perceived need for an agency increases with the level of uncertainty associated with the trip (for example unfamiliar destinations or changing entry or safety conditions).

P3. The perceived need for an agency increases when time is limited and when the customer wants someone else to bear responsibility for the outcome.

P4 (staged consumer autonomy). Customers tend to begin the journey autonomously, using digital channels for discovery and comparison, and move towards professional involvement at later stages when P1–P3 conditions apply.

3. Methodology

3.1 Research design and origin of the data

The study adopts an exploratory mixed-method design in which three sources of evidence cover different aspects of the research questions. The questionnaire provides descriptive, cross-regional evidence on professionals' attitudes, practices and barriers (RQ1, RQ3); the written interviews give depth and explanation from agency owners and managers (RQ1, RQ2); and participant observation illustrates everyday entrepreneurial practice (RQ2, RQ3). The sources are triangulated by comparing whether they point in the same direction, not by statistical integration. The survey and interview material was originally collected for the author's bachelor's thesis at FABIZ, ASE Bucharest, on the same topic, and is re-analysed here from an entrepreneurship perspective. The full questionnaire results, interview transcripts and regional comparison are available as appendices.

3.2 Survey

A structured online questionnaire was completed in 2026 by 50 tourism professionals: 30 from Europe (60%, primarily Romania) and 20 from Asia (40%, primarily India). The sample is not a probability sample and should not be considered representative of the sector. The questionnaire contained 17 questions in three blocks: organisational profile (Q1–Q5), digitalisation and customer behaviour (Q6–Q11) and digital strategies and innovation (Q12–Q17). Three questions (Q6, Q9 and Q11) used 5-point scales, from 1 (not important / not influenced) to 5 (very important / strongly influenced); the others were single- or multiple-choice questions. Table 1 describes the sample.

Table 1. Profile of the survey respondents (n = 50)

Characteristic	Categories (share of respondents)	Note
Region	Europe 60% (n = 30); Asia 40% (n = 20)	Europe primarily Romania; Asia primarily India

Characteristic	Categories (share of respondents)	Note
Type of agency	Mixed (tour operator and retail) 38%; tour operator 32%; retail 30%	Near-equal split across operating models
Size (employees)	Fewer than 10: 32%; 10–25: 40%; more than 25: 28%	72% have fewer than 26 employees
Years active	Under 5: 22%; 5–10: 34%; 10–20: 30%; over 20: 14%	44% active for more than 10 years
Location	Large city 40%; small or medium town 26%; capital 22%; online only 12%	

Source: author's survey (Appendix 1).

3.3 Written interviews

Five written qualitative interviews were conducted with owners, founders or senior managers of travel agencies, whose answers refer mainly to the Romanian market. They were selected to cover different business models, from a large agency with its own B2C and B2B platforms to small local and fully online agencies (Table 2). All interviewees received the same guide of open questions on the agency's digital evolution, the share of clients who first make contact online, client profiles, how informed clients are, the use of digital channels and AI, the effect of the COVID-19 pandemic, the advantage of an agency over online platforms, the future of the sector and turning points in digital transformation. The written format gave interviewees time to reflect and to provide figures from their own records, but it did not allow follow-up questions, which limits depth.

Table 2. Interviewees

Code	Agency and business model	Digital model
I1	Large Romanian agency with own B2C and B2B booking platforms; consultative, premium circuits and complex holidays	Hybrid (physical and online)
I2	Agency founded by a former tour guide of a large European tour operator	Fully online
I3	Agency in a small city in north-eastern Romania, with an established local client base	Hybrid (physical office plus online presence)
I4	Luxury travel agency specialising in high-end experiences	Fully online

Code	Agency and business model	Digital model
I5	Locally anchored agency in a small to medium-sized north-eastern Romanian city, growing mainly through referrals	Predominantly physical, digital presence growing

Source: author's interviews (Appendix 2). Interviewees are anonymised here.

The answers were read question by question and coded into recurring themes, following the logic of thematic analysis (Braun & Clarke, 2006). Theme counts below show how many of the five interviewees raised a theme; with five interviews they are descriptive only.

3.4 Participant observation

The author manages a small travel agency in Romania and used this position to observe everyday entrepreneurial practice: client communication, offer preparation, social media activity, booking organisation and the handling of unexpected situations. This observation is used to give context to the interview and survey findings and to check whether they are consistent with practice; it is not treated as independent evidence.

3.5 Researcher position and reflexivity

The author is at the same time the researcher and the manager of a small Romanian travel agency. This dual role gives access to the details of everyday practice that surveys cannot capture and helps in understanding interviewees' language and concerns. It also carries risks that should be made explicit (Berger, 2015). First, the author may pay selective attention to episodes that confirm the value of the agency model, which is also the author's own occupation. Second, observations of clients are interpreted from the agency's point of view, not the client's. Third, interviewees work in the same national market as the author, and in one case in the same local market, so they may have given socially desirable answers, and the author's position may have influenced which colleagues were approached.

Several measures limit these risks. The same interview guide was sent to all interviewees, the author's own agency was not among the agencies interviewed, and the interview and observation material was compared with the survey results to look for evidence that does not fit the argument. Because of the remaining limitations, the observational material is used only for context and interpretation, and the main findings rest on the survey and the interviews.

3.6 Ethics and data handling

Participation in the survey and in the interviews was voluntary, and interviewees were told that the interview was academic and confidential. Agencies and interviewees are anonymised in this paper.

4. Findings

This section presents the results by source and then draws them together. All findings should be read as perceptions of agency professionals, as explained in Sections 1 and 3.

4.1 Survey: digitalisation, customer influence and barriers

Digitalisation is almost universally seen as a strategic necessity. Ninety percent of the professionals surveyed rated its importance for their agency's success at 4 or 5 (70% gave the maximum score; mean 4.60 out of 5), and no respondent scored it below 3. Customers are perceived as strongly influenced by online reviews and social media (mean 4.36; 84% scored 4 or 5), and 90% perceived personalisation as more important than in previous years (mean 4.30). Digital processes are widespread: online booking and payment is used by 82% of agencies, digital marketing by 78%, CRM or ERP systems by 66% and digitalised customer service by 64%; 56% of agencies make more than half of their sales online.

The most frequently cited challenge of digitalisation is the lack of qualified personnel (38%), ahead of implementation costs (22%), customer resistance to change (22%) and data security (18%). The main bottleneck is therefore human capital rather than technology or cost. Views on the effectiveness of online marketing are less uniform: 44% consider it more effective but dependent on specialised expertise, while 34% see no significant difference from traditional marketing or consider the online environment too saturated to be consistently effective. In total, 98% of respondents expect digitalisation to reshape the industry at least moderately within five years, and 64% expect a significant or complete transformation. Table 3 summarises the main results.

Table 3. Main survey results (n = 50)

Indicator	Result	Scale / base
Importance of digitalisation for the agency's success	Mean 4.60; 90% scored 4–5	1–5
Influence of online reviews and social media on customers	Mean 4.36; 84% scored 4–5	1–5
Importance of personalisation compared with previous years	Mean 4.30; 90% scored 4–5	1–5
Online booking and payment digitalised	82%	% of agencies
Digital marketing and social media promotion digitalised	78%	% of agencies
CRM / ERP systems digitalised	66%	% of agencies
Customer service digitalised	64%	% of agencies
More than half of sales made online	56%	% of agencies
Biggest challenge: lack of qualified personnel	38%	% of agencies

Indicator	Result	Scale / base
Biggest challenge: implementation costs / customer resistance / data security	22% / 22% / 18%	% of agencies
Expect at least moderate reshaping of the industry in five years	98%	% of agencies

Source: author's survey (Appendix 1).

The survey does not measure the conditions under which customers need an agency (P1–P3), because it did not ask about trip characteristics. Its role in this study is to show the context in which agencies act and the barriers they face, while the interviews provide the evidence on RQ2.

4.2 Interviews: when do customers need an agency?

Four themes emerged from the interviews.

Customers arrive informed, and the consultant's role changes. All five interviewees stated that customers research destinations, prices and reviews online before contacting them. As a consequence, the consultant is no longer a provider of basic information. I1 described the role as "a quality filter, a validator of information, and a creator of experiences", and I4 said that the consultant's value now lies in location-specific knowledge rather than price information.

The need for an agency depends on the trip. Four interviewees (I1, I2, I3, I5) described a clear difference between simple and complex purchases. Customers who book online tend to buy standardised products such as a single accommodation or a short package, whereas multi-country circuits, safaris, expensive or distant trips and family holidays with specific logistics lead them to a consultant. I2 considered that "the perceived danger and complexity of the trip" are the main factors influencing the choice of booking method, and I3 explained that in-person customers look for "counsel, reassurance and the feeling that there is a person who knows them and takes responsibility for their trip". This is consistent with P1–P3.

The same customer moves between modes. Four interviewees (I1, I2, I3, I5) reported that the online and the assisted modes are not separate customer types. I1 and I2 each noted that the same customer may book a simple holiday online and use a consultant for the main annual trip, while I5 observed that customers who first contact the agency online often come in person for expensive or difficult trips, so that the first channel "does not necessarily determine the course of the rest of the relationship". I3 added that online enquiries usually come from customers in the "exploration or comparison phase", whereas in-person visits come from customers who have already decided to use an agency. These accounts are the closest empirical basis for P4. I1 also reported that the agency's own data show about 70% of customers making first contact online and around 10% visiting in person, with the physical agency remaining most relevant in the later stages of consultancy, personalisation and final decision. The same agency runs a separate platform for more autonomous, browsing-oriented customers, so as to expand its online presence without diluting its consultative positioning.

Technology complements human expertise. All five interviewees saw AI and CRM systems as tools that support the consultant, mainly by automating repetitive tasks, producing content and personalising communication. I4 stated that "you can't automate away the human part of the service". Three interviewees (I1, I3, I5) expected consolidation, with fewer agencies surviving and those that do clearly distinguished from platforms by knowledge, relationships and the capacity to manage complexity and disruption.

The interviews also show differences between business models. The fully online agencies (I2, I4) treat social media as the main acquisition channel and describe near-100% online first contact, whereas the locally anchored agency (I5) grows mainly through referrals and sees digital reach as a development opportunity. This variation suggests that the right balance between digital presence and personal service depends on the agency's model and market.

4.3 Participant observation: everyday practice

The author's everyday experience of running a small agency is consistent with the interview themes: customers frequently arrive with information gathered online, while the situations in which they ask for the agency's involvement are those in which several services have to be combined, something may go wrong, or someone has to take responsibility for the outcome. These observations helped to interpret the interview material and to formulate propositions P1–P4, but, given the author's dual role (Section 3.5), they are not used as separate evidence for the findings.

4.4 Comparison between Europe (Romania) and Asia (India)

At the level of fundamentals the two sub-samples are similar. European respondents rated the importance of digitalisation at 4.67 and Asian respondents at 4.50, and both groups named the lack of qualified personnel as the main obstacle (40% and 35%). The differences concern how digital channels are used (Table 4). Asian agencies relied more on social media for direct communication with customers (60% against 37%) and on Google Ads and SEO (50% against 33%), and they reported more customer resistance to change (40% against 10%). European agencies reported a higher adoption of CRM and ERP systems (70% against 60%), more concern about data security (27% against 5%), a greater use of websites for customer contact (57% against 35%) and a higher perceived influence of online reviews and social media on customers (mean 4.57 against 4.05). Fully complete reshaping of the industry within five years was expected by 37% of European and 20% of Asian respondents.

Table 4. Europe (primarily Romania, n = 30) and Asia (primarily India, n = 20)

Indicator	Europe	Asia	Fisher exact p*
Importance of digitalisation (mean, 1–5)	4.67	4.50	–
Influence of reviews and social media (mean, 1–5)	4.57	4.05	–
Importance of personalisation (mean, 1–5)	4.40	4.15	–

Indicator	Europe	Asia	Fisher exact p*
Online booking and payment digitalised	77%	90%	0.29
CRM / ERP digitalised	70%	60%	0.55
Social media used for direct customer communication	37%	60%	0.15
Website used for customer contact	57%	35%	0.16
Google Ads / SEO as main digital strategy	33%	50%	0.26
Lack of qualified personnel (main challenge)	40%	35%	–
Data security (main challenge)	27%	5%	0.07
Customer resistance to change (main challenge)	10%	40%	0.02
Expect complete reshaping in five years	37%	20%	0.35

*Source: author's survey (Appendix 3). *Two-sided Fisher exact test, computed on counts reconstructed from the reported percentages; exploratory, with no correction for multiple comparisons. Tests are not computed for the mean scores, as the score distributions by region are not reported here.*

The comparison is exploratory. Of the differences tested, only customer resistance to change is statistically significant at the 5% level ($p = 0.02$); the difference in the share of agencies naming data security as a challenge is borderline ($p = 0.07$), and the others are not statistically distinguishable with sub-samples of 30 and 20. The sub-samples were not selected to be representative and cover primarily one country in each region. The results therefore cannot be generalised to "Asian" or "European" agencies as a whole. What they do suggest is that the entrepreneurial response to digitalisation depends on the market, customer expectations, the existing business model and the capabilities of the individual agency, rather than following a universal model.

4.5 Towards staged consumer autonomy

Taken together, the interviews, the observation and the survey context suggest a pattern that can be described as staged consumer autonomy. Customers often begin the journey independently, using digital platforms to discover destinations, compare options and form expectations. Their independence does not, however, remain constant: as complexity increases, or when customers face time pressure or want someone to take responsibility for the outcome, professional involvement becomes more attractive. Digital channels and travel consultants should therefore not automatically be understood as competing alternatives, since they can perform different functions at different stages of the same journey. Table 5 summarises the concept in a form that can be operationalised.

Table 5. Staged consumer autonomy: a conceptual summary (propositions, to be tested)

Stage	Typical customer activity	Main role of digital channels	Role of the agency / advisor
1. Discovery	Searches destinations, reads reviews, forms expectations	Primary source of information and inspiration	Visible presence (social media, website); low direct involvement
2. Comparison and choice	Compares options and prices	Comparison, price transparency	Interpretation of options, personalised advice (stronger when uncertainty is high)
3. Booking and coordination	Combines flights, accommodation, transfers, activities	Transactions for simple, single-component bookings	Coordination of multi-component trips; saving time
4. Travel and after-sales	Faces changes, delays or problems	Information and notifications	Problem-solving, risk management, taking responsibility

Source: author's conceptualisation based on the interviews, the survey and participant observation.

Each stage is linked to the triggers stated in P1–P3 (number of components, uncertainty, time constraints and responsibility). In the present study these links are supported by the perceptions of professionals, mainly in the interviews; they have not been tested on customers.

5. Discussion: implications for tourism entrepreneurship

The results point towards a movement from a predominantly transactional model towards a more consultancy-oriented form of tourism entrepreneurship. Agencies that adapt successfully are not necessarily those attempting to compete directly with large online platforms on price or volume. They can instead build a position around qualities that are more difficult to reproduce at scale: specialist knowledge, personalisation, judgement, problem-solving, risk management and trust. In this sense digital technology becomes a tool that supports the business rather than the value proposition itself.

In terms of dynamic capabilities, the findings suggest that agencies need to be able to sense changes in how customers use information (for instance through contact with informed customers, reviews and social media), to seize opportunities by choosing a niche and an advisory role, and to reconfigure their resources by developing staff competence and combining technology with human skills. The finding that the lack of qualified personnel is the main perceived barrier indicates that the third of these capabilities is currently the weakest. For entrepreneurs, the relevant question is no longer whether a travel agency should "go digital", but how technology can strengthen the parts of the business that customers continue to value.

For small and medium-sized agencies this is both a challenge and an opportunity. Competing on scale, price or the number of available products is difficult; competing through expertise, a clearly defined niche and a strong relationship with customers is more realistic. Digitalisation can support this by allowing smaller businesses to communicate directly with potential clients and build a recognisable presence beyond their immediate geographical market. As basic information and standard transactions become increasingly accessible online, entrepreneurial value can move towards specialised knowledge, personalised advice, trust and the ability to manage complexity. The role of the entrepreneur shifts from simply connecting customers with tourism products towards designing a service around their individual needs.

These implications should be read together with the limitations below. In particular, whether customers actually behave as agencies perceive them to behave is an empirical question that this study cannot answer.

6. Limitations and future research

The study has several limitations. First, and most importantly, no consumer data were collected; all three sources reflect the supply side's perceptions of customers, so the paper cannot show how consumer behaviour shapes agency strategies, only how agencies believe it does. Second, the survey sample (50 professionals) was not a probability sample and is small; the sub-samples of 30 European and 20 Asian respondents allow only exploratory comparisons (only one of the differences tested is statistically significant), and the results cannot be generalised to other countries or to "Asian" and "European" agencies in general. Third, only five interviews were conducted, all focused on the Romanian market, and the written format did not allow follow-up questions. Fourth, the author's double role as researcher and agency manager may have influenced the observation and interpretation of the data, despite the measures described in Section 3.5.

These limitations suggest a clear agenda for future work. A consumer survey, or a choice experiment that systematically varies the number of trip components, the level of uncertainty, the time available and the allocation of responsibility, would allow P1–P4 to be tested directly. Larger samples in more countries would make a statistically supported cross-national comparison possible. Longitudinal studies could examine whether agencies that build advisory capabilities perform better over time, and research from the consumer side could also examine how emerging technologies, such as generative artificial intelligence, change the boundary between independent and assisted planning.

7. Conclusion

This paper has explored, from the supply side, how digital technology and changing customer behaviour affect entrepreneurship in the travel agency sector. Its main conclusion is that digitalisation has changed the reasons for which customers may choose an agency, rather than making agencies redundant. According to the agency professionals studied, advice, coordination, reassurance and responsibility become more important when trips are complex, uncertain or time-constrained, and the concept of staged consumer autonomy offers a way of organising these ideas for testing.

The future of travel agency entrepreneurship is unlikely to be either completely digital or purely human. It is likely to depend on how effectively entrepreneurs combine the two. Technology can make a business more visible, efficient and responsive, but human expertise remains particularly important when customers need judgement, reassurance and responsibility. For travel entrepreneurs the real challenge is not to compete against technology, but to use it intelligently while developing the human capabilities that give the business a reason to be chosen.

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ARTIFICIAL INTELLIGENCE ADOPTION INTENTION IN FOOD MANUFACTURING SMEs IN THE KSA: A QUALITATIVE STUDY THROUGH THE LENS OF DIFFUSION OF INNOVATION THEORY

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Abstract

Artificial intelligence (AI) is positioned within Saudi Vision 2030 as a strategic enabler of economic diversification, and small and medium-sized enterprises (SMEs) are expected to play a central role in this transformation (Abdelwaheed et al., 2026; Ubandawaki et al., 2026). Nevertheless, empirical evidence on how SMEs in the Kingdom of Saudi Arabia (KSA) form the intention to adopt AI remains scarce, particularly in manufacturing. Existing research has concentrated on large organisations or on SMEs in general, has favoured sectors such as healthcare, banking and education, and has relied predominantly on quantitative designs that reveal little about how decision-makers under resource constraints construct adoption decisions (Alanzi et al., 2023; Almashawreh et al., 2024; Al-Shahrani et al., 2026; Alkadi & Abed, 2025; Al-Mamary & Abubakar, 2025; Alsaadi et al., 2026; Mittal et al., 2018). Food manufacturing is an important non-oil activity in the KSA (Almohaimeed & Abouelnour, 2025), and its demands for precision, hygiene and product consistency create distinctive conditions for automation (Canatan et al., 2025; Naseem & Rizwan, 2025; Wang et al., 2025). Yet it has received almost no scholarly attention in relation to AI adoption. Following Welter's (2011) call to contextualise entrepreneurship research, this study treats the KSA food manufacturing SME setting not as background but as a context whose institutional, spatial, social and temporal dimensions shape how AI adoption intention is formed.

This paper draws on a wider doctoral study of AI adoption intention in food manufacturing SMEs in the KSA, which combines Rogers' (2003) Diffusion of Innovation (DoI) theory, the Technology-Organisation-Environment (TOE) framework (Tornatzky et al., 1990) and individual-level constructs from the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003). The present paper is deliberately limited to the technological dimension, which DoI captures through five innovation attributes: relative advantage, compatibility, complexity, trialability and observability. TOE and UTAUT are reserved for later papers, and Welter's (2011) perspective is used here only as a lens for reading how context shapes each attribute. The paper asks: how do decision makers in KSA

food manufacturing SMEs perceive the five DoI attributes of AI, and how do these perceptions differ between firms that have partially adopted AI and firms that are still at the intention stage?

The study adopts an interpretivist (Klein & Myers, 1999; Walsham, 1995), exploratory and abductive (Dubois & Gadde, 2002; Timmermans & Tavory, 2012) qualitative design (Curry et al., 2009). Data come from 30 semi-structured interviews with owners, chief executives, general managers and functional managers of food manufacturing SMEs, recruited through two-stage purposive (Palinkas et al., 2015) and snowball sampling (Biernacki & Waldorf, 1981; Leighton et al., 2021) that began at two industry exhibitions on industrial digitalisation and food manufacturing and extended through professional networks. The firms span the main industrial regions of the KSA and sub-sectors from bakery and dairy to meat, seafood, and fruit and vegetable processing. Under the Monsha'at (2022) definition, 17 were small and 13 medium-sized enterprises. Ten firms had partially adopted AI in their operations, while twenty had not yet adopted it but expressed a clear intention to do so, which allows perceptions to be compared across adoption stages. Interviews were conducted in Arabic, transcribed, translated into English and analysed through reflexive thematic analysis (Braun & Clarke, 2006, 2019) in NVivo, combining deductive codes from DoI with inductive codes from participants' accounts. Welter's (2011) lens sensitised the analysis to institutional, spatial and temporal differences. Ethical approval was obtained from Swansea University, and all participants were anonymised.

Relative advantage took three forms: enhanced operational performance and quality, including richer data analysis, earlier defect detection and more efficient inspection, with one adopter reporting a fall in production waste from around four per cent to almost zero; financial return, cost reduction and labour substitution; and reputational advantage through customer trust and differentiation. Compatibility operated through cultural alignment, involving organisational values, workforce attitudes and working practices, and technological alignment, whereby existing systems were experienced either as a foundation for AI or as a barrier to it. Complexity depended on where AI was applied: administrative applications were considered relatively easy, whereas integration into production lines was considerably more demanding. Perceived complexity often decreased with direct experience, however some challenges only emerged after adoption, including system maintenance, human oversight, employee over-reliance and continuous adjustment. Trialability influenced intention in two ways: pilots, phased implementation and limited trials reduced financial, operational and organisational risk, and direct experience assisted build trust among managers, employees and technical teams. Observability acted as both a motivator and a barrier: examples from similar-sized firms, the same sector or the Saudi market strengthened confidence, however, relevant examples were scarce for SMEs, for food manufacturing applications and for firms outside the main industrial centres.

Comparing the two groups across the five attributes shows a consistent contrast between realised and expected experience. For relative advantage, partial adopters described realised and often quantified gains, whereas intention-stage firms described expected gains, mainly product consistency, and, particularly among small firms, wanted proof under their own conditions. For compatibility, adopters described fit as built through use, while concerns

about workforce acceptance and product identity occurred mostly from small firms at both stages, so firm size mattered alongside adoption stage. For complexity, adopters described challenges they had already met, such as human oversight, employee use and monitoring, which intention-stage firms anticipated as barriers. For trialability, structured trials were reported mainly by medium-sized adopters, whereas small intention-stage firms found safe trials difficult because of cost, production constraints and vendors requiring full implementation, so adoption was more often delayed than rejected. For observability, examples had supported adoption among adopters, yet even they lacked production examples, leaving many intention-stage firms with awareness without action.
Two main insights follow. First, participants differed mainly in their experience of AI rather than in disagreement about its potential: AI adopters identified of realised benefits, managing complexity and greater trust, whereas non-adopters focused on expected benefits, possible challenges and the need for reassurance. Second, observability depended more on the relevance of examples than on their number. Examples from large firms, other countries or administrative uses raised awareness and interest but did not always strengthen adoption intention, so several firms remained at an observation stage because they lacked examples similar to their own firms.

The paper contributes to the AI adoption literature by providing context-specific qualitative evidence from an under-researched sector and economy, by refining the DoI attributes of complexity and observability for the AI context and showing them to be context-dependent, and by laying the foundation for integrating DoI with TOE and UTAUT to study AI adoption intention in resource-constrained SMEs. For policymakers and support bodies such as Monsha'at and the Saudi Data and Artificial Intelligence Authority, and for technology vendors, the findings point to low-risk pilot and phased-implementation programmes, sector-specific demonstrators in food production, and visible, relatable local SME success cases, in line with Vision 2030. Subsequent stages of the doctoral study will extend the analysis to organisational, individual and environmental factors and to their interplay.

Keywords: *artificial intelligence adoption; small and medium-sized enterprises; food manufacturing; Diffusion of Innovation theory; Saudi Arabia*

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GENERATIVE ARTIFICIAL INTELLIGENCE USE AND CREATIVE SELF-EFFICACY AMONG DESIGN STUDENTS AN EXPLORATORY STUDY USING AN EXTENDED UTAUT FRAMEWORK

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Abstract

Generative artificial intelligence (GenAI) offers students new ways to explore ideas, produce visual materials and develop prototypes. However, perceived usefulness and confidence in one's own creative abilities are distinct aspects of technology use. This exploratory cross-sectional study applies an extended Unified Theory of Acceptance and Use of Technology (UTAUT) framework to examine GenAI adoption and two dimensions of creative self-efficacy. Survey responses provide preliminary evidence on the proposed relationships without establishing causal effects or validating the full structural model.

The framework combines technology acceptance with confidence in creative work. UTAUT explains adoption through performance expectancy, effort expectancy, social influence and facilitating conditions (Venkatesh et al., 2003). Research on ChatGPT in higher education supports examining students' adoption decisions (Strzelecki, 2024). Creative self-efficacy concerns beliefs about one's capacity to produce creative outcomes (Tierney & Farmer, 2002), while distinguishing creative thinking from creative performance allows different stages of creative work to be considered (Abbott, 2010).

This distinction is relevant because AI-assisted output and independent creative confidence need not change together. Doshi and Hauser (2024) found that GenAI-generated ideas improved evaluations of individual short stories while reducing diversity across outputs. Although this does not establish effects on students' self-efficacy, it motivates examining technology use separately from beliefs about one's own creative capabilities.

The research question is how self-reported GenAI use relates to confidence in generating ideas and completing creative tasks. Creative idea self-efficacy (CISE) concerns producing original and useful concepts, exploring alternatives and developing ideas. Creative performance self-efficacy (CPSE) concerns implementing concepts, overcoming difficulties and completing and presenting creative work.

The contribution lies in connecting an adoption framework with separate measures of confidence in idea generation and task completion within a design-related student sample. Technology acceptance research explains why students may intend to use AI, while creative self-efficacy research concerns how capable they believe themselves to be. Bringing these perspectives together permits a more specific question than whether students generally

welcome AI. It also preserves the distinction between perceived capability and objectively assessed design performance.

The proposed framework hypothesises positive associations of performance expectancy (H1), effort expectancy (H2) and social influence (H3) with behavioural intention. Behavioural intention (H4) and facilitating conditions (H5) are hypothesised to be positively associated with use intensity. Use intensity is hypothesised to be associated with CISE (H6a) and CPSE (H6b), without specifying the direction of either relationship. The present analysis explores these seven bivariate associations rather than estimating simultaneous structural paths.

The proposed acceptance relationships have specific relevance to design workflows. Expected improvements in the speed or quality of concept development provide a rationale for H1. Lower perceived learning and interaction effort may make incorporating GenAI into existing tasks more attractive, motivating H2. Expectations communicated by lecturers, peers and professional communities provide normative cues that motivate H3. H4 connects intended engagement with reported use, while H5 reflects the practical role of access, knowledge and assistance in enabling use (Venkatesh et al., 2003; Strzelecki, 2024).

For H6a and H6b, AI-supported exploration may help students practise generating alternatives and developing concepts. However, students may attribute successful outputs partly to the tool rather than their own capabilities. These competing possibilities motivate nondirectional hypotheses. They are theoretical explanations to investigate, not mechanisms demonstrated by the present survey. Distinguishing the two self-efficacy dimensions also avoids assuming that confidence at the ideation stage necessarily translates into confidence in completing a project.

The cross-sectional online survey yielded 16 submissions from eligible participants in September 2026. Participants were recruited through messages distributed to student groups. All respondents provided voluntary consent, were aged 18–25, belonged to the intended design-related student population and had used GenAI within the preceding six months. All 16 respondents completed the 37 scale items, and all submissions were included in the analysis. The questionnaire was available in Russian and English.

The questionnaire comprised performance expectancy (five items), effort expectancy (three), social influence (four), facilitating conditions (four), behavioural intention (four), use intensity (five), CISE (six) and CPSE (six). Composite scores were calculated as item means using the recorded 1–7 responses. Spearman rank correlations were assessed using two-sided Monte Carlo permutation tests with 199,999 random permutations, a plus-one correction and NumPy generator seed 643. Holm adjustment was applied across the seven comparisons at a family-wise significance level of .05. These exploratory tests assess bivariate associations rather than simultaneous structural paths; PLS-SEM was not performed.

Technology acceptance items were adapted for GenAI-related academic and creative tasks. The creative self-efficacy items were informed by the distinction between creative thinking and creative performance (Abbott, 2010). CISE is the present study's operationalisation of confidence in generating ideas; it is not presented as an unchanged administration of Abbott's creative thinking self-efficacy instrument. Internal consistency was examined using Cronbach's alpha. Across the eight composites, estimates ranged from .621 to .967; social influence yielded $\alpha = .706$ and facilitating conditions $\alpha = .621$. The latter warrants caution when interpreting its composite score. With only 16 respondents, these estimates remain uncertain and do not constitute measurement-model validation.

Mean use intensity was 4.48 (SD = 1.68), while CISE and CPSE averaged 6.09 (SD = 1.10) and 5.82 (SD = 1.09), respectively. Use intensity was not significantly associated with CISE ($\rho = -.067$, unadjusted $p = .800$) or CPSE ($\rho = .181$, $p = .499$). Social influence was positively associated with behavioural intention ($\rho = .776$, $p < .001$; Holm-adjusted $p = .004$). The remaining correlations were performance expectancy–intention ($\rho = .446$, $p = .085$), effort expectancy–intention ($\rho = -.060$, $p = .825$), intention–use intensity ($\rho = .594$, $p = .018$), and facilitating conditions–use intensity ($\rho = .564$, $p = .024$). Except where explicitly labelled as Holm-adjusted, these p-values are unadjusted. Only the social influence–intention association met the adjusted significance criterion.

The exploratory bivariate analysis provides statistical support for the positive association proposed in H3, linking social influence with behavioural intention. H1, H2, H4, H5, H6a and H6b did not receive statistical support after adjustment for multiple comparisons. This does not establish that those relationships are absent. The findings do not demonstrate that GenAI use increases or decreases creative self-efficacy. The small sample, self-report measures and cross-sectional design restrict precision, generalisability and causal interpretation.

The study contributes an operationalised framework and an empirical exploratory analysis that separates confidence in idea generation from confidence in completing creative work. Social influence emerged as a correlate of intention to use GenAI, warranting replication in a larger sample. For design and entrepreneurship education, the distinction between idea generation and task completion can guide future investigation of AI-supported concept development and prototyping, although educational effectiveness and entrepreneurial outcomes were not measured. Further research should assess the adapted measures and recruit a larger sample justified by the intended analyses before testing the structural model.

Keywords: generative artificial intelligence; creative self-efficacy; design students; UTAUT; exploratory survey

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HOW START-UP DECISION-MAKERS EVALUATE AND PRIORITIZE INFLUENCER COLLABORATIONS IN PREMIUM AND LUXURY MARKETS

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Introduction

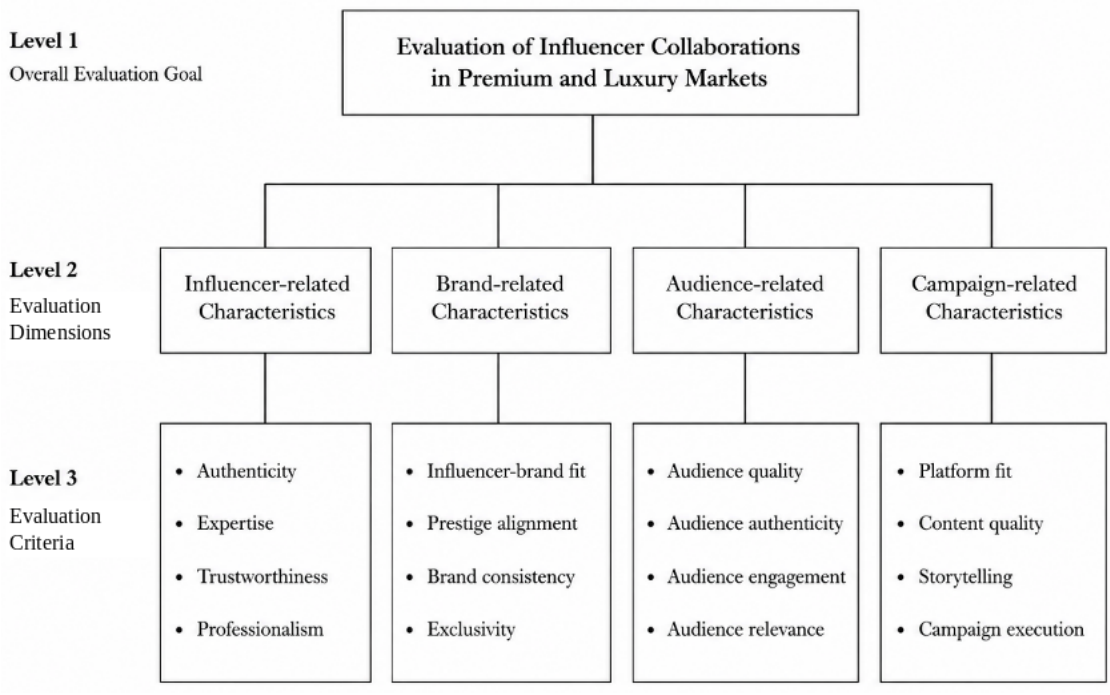
The growing use of influencers in digital marketing has increased the strategic relevance of influencer collaborations. Research has identified credibility, expertise, authenticity, and influencer-brand fit as important factors in influencer marketing effectiveness (Breves et al., 2019; Hudders et al., 2021; Lee & Eastin, 2021; Lou & Yuan, 2019; Schouten et al., 2020). For start-ups operating in premium and luxury markets, influencer selection is particularly important because collaborations may need to generate visibility, credibility, and consumer trust while remaining consistent with the brand's positioning. Premium brand positioning often emphasizes perceived quality, symbolic value, and differentiation (Keller, 2012), while luxury contexts place particular emphasis on prestige, rarity, and exclusivity (Kapferer, 2015). Consequently, influencer selection extends beyond the communication function and can affect how the brand is represented and perceived.

Existing research has examined influencer collaborations from multiple perspectives, including influencer characteristics, audience-related factors, content, and marketing outcomes (Campbell & Farrell, 2020; Hudders et al., 2021; Vrontis et al., 2021). Recent meta-analytic evidence further indicates that influencer marketing effectiveness depends on characteristics of influencers, followers, and posts, as well as on the outcome considered (Pan et al., 2025). However, less is known about how managers integrate and prioritize these different criteria when making influencer selection decisions. In practice, managers may need to weigh influencer-brand fit, authenticity, audience characteristics, credibility, engagement potential, and commercial objectives simultaneously. For start-ups, such prioritization may be particularly important because resource-constrained new ventures must allocate scarce resources across competing activities (Symeonidou et al., 2022; Shepherd et al., 2015). This challenge is compounded in premium and luxury markets, where start-ups must build brand awareness and credibility without compromising their distinctive positioning. Influencer

selection therefore requires balancing short-term commercial objectives with the longer-term implications of collaborations for brand development. A multi-criteria perspective can help capture how these considerations are weighed jointly in managerial influencer selection.

Accordingly, this study asks: **How do start-up decision-makers integrate and prioritize multiple influencer-, brand-, audience-, and campaign-related criteria when evaluating influencer collaborations in premium and luxury markets?** Drawing on three semi-structured interviews with senior marketing decision-makers in consumer-oriented start-ups, the study examines a preliminary hierarchical evaluation framework derived from a systematic literature review and qualitative meta-synthesis. It combines qualitative content analysis with AHP-based pairwise comparisons to explore managerial reasoning and the relative prioritization of criteria. Given the exploratory design and small sample, the findings do not establish a validated or statistically generalizable framework. Figure 1 presents the preliminary framework.

Figure 1. Preliminary hierarchical framework for evaluating influencer collaborations in premium and luxury markets



Methodology

The study adopts an exploratory research design to investigate the reasoning underlying managerial evaluation of influencer collaborations. Purposive sampling was used to recruit senior marketing decision-makers from consumer-oriented start-ups operating in markets where premium positioning is strategically relevant and that actively use influencer collaborations as part of their marketing strategy. The duration of the start-ups' market presence was not used as a predefined selection criterion. Instead, the selection focused on their business model, market positioning, and active use of influencer collaborations. This

paper reports the initial phase of a broader expert study, focusing on the start-up perspective and based on three semi-structured expert interviews. The broader study also examines complementary perspectives from influencer agencies, premium consumer goods companies, and industry experts. Participants were selected based on their professional experience in influencer marketing, decision-making responsibility for influencer collaborations, and direct involvement in their strategic evaluation or management.

The interview guide was developed deductively based on the findings of a preceding systematic literature review and qualitative meta-synthesis. It comprised five sections covering (1) strategic objectives and challenges of influencer collaborations, (2) consumer evaluation mechanisms, (3) pairwise prioritization of evaluation criteria using the Analytic Hierarchy Process (AHP), (4) reflection and operationalization of evaluation criteria, and (5) future developments in influencer marketing. This structure supported the systematic examination of the evaluation criteria and their relative importance.

The interviews were audio-recorded with participants' consent, transcribed using a near-verbatim approach, and translated into English for analysis and reporting. The translated transcripts were analyzed using qualitative content analysis following Mayring (2022), combining deductively derived categories with inductively emerging themes; ATLAS.ti supported the coding process. AHP was used to structure pairwise comparisons and elicit participants' relative judgments of criterion importance (Saaty, 1980; Kuo & Chen, 2023), with consistency assessed using the consistency ratio (CR). The methods served complementary purposes: qualitative analysis captured managerial reasoning, criterion interpretation and operationalization, while AHP made the relative prioritization of evaluation criteria explicit. AHP judgments were interpreted alongside the qualitative findings, rather than as independent validation or statistically generalizable weights. The resulting priorities are exploratory and provide a basis for further investigation across additional expert perspectives and consumer research.

Results

Findings from the three start-up interviews indicate that influencer evaluation is shaped by a combination of influencer-, brand-, audience-, and campaign-related considerations rather than being reducible to follower size alone. The experts emphasized the importance of alignment between the influencer, the brand, and the influencer's existing community. Previous brand touchpoints, relevant category experience, and prior partnerships were also identified as signals of credibility and fit.

Across the four evaluation dimensions, authenticity and trustworthiness were emphasized within the influencer-related dimension, while influencer-brand fit was repeatedly emphasized within the brand-related dimension and linked to brand consistency, values, prestige, or exclusivity. Audience-related considerations included audience quality, relevance, authenticity, and engagement; one expert further extended audience relevance to actual product accessibility. Storytelling was also highlighted within the campaign-related dimension, particularly when aligned with the creator's established communication style and community expectations. The pairwise-comparison exercise provided a structured way to elicit participants' relative judgments of criterion importance, while the accompanying

qualitative reflections contextualized the reasoning behind these judgments and how decision-makers interpreted the criteria in practice.

Decision-making approaches also differed across the three experts. One expert emphasized experience, intuition, and qualitative assessment, while another placed greater emphasis on systematic audience analysis, previous brand activity, performance indicators, and community sentiment. The third expert combined qualitative and quantitative assessments, reflecting a more integrated approach to influencer collaboration decisions.

The evaluation of collaboration success varied according to strategic objectives. One expert primarily emphasized net order income and new customer acquisition, another focused on brand perception, target-audience reach, engagement, and community-generated content, while the third explicitly differentiated between sales-oriented campaigns, where attributable sales are central, and awareness-oriented campaigns, where reach, impressions, and community sentiment become more relevant. Across the interviews, this suggests that collaboration success is evaluated in an objective-dependent manner rather than through a uniform set of KPIs.

The interviews did not reveal a single, universally applicable evaluation logic for influencer collaborations in premium and luxury markets. Instead, experts emphasized context-specific considerations such as exclusivity, sustained exposure, selective partnerships, credibility, and fit with the brand's positioning. Taken together, the three interviews provide initial insights into how start-up decision-makers approach the evaluation of influencer collaborations across multiple criteria and offer an exploratory basis for further research.

Implications

The findings have theoretical and practical implications for influencer marketing research and managerial decision-making. Theoretically, the study extends the discussion of influencer selection by examining how managerial decision-making in start-ups incorporates multiple evaluation dimensions, thereby providing an exploratory perspective on the application of multi-criteria approaches in premium and luxury markets.

Practically, the preliminary hierarchical framework offers founders and marketing decision-makers a structured basis for making evaluation criteria explicit and comparable. Criterion priorities should remain adaptable to campaign objectives, brand positioning, and collaboration context rather than being treated as universally fixed weights. Given the exploratory sample of three start-up decision-makers, the framework and priority patterns remain provisional. Further research should investigate the framework's applicability across a broader sample of experts and incorporate consumer evidence.

Keywords: Influencer Marketing, Premium and Luxury Markets, Start-Ups, Entrepreneurial Decision-Making, Multi-Criteria Decision Making

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INNOVATION DRIVERS AND SECTORAL HETEROGENEITY: A COMPARATIVE ANALYSIS OF COLOMBIAN INDUSTRIES

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Abstract

Research and development (R&D) constitutes a central mechanism through which technological progress contributes to both business success and economic expansion. Countries that are able to identify and understand the determinants of innovation more effectively can develop stronger and more resilient innovation systems (Inekwe, 2015; Chaparro-Banegas et al., 2024). In this context, firms undertake R&D investments as a deliberate strategic effort aimed at improving their future competitiveness and sustaining market advantages.

However, many developing economies continue to face structural barriers within their innovation systems that restrict firms' capacity to invest in R&D and effectively convert knowledge into economic and productive gains. In particular, Colombia faces significant challenges in fostering innovation due to limited knowledge generation and utilization, weak innovation capabilities, low levels of technology transfer, and insufficient adoption of new technologies. Compared with other countries in the region, the country has historically exhibited low investment in R&D.

Research on R&D and innovation has largely concentrated on high-income economies, leaving emerging countries relatively understudied. In low-resource contexts, firms often rely on external R&D, machinery, and equipment to compensate for internal limitations (Kagere et al., 2025). Studies from Latin America show mixed effects: public innovation support can increase R&D and productivity, but impacts differ by sector, and firm-level innovation effort

is generally associated with higher innovation probability in Colombia (Arbeláez & Parra-Torrado, 2011). However, another study from Mexico finds no clear relationship between R&D funding and innovation outcomes (Oliver-Espinoza & Stezano, 2022). Overall, the literature indicates that the R&D-innovation relationship is context-dependent and not yet fully understood in developing economies.

Although sector-specific studies have documented heterogeneous innovation patterns, research remains limited regarding the comparative analysis of innovation determinants across different innovation types within a unified empirical framework. This gap is particularly relevant in developing economies such as Colombia, where structural heterogeneity may lead to substantial differences in how innovation drivers operate across sectors. To address this gap, the aim of this study is to compare the determinants of product, process, organizational, and marketing innovation in Colombia's embodied-technology and knowledge-driven sectors.

This investigation uses the Colombian data from the Harmonized LAIS database compiled by the Inter-American Development Bank for the period 2009-2017 (Crespi et al., 2022). After data cleaning and variable selection, the final sample comprises 64,849 firms. Four dependent variables are analyzed: product, process, organizational, and marketing innovation. The explanatory variables include firm size, innovation expenditures (R&D and non-R&D), and indicators of ongoing or abandoned innovation activities. Non-R&D investments capture ICT, machinery and equipment, and a combined measure of both, reflecting complementary innovation mechanisms. Probit models are estimated to examine the relationship between innovation inputs and the likelihood of product, process, organizational, and marketing innovation.

Building on the existing literature, this study contends that the relationship between innovation inputs and innovation performance is not homogeneous. Different forms of innovation, namely product, process, organizational, and marketing innovation, depend on distinct combinations of capabilities, resources, and knowledge bases, suggesting that their determinants are likely to vary. Furthermore, sectoral characteristics are expected to shape these relationships.

The study advances the firm-level innovation literature through three principal contributions. It systematically analyses the relationship between innovation inputs and multiple innovation outcomes within a common empirical framework in a developing-country context. Furthermore, it evaluates the extent to which knowledge-based activities and embodied technological investments influence innovation performance across sectors. Finally, the findings can inform the development of innovation policies and support mechanisms better aligned with sector-specific innovation patterns.

In embodied-technology-driven sectors, the results reveal substantial heterogeneity in the determinants of innovation across sectors and innovation types. Investments in machinery and equipment, particularly when combined with ICT, exhibit the strongest positive association with innovation outcomes, whereas ICT or equipment considered separately show weaker or even negative effects. In-house R&D is especially important for product and organizational innovation, while process innovation appears to depend more on capital

upgrading than on formal R&D activities. Market research is consistently linked to marketing innovation and, to a lesser extent, product innovation. By contrast, technology transfer, consultancy, and engineering-related expenditures show limited or negative effects in several cases. Finally, ongoing innovation activities are positively associated with all innovation types, highlighting the importance of persistence in firms' innovation efforts, while firm size displays only limited and sector-specific effects.

In knowledge- and institution-driven sectors, innovation determinants are more heterogeneous and generally less significant than in embodied-technology-driven sectors. In-house R&D is mainly associated with product innovation, while investments in machinery, equipment, and ICT show weaker and less systematic effects. Human capital development, particularly training expenditures, plays a more important role in supporting organizational innovation, whereas market research is consistently linked to marketing innovation and, to a lesser extent, product innovation. By contrast, technology transfer, consultancy, and engineering-related expenditures do not exhibit robust effects. Although ongoing innovation activities remain positively associated with innovation outcomes, their influence is less frequent and weaker across sectors. Overall, these findings suggest that innovation in knowledge- and institution-driven sectors depends less on conventional innovation inputs and more on intangible capabilities and institutional conditions.

Across both sector groups, investment in machinery and equipment, including ICT, emerges as a central driver of innovation, though its effects vary by context and innovation type. In embodied-technology-driven sectors, it is strongly associated with all forms of innovation and complements in-house R&D, particularly for organizational innovation. In knowledge- and institution-driven sectors, it is more closely linked to process and organizational innovation, while product innovation depends more on its combination with internal R&D. Market research also plays an important role, especially in supporting marketing innovation and, to a lesser extent, product innovation, with a somewhat broader relevance in knowledge-intensive sectors.

The findings also highlight clear sectoral differences in the role of internal and external knowledge sources. The impact of in-house R&D on innovation varies according to the sectoral context. It drives both organizational and product innovation in embodied-technology sectors, but only product innovation in knowledge/institution-driven ones. This suggests that its effectiveness depends on the specific characteristics and dynamics of each industry.

The findings reveal that firms face challenges in translating external knowledge into innovation outcomes, with effects varying across innovation types and sectors. While training supports organizational innovation, particularly in embodied-technology-driven sectors, other external knowledge sources show mixed or negative effects. Strengthening absorptive capacity through employee training, cross-functional R&D teams, research partnerships, and technology scouting can help firms identify, assimilate, and apply external knowledge more effectively.

From a policy perspective, the findings indicate that innovation policies in Colombia and similar developing economies should be adapted to different innovation types and sectoral

needs rather than follow a one-size-fits-all approach. Innovation policies should integrate technology adoption, internal R&D development, and stronger absorptive capacity. In the short term, access to advanced foreign technologies should be complemented by incentives for in-house R&D and partnerships among firms, universities, and innovation intermediaries. Such mechanisms can help align technological supply and demand and foster joint R&D initiatives. Furthermore, strengthening innovation capacity will require combining in-house capabilities with knowledge sourced from external actors. Achieving this involves facilitating access to advanced technologies and ICT infrastructure, reinforcing firms' research and development activities, and fostering stronger links with academic institutions through collaborative initiatives.

This study presents some limitations. The analysis relies on self-reported innovation survey data, excludes relevant factors such as human capital quality and information sources, and focuses exclusively on Colombia. Additionally, the dataset covers 2009-2017, a period that may not fully reflect the current landscape of digital technologies, innovation ecosystems, and policy developments. Future research should use more recent longitudinal data, incorporate additional firm-level variables, and conduct comparative analyses across countries or regions.

Acknowledgments

The authors would like to thank the Dirección General de Ciencia e Investigación (Generalitat Valenciana, Spain - consolidated research groups - AICO 2024 (CIAICO/2023/201)) for providing support for this paper.

Keywords: R&D expenditure; Firm innovation; Innovation strategy; Innovation types; Colombia; Probit model

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ENTREPRENEURIAL INNOVATION UNDER RESOURCE CONSTRAINTS: HOW INVESTMENTS AND R&D COLLABORATION SHAPE SME INNOVATION OUTCOMES

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Abstract

Small and medium-sized enterprises (SMEs) in peripheral regions face persistent constraints in access to finance, skilled labour, external knowledge, and research infrastructure. (Lewandowska, 2021). Drawing on the resource-based view (Barney, 1991), absorptive capacity (Cohen & Levinthal, 1990; Zahra & George, 2002) and resource orchestration (Sirmon et al., 2007; Sirmon et al., 2011), this study examines how R&D collaboration and distinct investment activities are associated with different SME innovation outcomes. The study asks: (RQ1) How is R&D collaboration associated with product, process, development, and organizational innovation? (RQ2) How do different investment activities relate to these outcomes? This framing responds to evidence that R&D cooperation may be more strongly associated with non-technological innovation than with product or process innovation (Pippel, 2014; Radicic et al., 2019).

The empirical analysis uses cross-sectional data from 406 innovation-active SMEs in Poland's peripheral Subcarpathian Voivodeship, collected in 2019 through computer-assisted telephone interviews (CATI). The sample comprises 207 microenterprises, 119 small enterprises, and 80 medium-sized enterprises. The questionnaire used closed questions covering firm characteristics, innovation activities, investments and expenditure, effects of implemented innovations, financing sources and innovation barriers. The dependent variables are binary indicators of product innovation, process innovation, development activities and organizational innovation: firms reported whether each type had been implemented. Development activities are treated here as an innovation-related capability-building outcome rather than as a financial input, because they capture firms' activities directed toward developing and implementing new solutions and may precede observable product or process outcomes. The independent variables are binary indicators of R&D cooperation and investment in machinery and equipment, ICT, intellectual-property protection, employee training, marketing, and implementation of new solutions, with firm size, sector, export activity, financial support, and innovation barriers included as controls. Logistic regression models are used, with marginal effects at the mean reported for interpretation. The empirical design follows the analytical approach developed in Lewandowska (2026).

The estimates show heterogeneous relationships across innovation outcomes. R&D collaboration is not significantly associated with product or process innovation, but is

positively associated with development activities (marginal effect = 0.40, $p < 0.001$) and organizational innovation (0.19, $p < 0.001$). This pattern is consistent with Pippel (2014) and Radicic et al. (2019), who show that R&D cooperation can be particularly relevant for non-technological innovation, while extending this evidence by linking collaboration to organizational and development outcomes in innovation-active SMEs from a peripheral regional context. The findings are also consistent with an absorptive-capacity and resource-orchestration interpretation: external collaboration can provide knowledge and learning opportunities that SMEs combine with internal resources and capabilities rather than automatically converting into immediate technological outputs.

Investment effects are likewise outcome-specific. Investments in machinery and equipment are positively associated with process innovation (marginal effect = 0.15, $p < 0.01$) and development activities (0.09, $p < 0.05$). Marketing investment is associated with product innovation (0.11, $p < 0.05$) and development activities (0.08, $p < 0.05$). Employee training is associated with organizational innovation (0.15, $p < 0.001$), while investments in implementing new solutions are associated with process innovation (0.20, $p < 0.01$), development activities (0.09, $p < 0.05$), and organizational innovation (0.19, $p < 0.001$). ICT and intellectual-property protection do not show statistically significant direct associations with the four outcomes. These estimates reinforce the central argument of Lewandowska (2026): SME innovation effectiveness depends on the composition and strategic alignment of investments and collaborations rather than on treating innovation expenditure as a homogeneous input.

The qualitative component comprises nine structured in-depth interviews with representatives of four innovative SMEs and five R&D institutions. The interviews were used to contextualize the quantitative relationships, focusing on resource constraints, collaboration, capability development, and the practical process through which innovation activities are combined. The qualitative evidence indicates persistent financial and human-capital constraints, concerns about the flexibility of formal support programmes, and cases in which customers participated as co-creators or co-financiers. Taken together with the regression results, these observations support an interpretation of entrepreneurial innovation as a staged resource-orchestration process in which capability building and organizational change may precede observable product or process outcomes.

The study makes three contributions. First, it connects resource orchestration with differentiated innovation outcomes by showing how specific resource investments and external collaboration correspond to different forms of innovation. Second, it positions the finding on R&D collaboration against prior evidence on non-technological innovation and clarifies that collaboration is more closely related to organizational and development outcomes than to product or process innovation in this sample. Third, it highlights the importance of peripheral-region context, where entrepreneurs must selectively combine internal resources, external knowledge, and market-oriented activities.

The findings should be interpreted in light of several limitations. The data are cross-sectional and the estimated relationships should therefore be understood as associations rather than causal effects. The fieldwork took place in 2021, so the COVID-19 context may have affected firms' investment decisions, collaboration opportunities, and innovation activities; the study does not identify a separate pandemic effect. The regional, innovation-active sample also limits generalization. In addition, the qualitative component is complementary rather than

representative. Future research should use longitudinal designs to examine whether capability-building activities and R&D collaboration translate into subsequent technological and market outcomes and how these relationships evolve beyond the pandemic period.

Overall, the evidence indicates that entrepreneurial innovation under resource constraints is selective and cumulative. SMEs do not simply invest in "innovation" as a single activity; they combine particular resources, collaborations and capabilities in ways that are associated with distinct innovation outcomes. The results therefore support a view of entrepreneurial innovation in which resource orchestration, absorptive capacity and strategic alignment help explain why similar investments or collaborations may be linked to different forms of innovation.

Overall, the findings show that entrepreneurial innovation in SMEs is a selective and cumulative process. Entrepreneurs do not simply "invest in innovation"; they assemble particular combinations of internal resources, external knowledge, human capabilities, and market-oriented activities. Understanding these configurations provides a more precise explanation of how SMEs convert scarce resources and collaboration into different forms of innovation.

Keywords: entrepreneurial innovation; SMEs; R&D collaboration; resource orchestration; peripheral regions

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GENERATIVE AI-ASSISTED SCENARIO BUILDING FOR THE DYNAMIC CONSERVATION OF GLOBALLY IMPORTANT AGRICULTURAL HERITAGE SYSTEMS

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Extended abstract

Introduction

According to the Food and Agriculture Organization (FAO), Globally Important Agricultural Heritage Systems (GIAHS) are agricultural systems shaped over generations through the interaction between local communities and their environments, characterised by agrobiodiversity, traditional knowledge, cultural practices and distinctive landscapes while supporting local livelihoods. Their conservation is conceived as a dynamic rather than static process, allowing these systems to evolve and adapt to changing conditions while maintaining their essential functions and values (García-Álvarez-Coque et al., 2026). In Spain, 50 traditional agroecosystems have been identified as potential GIAHS sites, reinforcing the importance of supportive policies for their management and protection (Manrique Anticona et al., 2023).

Social-ecological systems can be transformed by interacting environmental and socioeconomic drivers and may evolve along different trajectories, while scenario approaches provide a means to explore plausible futures and support anticipatory planning under uncertainty (Thorn et al., 2021). Generative artificial intelligence (GenAI) offers new possibilities for scenario development, but its use requires structured prompting and expert evaluation (Kozachek, 2026; Kuosa & Aalto, 2025; Spaniol & Rowland, 2023).

This study examines the potential of GenAI to support the construction of plausible future scenarios for the dynamic conservation of GIAHS, using documented long-term territorial trajectories as an empirical basis. Historical evidence is combined with a PESTEL framework to structure the identified drivers of change and guide scenario development. The study

therefore seeks to answer the following research question: To what extent can GenAI support the construction of plausible future scenarios for the dynamic conservation of GIAHS when grounded in long-term territorial evidence, structured through a PESTEL framework, and subsequently evaluated by experts?

Theoretical framework

The study integrates dynamic conservation, long-term territorial trajectories and scenario building, with GenAI incorporated as a support tool for scenario development. Dynamic conservation allows agricultural heritage systems to adapt and innovate while maintaining the functions and values that underpin their continuity, recognising adaptation and evolution as part of their persistence over time (García-Álvarez-Coque et al., 2026).

In this study, documented long-term territorial trajectories are used as an empirical basis for examining how traditional rural systems have responded to change over time. Temporal landscape analysis can identify changes in land use and management and relate them to demographic, socioeconomic, environmental and policy-related processes that shape landscape transformation (Hearn & Fagerholm, 2025). Historical trajectories are not treated as direct predictors of future change. Instead, past–present and, by extension, past–future analogies are interpreted critically, recognising the limitations of transferring historical evidence across different contexts (Tubi et al., 2022). These trajectories are then used to identify relevant drivers, responses and patterns of transformation that can assist scenario development.

Scenario approaches can help distinguish desirable from undesirable future conditions, identify potential risks and opportunities, and inform evidence-informed action under conditions of uncertainty (Thorn et al., 2021). Once historical case evidence has been validated, identified drivers will be coded within the six PESTEL dimensions: Political, Economic, Social, Technological, Environmental and Legal. Recent methodological work cautions against treating PESTEL as a simple descriptive checklist and stresses the need for a systematic process to identify and prioritise relevant factors within a clearly defined time horizon (Andersen, 2026). Therefore, PESTEL will be used to systematically organise the identified drivers across its six dimensions, while any assessment of their relative importance will require explicit analytical criteria.

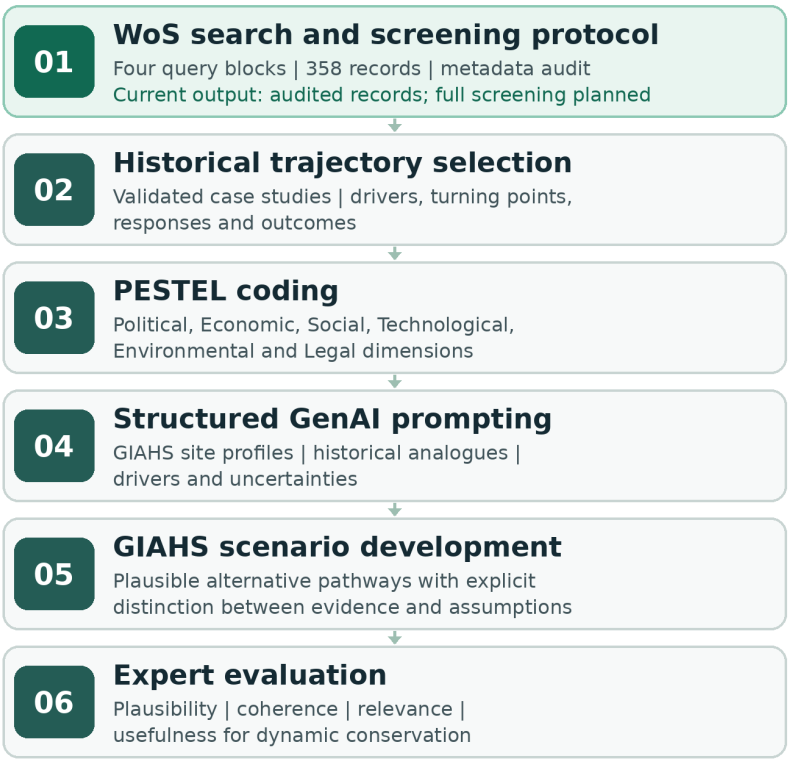
GenAI is treated as a support tool rather than a substitute for human-led scenario development. Spaniol and Rowland (2023) explore the potential of AI-assisted scenario generation to inform strategic planning, while Kuosa and Aalto (2025) emphasise the importance of structured, multistep prompting for developing well-targeted scenarios. Comparisons of human- and GPT-generated scenarios reveal thematic differences and biases, reinforcing the need for expert judgement and hybrid human–AI scenario development (Kozachek, 2026).

Methodology

The study follows a sequential, six-stage design linking retrospective territorial evidence, driver analysis, GenAI-assisted scenario construction and expert evaluation (Figure 1). The

starting point is a Web of Science Core Collection search organised into four thematic blocks: (i) agricultural heritage systems and traditional rural landscapes; (ii) long-term territorial or landscape evolution; (iii) drivers of change; and (iv) retrospective empirical evidence. The updated Web of Science search retrieved 358 records. Following a bibliographic metadata audit, a clean reference database was established, providing a traceable basis for systematic screening. A structured screening protocol has been defined, and the screening and validation process is currently ongoing. Subsequent stages will focus on historical trajectory analysis, PESTEL coding, GenAI-assisted scenario development, and expert evaluation.

Figure 1. Sequential research workflow for evidence-grounded GenAI-assisted GIAHS scenario building.



The screening protocol specifies five inclusion criteria: (i) an identifiable agricultural or rural territorial context; (ii) observed change over time; (iii) a relevant territorial, social, environmental or institutional change process; (iv) retrospective empirical evidence; and (v) information on drivers, responses, turning points or consequences. For the subsequent full-text stage, an AI-assisted preliminary eligibility assessment is proposed, with supporting excerpts and page or section references for each criterion. A manual verification of these passages in the original publications will be done before confirming or revising any inclusion decision. The aim is to maintain traceability without delegating final eligibility decisions to GenAI.

Following the verification of eligible studies, historical cases will be described using a structured template covering territorial and temporal context, main changes, drivers, turning

points, responses and outcomes. Case trajectories will then be compared to identify recurrent and context-specific patterns, without assuming that historical outcomes can be directly transferred across different contexts (Tubi et al., 2022). Identified drivers will be coded across the six PESTEL dimensions, while their relevance, interactions and relative importance will be assessed using explicit analytical criteria.

In later stages, contextual profiles of selected GIAHS will be combined with relevant historical analogues and PESTEL-based driver evidence. The structured, multistep prompting protocol will specify the scenario task, time horizon, evidence base, key uncertainties and expected output. It will also require an explicit distinction between documented information and hypothetical future developments. GenAI will be used to support, rather than autonomously determine, scenario development (Kuosa & Aalto, 2025; Spaniol & Rowland, 2023).

Finally, GIAHS experts will assess the resulting scenarios in terms of plausibility, internal coherence, relevance of drivers, consistency with GIAHS characteristics and usefulness for dynamic conservation. Consistent with the importance of human judgement in hybrid human–AI scenario development highlighted by Kozachek (2026), their qualitative assessments will help identify the contributions and limitations of GenAI and clarify where expert judgement remains necessary.

Results to date

The results presented concern the initial evidence-building and methodological stages. The four-block Web of Science search yielded 358 bibliographic records, and the metadata audit produced a clean database ready for systematic screening. A five-criterion eligibility protocol and a traceable full-text verification workflow have also been specified. In this proposed workflow, AI-assisted preliminary inclusion assessments are accompanied by source excerpts and page references, while the researcher retains responsibility for checking the evidence and making the final decisions. These outputs establish an auditable foundation for the next research stages and they do not represent a completed systematic screening of the 358 records, a final selection of historical cases, findings from PESTEL coding and driver assessment, generated GIAHS scenarios or results of expert evaluations, since those elements remain the subject of subsequent analysis.

Conclusion

This research seeks to connect evidence of long-term territorial change with future-oriented choices for the dynamic conservation of GIAHS. The contribution presented to date is a cleaned 358-record evidence base and a traceable research protocol that combines explicit screening criteria, verifiable source references and human oversight. The next steps are to complete screening and historical case analysis, assess the resulting drivers through PESTEL, develop structured GenAI-assisted scenarios and evaluate them with experts. The longer-term aim is to provide evidence-informed scenarios that can support knowledge transfer to decision-makers and anticipatory conservation planning; the plausibility and practical usefulness of such scenarios remain to be evaluated.

Keywords: Globally Important Agricultural Heritage Systems (GIAHS); dynamic conservation; generative artificial intelligence (GenAI); scenario building; territorial trajectories.

Acknowledgements

This research is supported by the Grant PID2023-150150OA-C32, funded by MICIU/AEI/10.13039/501100011033 and "ERDF/EU"

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BEYOND CO-ADOPTION IN THE TWIN TRANSITION: ENVIRONMENTAL MANAGEMENT DEPTH AND PRODUCT INNOVATION IN DIGITALLY ADVANCED ITALIAN FIRMS

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Abstract

The twin transition describes the expectation that digitalization and environmental sustainability can reinforce one another and strengthen firms' capacity to innovate (Tabares et al., 2025). However, the conditions under which this complementarity emerges remain theoretically underspecified and empirically unsettled (Ardito et al., 2021). Digital technologies may facilitate eco-innovation and sustainability-oriented business action (Montresor & Vezzani, 2023; Chatzistamoulou, 2023), but the simultaneous presence of digital and environmental orientations does not necessarily produce superior innovation outcomes (Ardito et al., 2021). Recent research therefore emphasizes implementation processes, organizational practices, and heterogeneous firm-level pathways rather than simple co-adoption (Siedschlag et al., 2024; Tabares et al., 2025). This perspective shifts the relevant question from whether digital and environmental practices coexist to how firms combine and develop them building on this tension; we shift attention from co-adoption to the depth of firms' environmental engagement. We ask whether, among firms with a sufficiently developed digital business base, the joint presence of environmental measurement and environmental action is associated with a higher probability of product innovation. This formulation treats digitalization as a scope condition and focuses on what differentiates innovation outcomes among firms that have already integrated digital technologies into their business activities. Digital technologies can increase connectivity, information availability, and the integrability of knowledge and resources (Nambisan, 2017; Autio et al., 2018; Nambisan et al., 2019). A sufficiently developed digital business base may therefore help firms identify information, coordinate activities, and reconfigure resources. These affordances expand the range of possible entrepreneurial responses, but they do not determine which problems firms address or whether those possibilities result in innovation. Strategic entrepreneurship research conceptualizes entrepreneurial action as the integration of opportunity-seeking and advantage-seeking behaviors through resource mobilization, recombination, and orchestration (Hitt et al., 2001, 2011; Ireland et al., 2003). Such action is not limited to new venture creation. Established firms may act entrepreneurially when they identify emerging problems, recombine existing resources, and develop new products or organizational responses. We use this perspective to interpret product innovation as an

outcome consistent with entrepreneurial approach and experimentation. When such experimentation is directed toward environmental problems and sustainability-related challenges, it enters the domain of sustainable entrepreneurship, where environmental degradation, resource inefficiencies, market imperfections, and unmet sustainability needs may generate entrepreneurial opportunities rather than operate solely as external constraints (Cohen & Winn, 2007; Dean & McMullen, 2007; York & Venkataraman, 2010; Shepherd & Patzelt, 2011). This mechanism can also operate within established firms when environmental challenges stimulate new products, processes, or business responses (Hockerts & Wüstenhagen, 2010). Research on proactive environmental strategy and environmental-management maturity similarly distinguishes between reactive, procedural, and more embedded forms of environmental engagement (Aragón-Correa & Sharma, 2003; Inoue et al., 2013; Ormazabal et al., 2017; Potrich et al., 2019). More developed environmental-management practices have been associated with innovation, although the magnitude and direction of this relationship vary across organizational settings and innovation outcomes (Wagner, 2008; Mahmud et al., 2020; Riillo, 2025). Environmental engagement should therefore be examined as a configuration of practices rather than as a simple adopted-or-not-adopted condition. We conceptualize Environmental Management Depth (EMD) as the coupling of environmental measurement and organizational action. In our empirical setting, measurement is captured by whether an establishment monitors its CO2 emissions, while action is captured by whether it has implemented environmental measures. These two dimensions produce four possible configurations: neither measurement nor action, measurement only, action only, and the joint presence of measurement and action. Our focal configuration is the joint presence of both dimensions. Measurement can make environmental impacts visible and provide an informational basis for decision making, while action indicates that environmental concerns have entered the establishment's practices and resource allocation. Either dimension alone represents partial engagement: measurement without action may generate information without an organizational response, whereas action without measurement may lack a systematic basis for evaluating environmental performance. Their joint presence therefore provides a parsimonious indicator of deeper environmental engagement. This operationalization does not capture the full breadth or maturity of an environmental management system; rather, it identifies a minimum level of integration between environmental information and organizational response that can be observed consistently in the WBES data. We therefore expect establishments that combine a developed digital base with deeper environmental engagement to display a higher probability of product innovation than otherwise comparable establishments. We additionally explore access to finance as a possible boundary condition. Financial constraints may weaken the relationship between EMD and innovation by limiting the resources available for product development (Lee et al., 2015). Conversely, resource scarcity may increase firms' reliance on bricolage and resourceful recombination (Baker & Nelson, 2005; Senyard et al., 2014), including in the context of eco-innovation (Ying et al., 2022). Because these mechanisms imply competing expectations, we treat the moderation analysis as exploratory.

The empirical analysis draws on the 2024 wave of the World Bank Enterprise Survey for Italy, comprising 1,216 establishments. The digital-business measure combines three binary indicators: ownership of a website, receipt of at least 90% of payments through electronic means, and execution of at least 90% of payments through electronic means. These indicators form an additive index ranging from zero to three; establishments scoring at least two are classified as exhibiting multi-domain digital adoption. Environmental management depth

(EMD) equals one when an establishment reports both monitoring its CO_2 emissions and adopting energy management measures over the preceding three years, and zero otherwise, provided both responses are observed. The dependent variable captures whether the establishment introduced a new or significantly improved product or service during the preceding three years. We estimate logistic regression models with heteroskedasticity-robust standard errors, restricting the analysis to establishments exhibiting multi-domain digital adoption. Controls include establishment size, measured as the natural logarithm of permanent full-time employment; establishment age; main-market scope; foreign ownership; export status; and reported increases in competition, alongside sector and region indicators. The baseline estimation sample comprises 980 establishments with complete data. Preliminary estimates indicate a positive association between EMD and product innovation (OR = 1.81, 95% CI [1.27, 2.57], $p < .001$). These cross-sectional estimates capture conditional associations rather than causal effects. An exploratory specification further examines whether this association varies with perceived access-to-finance obstacles, distinguishing moderate, major, or very severe obstacles from no or minor obstacles (k30). Among 968 complete observations, the EMD–finance interaction is positive (interaction OR = 2.49, 95% CI [1.16, 5.35], $p = .019$). Preliminary evidence suggests that deeper environmental engagement is more common among firms with broader digital adoption, supporting the decision to treat digitalization as an enabling context rather than simply as an additive predictor. Prior research shows that the determinants of innovation occurrence and novelty need not coincide (Laursen & Salter, 2006; Nieto & Santamaría, 2007). Accordingly, we examine whether EMD is related primarily to the likelihood of introducing product innovation or whether it also differentiates between new-to-firm and new-to-market outcomes. The next stage of the study assesses whether this pattern extends to product innovation after accounting for firm characteristics, sector, and region, and whether it differs between new-to-firm and new-to-market innovation. The study contributes in three related ways. First, it shifts the twin-transition debate from co-presence to depth, responding to calls for greater firm-level attention to implementation processes and heterogeneous transition pathways (Tabares et al., 2025). Second, it connects digital and sustainable entrepreneurship by distinguishing digitalization as an enabling context from environmental management as a substantive domain of entrepreneurial engagement. Third, it introduces a contingent view of resource scarcity by examining whether the organizational value associated with deeper environmental engagement changes when firms face financial constraints. More broadly, the paper advances a less deterministic view of the twin transition. Its entrepreneurial relevance may reside not in the simultaneous possession of digital and green practices, but in the depth with which digitally enabled firms make environmental problems visible, actionable, and potentially generative of product innovation.

Keywords: twin transition; sustainable entrepreneurship; digital entrepreneurship; environmental management; product innovation.

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CULTURAL ENTREPRENEURSHIP AND DIGITAL TRANSFORMATION IN HERITAGE MANAGEMENT: A MULTIMODAL ANALYSIS OF INSTITUTIONAL DISCOURSE AT THE PALACIO DEL MARQUÉS DE DOS AGUAS

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Abstract

Cultural heritage institutions are increasingly required to reconcile preservation, public accessibility, international visibility, and digital innovation. Within this context, cultural entrepreneurship can be understood not only as the creation of new cultural ventures, but also as an entrepreneurial orientation within established institutions that mobilises innovation, co-creation, and new forms of value generation around heritage assets. This perspective is especially relevant to Valencia, where cultural tourism, leisure, and events coexist within a highly visible destination ecosystem. Rather than assessing heritage primarily through visitor numbers or short-term economic indicators, this study examines how digital and multimodal communication can contribute to more sustainable forms of cultural value creation by improving interpretation, accessibility, and the transfer of historical knowledge to diverse audiences.

The study focuses on the Palacio del Marqués de Dos Aguas in Valencia, home to the Museo Nacional de Cerámica y Artes Suntuarias "González Martí". The Palace provides a particularly relevant case for examining the relationship between heritage management, institutional discourse, and digital transformation. Conventional heritage interpretation frequently relies on written labels, printed guides, and other relatively static formats. These resources remain essential, but they coexist with audiences accustomed to visual, audiovisual, mobile, and increasingly interactive forms of communication. The resulting challenge is not simply technological. It concerns how institutions select, combine, and redesign semiotic resources so that complex historical and artistic content remains rigorous

while becoming more accessible and engaging for heterogeneous, including international, visitors.

The theoretical framework brings together cultural entrepreneurship, tourism and heritage management, and Multimodal Discourse Analysis (MDA). From a multimodal perspective, institutional meaning is produced through the interaction of verbal language with images, typography, audiovisual resources, sound, spatial organisation, and other semiotic modes. Research on digital science communication has shown how established genres can be reconfigured when they migrate to online and multimodal environments (Luzón & Pérez-Llantada, 2019). In parallel, tourism research has highlighted the importance of co-created value and experience-centred approaches (Rihova et al., 2018). Bringing these perspectives together makes it possible to conceptualise digital heritage interpretation as a form of entrepreneurial innovation: one that does not replace the scientific and conservation mission of the museum, but seeks new ways of communicating that mission and extending its social reach.

The central research question is therefore: How can the digital transformation of institutional heritage discourse, through multimodal narratives supported by accessible artificial intelligence tools, operate as a transferable model of cultural entrepreneurship that enhances visitor interpretation and contributes to the revitalisation of heritage management? Three subsidiary objectives guide the study: (1) to identify the communicative priorities, perceived visitor barriers, and technological constraints recognised by the museum's management; (2) to analyse how the institution currently constructs meaning across physical and digital communication channels; and (3) to co-design a pilot multimodal format capable of translating complex heritage information into concise, internationally oriented digital narratives without sacrificing historical accuracy.

Methodologically, the project adopts a qualitative multi-method case-study design organised into three sequential phases. Phase 1 consists of semi-structured interviews with the management and administrative team of the Palacio del Marqués de Dos Aguas. The interviews will explore the desired visitor legacy, perceived cultural and linguistic barriers, current communication priorities, and practical limitations affecting the adoption of advanced multimedia or AI-supported tools, including budgetary and technical constraints. This phase is particularly valuable because the project has direct institutional access and a stated willingness to collaborate from the museum's management, enabling the study to connect academic analysis with actual decision-making conditions.

Phase 2 comprises a systematic semiotic audit and Multimodal Discourse Analysis of the institution's interpretive ecosystem. The corpus will include relevant printed brochures and guides, interior signage, the official website, and institutional social-media communication. The analysis will identify recurring meaning-making patterns and examine the relationships among verbal, visual, spatial, and audiovisual resources. Particular attention will be paid to points at which specialist historical information may become cognitively or linguistically

difficult for international visitors, as well as to discontinuities between the on-site and digital narratives. The aim is not to judge individual resources in isolation, but to understand how the institutional narrative functions as a multimodal system.

Phase 3 uses an action-research and co-design approach to develop a pilot "Heritage Video Abstract". The proposal adapts the logic of the video abstract as a concise multimodal genre, previously examined in research communication (Pla Ángel, 2025), to the interpretation of cultural heritage. The prototype will consist of a short audiovisual piece combining carefully selected verbal explanation, imagery, typography, sound, and other semiotic resources. AI tools will be considered as supportive instruments for tasks such as ideation, adaptation, or production, subject to human oversight and institutional validation. The emphasis is therefore on responsible, low-cost digital augmentation rather than technological substitution. The prototype will be reviewed with museum stakeholders in order to assess its communicative suitability, feasibility, and potential integration into the institution's broader communication strategy.

As the empirical phases are being developed, this submission reports a research-in-progress design rather than completed outcome data. Accordingly, the expected results are formulated as analytically testable contributions rather than as findings already obtained. First, the study is expected to produce a map of the principal alignments and gaps between the museum's institutional objectives and its current multimodal communication practices. Second, it will generate an evidence-informed prototype and an executive set of recommendations for the Palace, thereby establishing a direct pathway for knowledge transfer between the university and a public cultural institution. Third, it will evaluate whether a concise multimodal format can constitute a feasible entrepreneurial innovation for heritage communication, especially when institutions need to internationalise content while working within resource constraints.

The broader implication concerns transferability. The Palacio del Marqués de Dos Aguas is conceived as an urban proof of concept from which a scalable communication model may subsequently be adapted to local, ethnographic, and historical museums in inland areas of the Valencian Community. Such institutions may have fewer financial and specialised human resources for tourism communication, making lightweight and accessible digital narratives particularly relevant. If the pilot proves feasible, the model could support the visibility of less-visited heritage nodes, contribute to the articulation of cultural itineraries, and strengthen links with local entrepreneurship and proximity commerce. This network perspective is consistent with previous work on cultural itineraries and the enhancement of their component nodes (Yusim, 2014), while also recognising the need for heritage tourism models that mitigate overtourism and favour socioterritorial coexistence (Yusim, 2026).

The study therefore positions digital transformation as a means rather than an end. Its entrepreneurial contribution lies in the capacity to redesign heritage communication through multimodal, institutionally validated, and potentially scalable practices that create cultural and social value. By combining management perspectives, multimodal analysis, and

prototype development, the project seeks to offer a concrete model of cultural entrepreneurship aligned with the ICEM 2026 themes of digital entrepreneurship, innovation, and sustainable transformation.

Keywords: cultural entrepreneurship; digital transformation; multimodality; heritage management; artificial intelligence

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VOLUNTARY SUSTAINABILITY REPORTING AS A DRIVER OF SUSTAINABLE ENTREPRENEURSHIP AND SME COMPETITIVENESS

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Abstract

Today sustainable entrepreneurship requires enterprises not only to integrate environmental, social and governance (ESG) principles into business models but also to demonstrate these practices credibly to stakeholders. Sustainability reporting can therefore extend beyond accountability and compliance and become part of entrepreneurial strategy, supporting legitimacy, stakeholder relationships and long-term competitive advantage. Responsible entrepreneurship involves balancing economic objectives with wider social and environmental responsibilities (Vallaster et al., 2019; Runce, 2025). Voluntary sustainability reporting can also be linked to the development of entrepreneurial capabilities. From the perspective of dynamic capabilities theory, firms need to recognise changes in their business environment, respond to emerging opportunities and adapt their resources and activities accordingly (Teece, 2007). Sustainability reporting may support these processes by helping companies better understand stakeholder expectations, identify sustainability-related risks and recognise new market opportunities. This is also consistent with the study conducted by Shane and Venkataraman (2000) that emphasises the importance of identifying and exploiting opportunities in entrepreneurship. However, preparing a sustainability report does not in itself create an entrepreneurial capability. The real value emerges when companies use this information to improve their decisions, adapt their business practices and develop new opportunities. In this sense, sustainability reporting can become part of a firm's entrepreneurial capabilities rather than remaining simply a tool for disclosure and compliance. This aspect is particularly relevant for small and medium-sized enterprises (SMEs). Although currently European sustainability reporting regulation primarily targets larger companies, SMEs increasingly encounter indirect sustainability-information requirements through their supply chains, financial institutions, investors, customers and public procurement. At the same time, smaller firms frequently lack the human, financial and knowledge resources required to establish formal sustainability reporting systems. Latvia

represents a relevant setting for investigating this challenge because SMEs account for 99.8% of enterprises, 76.4% of employment and 71.7% of value added (European Commission, 2025a). Consequently, the transition towards sustainable entrepreneurship cannot depend solely on sustainability practices adopted by large corporations. This study examines whether voluntary sustainability reporting can move beyond compliance towards entrepreneurial value creation. The aim of the research is to evaluate voluntary sustainability reporting practices in Latvia and assess their potential contribution to SME competitiveness. The underlying proposition is that voluntary sustainability reporting can enhance competitiveness, while its implementation is constrained by limited resources and insufficient understanding of its potential business benefits.

A mixed-method research design was applied, combining theoretical and document analysis, statistical and graphical analysis, a qualitative focus-group discussion, the Analytical Hierarchy Process (AHP), and an enterprise case study. The combination of qualitative and quantitative approaches enabled comparison between the perspectives of SME-related stakeholders and experts and subsequent examination of the findings in an actual enterprise setting. The in-depth focus group discussion involved six participants representing business, policy-making and business-support perspectives across different sectors, including IT services, sustainable forestry and land management, government, business support, printing and real estate/forestry. These participants were selected to provide diverse perspectives on the development, barriers and potential benefits of sustainability reporting in Latvian SMEs. Based on factors identified in the focus group, an AHP model was developed to evaluate four criteria influencing voluntary sustainability reporting: (1) regulatory environment; (2) economic factors - benefits and costs; (3) knowledge and available resources, and (4) reputation and cooperation opportunities. Afterwards, five experts from different professional fields evaluated the relative importance of these criteria and alternative development scenarios. Finally, JSC MADARA Cosmetics was selected as a good-practice case because sustainability has been integrated into its business orientation since its establishment and the company has voluntarily produced sustainability reports since 2016. The case analysis combined sustainability-reporting practices with financial indicators to examine the relationship between sustainability orientation and competitiveness.

The focus-group results indicate that voluntary sustainability reporting among Latvian SMEs remains at an early stage of development. Company representatives reported that sustainability reports were generally not prepared because of limited external demand and insufficient understanding of their relevance and practical application. Particularly in smaller enterprises, managers perform multiple functions, making sustainability reporting a secondary priority. Human resources, time, financial capacity and the complexity of the regulatory environment were identified as major barriers. Nevertheless, participants recognised that reporting could create competitive advantages. Potential benefits included improved reputation and brand value, greater attractiveness to investors, better cooperation opportunities in export markets and improved internal decision-making. Reporting was therefore perceived not only as external communication but also as a mechanism capable of structuring internal processes and supporting longer-term sustainable decisions (Runce, 2025). The AHP results revealed an important contrast. Experts assigned the greatest importance to the regulatory environment (0.53), followed by reputation and cooperation opportunities (0.24), economic factors (0.16) and knowledge and available resources (0.07). At the scenario level, regulatory influence similarly received the highest priority (0.63),

compared with 0.37 for support mechanisms. SME representatives, however, predominantly emphasised the need for practical support, including understandable guidance, digital solutions, training, consultations and financial assistance.

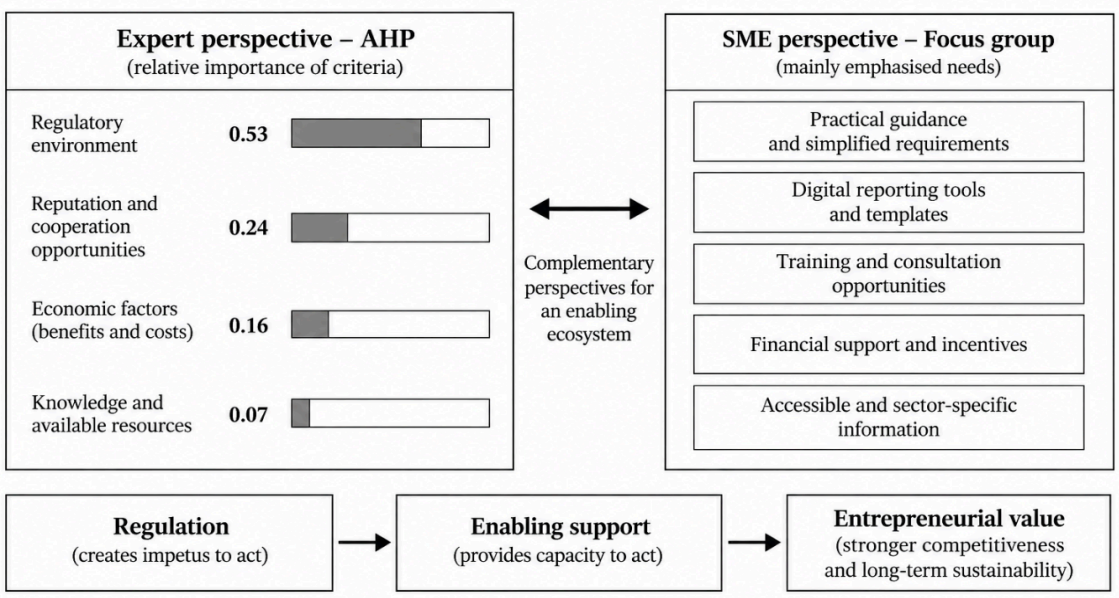


Figure 1. Key drivers of voluntary sustainability reporting in SMEs: comparison of expert and SMEs perspectives
Source: Authors' illustration based on focus-group and AHP results.

This divergence constitutes a central finding. Regulation and support should not be interpreted as competing solutions. Regulation may create the motivation to act, whereas enabling mechanisms provide SMEs with the capacity to act. Such combination can facilitate a transition from externally motivated compliance towards strategically integrated sustainability practices. Both groups also recognised indirect incentives, including sustainability criteria in financing and public procurement.

The case of JSC MADARA Cosmetics demonstrates how sustainability can be embedded within a broader entrepreneurial strategy. Its reporting incorporates environmental, social and governance dimensions, including emissions, energy and water use, sustainable ingredients and packaging, employee-related indicators, human rights, diversity, ethics, anti-corruption and disclosure practices. The company's net turnover increased from EUR 16.07 million in 2020 to EUR 21.52 million in 2024, corresponding to growth of 33.91%. Profit was more volatile, declining substantially in 2022 and reaching EUR 5.44 million in 2024. The latter increase should be interpreted cautiously because it was significantly influenced by income from the sale of the MOSSA brand.

	2020	2021	2022	2023	2024
Net turnover (EUR million)	16.07	19.37	18.70	20.23	21.52
	+33.91%				
Annual profit (EUR million)	3.45	3.67	1.12	1.60	5.44*
Sustainability orientation	ESG reporting integrated into business practice →				

Figure 2. JSC MADARA Cosmetics business development alongside with sustainability reporting
Source: Authors' illustration based on JSC MADARA Cosmetics financial statements and study results.

The case does not establish a direct causal relationship between sustainability reporting and financial performance. However, it demonstrates how reporting can coexist with internationalisation, transparency, brand differentiation and sustained business development. This distinction is important because previous research (Cerciello et al., 2023; Vuković et al., 2024; Momtaz & Parra, 2025; Ştefan et al., 2025) also indicates that relationships between sustainability reporting and profitability are complex rather than automatic.

The research findings indicate that voluntary sustainability reporting can contribute to SME competitiveness when it becomes integrated into strategic management rather than treated as an isolated administrative exercise. Its entrepreneurial value lies in improving transparency, reputation, stakeholder relationships, access to cooperation opportunities and internal decision-making. However, voluntary adoption cannot be expected to develop extensively without an enabling ecosystem. The study also identifies the need for simplified SME-oriented reporting guidelines, a unified digital platform incorporating practical examples and tools, training and advisory mechanisms, financial incentives and stronger links between sustainability performance, financing and public procurement. Finally, study contributes to sustainable entrepreneurship research by conceptualising sustainability reporting not merely as an accountability outcome but as a potential entrepreneurial capability. Reporting itself does not automatically generate competitive advantage. Its value emerges when sustainability information is used to improve decisions, communicate credible responsible-business practices and respond proactively to evolving market and stakeholder expectations. Thus, the transition from compliance to capability represents a potential pathway, through which SMEs can transform sustainability pressures into opportunities for long-term competitiveness.

Keywords: sustainable entrepreneurship; voluntary sustainability reporting; ESG; AHP

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BEYOND CARBON: BIODIVERSITY STRATEGIES AS A VALUE DRIVER FOR SUSTAINABLE ENTREPRENEURSHIP IN EMERGING MARKETS

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Abstract

Entrepreneurs and the investors who back them are increasingly required to design strategies for a future in which natural capital can no longer be taken for granted. As ecosystems deteriorate at an unprecedented pace, biodiversity is no longer confined to the environmental agenda: it has become a source of financial risk with measurable consequences for corporate performance and market value (Bach et al., 2025; Di Tommaso et al., 2025; Sun et al., 2025). Some 55% of global GDP, around $58 trillion of economic value, is moderately or highly dependent on nature, up from the $44 trillion estimated three years earlier (World Economic Forum, 2020; PwC, 2023). For sustainable entrepreneurship, this raises a very practical question: which environmental choices actually pay off, and in what combination? The question is still open. A first strand of work has begun to connect biodiversity to entrepreneurial capability, but it stops at sustainability ratings rather than financial outcomes (Wang et al., 2026), and corporate engagement with biodiversity remains fragmented and weakly theorised (Testa et al., 2025). Finance literature, for its part, has concentrated on climate risk and carbon reduction, leaving biodiversity largely unexamined. We address this gap by asking whether biodiversity management strategies alter the financial consequences of a firm's greenhouse gas (GHG) emissions.

Carbon credits are now a mainstream climate finance tool through which firms manage climate-related risks and signal their environmental commitment (Martielli et al., 2025). What they deliver, however, depends on how they are embedded within the firm's wider sustainability strategy, and their contribution may be greater when they form part of a broader approach to natural capital management (Singh et al., 2025). From an entrepreneurial standpoint, this shifts attention from the adoption of a single green instrument to the orchestration of a coherent set of green practices. We therefore study firms that already use

carbon credits and ask whether, within this group, biodiversity strategies change the way emissions translate into financial outcomes. The setting is emerging markets, where businesses depend most heavily on natural capital and are most exposed to biodiversity loss.

Our theoretical framework combines two complementary lenses. The first is the Natural Resource-Based View (NRBV), according to which firms build competitive advantage by managing natural resources effectively and operating within environmental limits (Singh et al., 2025). Whereas carbon credits are aimed chiefly at reducing or offsetting emissions, biodiversity strategies cover a wider range of actions, including habitat restoration and ecosystem protection, which help firms contain the risk of supply chain disruption and regulatory penalties (Bach et al., 2025); firm-level evidence further links conservation spending to profitability (Watanabe et al., 2025). The second is Stakeholder Theory, which suggests that firms committed to biodiversity conservation can narrow information asymmetries, gain social legitimacy and consolidate their licence to operate, thereby raising investor confidence and market valuation (Cosma et al., 2025). Since prior evidence shows that corporate strategies shape how climate-related exposures translate into financial performance (Martielli et al., 2025), biodiversity strategies emerge as a moderating factor that merits closer scrutiny. Two hypotheses follow. First, GHG emissions are expected to depress Tobin's Q and Return on Assets (ROA) and to raise the Weighted Average Cost of Capital (WACC), because investors read a high emissions profile as a sign of unmanaged climate risk. Second, biodiversity strategies are expected to moderate this relationship positively, softening the penalty that emissions carry for firm value and for financing costs.

Emerging markets offer a particularly relevant setting for three reasons. Renewable natural capital accounts for roughly a quarter of total wealth in low-income countries, the highest share of any income group, which makes conservation central to business continuity (World Bank, 2021). These economies also contain most of the world's biodiversity hotspots and face mounting regulatory pressure, so that sound environmental management can become a source of competitive advantage (Sun et al., 2025). Institutional quality, in turn, conditions how far a sustainability orientation translates into venture outcomes (Audretsch et al., 2024). Finally, their abundance of high-carbon-stock ecosystems opens considerable scope for Nature-based Solutions, giving businesses distinctive opportunities to pursue climate mitigation and biodiversity conservation together (Seddon et al., 2020).

Data are drawn from the LSEG database. The sample comprises 226 non-financial firms in the MSCI Emerging Markets index that used carbon credits consistently across the three financial years from 2022 to 2024, giving 678 firm-year observations. We estimate moderated pooled Ordinary Least Squares (POLS) models. The independent variable is GHG emissions (Em). The moderator is the lagged Biodiversity Impact Reduction Score (Lag_Bio), which captures a firm's commitment, transparency and effectiveness in reducing its operational impact on biodiversity and native ecosystems; the same indicator has been used to capture corporate biodiversity effort in recent work (Pokharel, 2025). Financial performance is captured by three measures: Tobin's Q for market valuation, ROA for profitability and WACC for the cost of financing. All models control for leverage, firm size, the share of women on the board, capital expenditure, and country and sector dummies.

The preliminary findings support the idea of a biodiversity premium. In the baseline models, higher emissions go together with lower market value and a higher cost of capital, consistent with investors reading a high emissions profile as a sign of unmanaged climate risk; the

estimate for accounting profitability, by contrast, does not follow the expected direction and needs further investigation. Once the lagged biodiversity score enters as a moderator, the picture changes. The interaction is positive and significant for market value and negative and significant for the cost of capital, so firms that combine carbon credits with an active biodiversity strategy are valued more highly and finance themselves more cheaply than comparable firms, whereas no significant moderation emerges for profitability. Read together, these early results suggest that biodiversity management works through valuation and financing channels rather than through short-run profitability, which is consistent with conservation carrying upfront costs while improving how investors assess the firm. Being preliminary, the estimates call for further validation.

These early findings carry implications at several levels. Theoretically, they extend the NRBV by showing that biodiversity strategies generate competitive advantage beyond carbon management, and they clarify how environmental strategies condition the financial consequences of emissions. For entrepreneurs, managers and intrapreneurs, the message is practical: biodiversity protection is better seen as a strategic resource that supports valuation and lowers the cost of capital than as a cost to be minimised, and it appears most effective when designed alongside carbon credit programmes rather than as a stand-alone initiative. On the policy side, the results support the development of integrated "nature credits" that reward both climate and biodiversity outcomes, the more so because the mitigation actually delivered by carbon credits alone is contested (Probst et al., 2024). Financial institutions should embed biodiversity metrics in credit risk models and design biodiversity-linked financing products, which could also ease the financing constraints that hold back ventures built around nature-positive business models (Wang & Saqib, 2025).

Overall, the study suggests that integrating biodiversity into corporate strategy can be a financially sound choice for firms in emerging markets. Biodiversity management appears to soften the valuation penalty and the financing cost attached to emissions, while leaving accounting profitability unchanged over the horizon observed. For those designing tomorrow's businesses, this offers a decision-relevant insight: combining climate and nature strategies may be a route to both environmental impact and financial return. Should future studies confirm these patterns, firms, entrepreneurs, investors and policymakers that place biodiversity at the core of their strategies are likely to be better equipped for the transition to a nature-positive economy. The findings remain preliminary: they rest on emerging markets alone, on a three-year window, and on a lagged disclosure-based score as a proxy for biodiversity strategy. As the sample also comprises large listed companies, further research is needed to establish whether these results extend to smaller and younger ventures, as well as to other settings and timeframes.

Keywords: Sustainable entrepreneurship; Biodiversity strategies; Carbon credits; Financial performance; Emerging markets.

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ENTREPRENEURSHIP WHERE IT MATTERS MOST: LESSONS FROM CONFLICT, DISPLACEMENT, AND FRAGILE CONTEXTS FOR SOCIAL WELL-BEING AND HOPE

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Abstract

Entrepreneurship is commonly associated with opportunity recognition, innovation, growth, and economic value creation. Yet in contexts marked by conflict, displacement, fragile institutions, and severe socioeconomic disruption, entrepreneurship may acquire a substantially different meaning. Rather than being primarily associated with business growth or individual economic advancement, entrepreneurial activity can become a mechanism for sustaining livelihoods, creating social value, strengthening community resilience, and preserving opportunities for people whose economic and professional prospects have been severely disrupted. This perspective is particularly relevant in conflict-affected and fragile environments, where conventional socioeconomic models may be unable to provide adequate responses to the needs of local populations. Recent research has increasingly highlighted the complex relationship between entrepreneurship, conflict, inclusion, and value creation in such settings (Joseph and Van Buren, 2022; Hirschmann et al., 2026).

This contribution presented at ICEM 2026 gathers a first draft of a planned study related to the principal author's doctoral thesis. This work approaches these dynamics through the Social Entrepreneurship (SE) framework, which provides a conceptual lens for understanding entrepreneurial initiatives in which the creation of social value constitutes a primary or prominent objective (Peredo and McLean, 2006). This perspective can, in turn, be reframed within the broader framework of the Social and Solidarity Economy (SSE), which emphasizes social utility, collective well-being, democratic forms of governance, and social objectives rather than the exclusive pursuit of capital accumulation (Utting, 2015; Utting et al., 2014). From this perspective, entrepreneurship in extreme contexts can be understood not simply as an economic response to crisis, but as a form of social action capable of generating opportunities and strengthening the capacity of individuals and

communities to cope with uncertainty and disruption.

The draft research focuses specifically on the idea of social well-being through entrepreneurship and explores how entrepreneurial initiatives can contribute to individual and collective well-being under highly constrained conditions. In these environments, entrepreneurial processes may also foster forms of leadership and collaboration that differ from conventional hierarchical models. In particular, community-centered approaches may be compatible with the principles of Servant Leadership Theory, originally developed by Greenleaf (1970) and subsequently developed in organizational and management research (Eva et al., 2019). Servant leadership emphasizes the development and empowerment of people, collective achievement, social responsibility, and a strong orientation toward the needs of others. These principles may become particularly relevant where social ties and mutual support are essential elements of entrepreneurial initiatives and where conventional organizational resources are severely limited.

The role of technology is another central dimension of the planned analysis to be carried out in the doctoral thesis. In situations characterized by geographical restrictions, physical isolation, displacement, destruction of infrastructure, or limited mobility, digital technologies may provide alternative ways of maintaining economic and professional activity. From an Information and Communication Technologies for Development (ICT4D) perspective, digital tools can create new forms of participation, connectivity, and livelihood generation in contexts where physical infrastructures are disrupted (Heeks, 2017, 2020). Digital labor and remotely mediated economic activity may also provide opportunities for people to access international markets without necessarily requiring physical relocation (Graham et al., 2017). In this sense, concepts such as Digital Livelihoods and Virtual Refuges can help explain how digital entrepreneurship and remote work may create alternative pathways for sustaining professional capabilities and reducing the need for permanent physical displacement.

This dimension is particularly relevant because conflict and displacement can generate substantial risks of brain drain, as skilled individuals may have few alternatives other than leaving their communities in search of safety and economic opportunity. Digital entrepreneurship offers a potentially different pathway: rather than requiring talent to leave physically, digital connectivity may allow individuals to become economically connected to external markets while remaining geographically connected to their communities. This does not eliminate the structural difficulties associated with conflict or displacement, but it may create intermediate forms of economic participation and professional continuity. Related experiences with social outsourcing, impact sourcing, and the integration of disadvantaged populations into international digital labor markets illustrate the potential of these mechanisms to connect local capabilities with external economic opportunities (Heeks and Arun, 2010; Lacity et al., 2014).

To examine these dynamics, the study aims to analyze two complementary draft case studies of entrepreneurship in conflict-affected, displacement-related, or highly pressured environments. The first case focuses on a university-based technology incubator operating in an extreme conflict setting. The initiative provides incubation, mentoring, and seed funding to local ICT graduates and entrepreneurs and seeks to transform local technical capabilities into viable remote business activities. In a context characterized by structural isolation and severe constraints on mobility and economic activity, the incubator represents not only an entrepreneurial support mechanism but also a platform for sustaining local talent, generating livelihoods, and strengthening digital resilience. Its relevance can also be considered in light of the literature on social incubation, which emphasizes the potential of incubators to support

social enterprises and entrepreneurial initiatives in challenging environments (Hmayed et al., 2015).

The second case provides a complementary perspective from a tension-affected and displacement-related environment connected to the wider MENA region. It concerns a technology-oriented NGO that emerged from an entrepreneurial initiative and subsequently developed nearshoring programs for social impact. The organization works to train and connect vulnerable technology talent—including refugees, displaced people, and marginalized young people—with employment opportunities in European remote labor markets. In doing so, it creates a bridge between talent located in crisis-affected contexts and international demand for digital skills. The case may illustrate how entrepreneurial and organizational models can combine training, social inclusion, technology, and international market access, creating alternative livelihood opportunities for populations facing significant structural disadvantages. Research on entrepreneurship education, mentoring, and entrepreneurial success also underlines the relevance of these forms of support in highly challenging environments (see, for example, Elmassarey et al., 2025; Morrar et al., 2024).

The comparison of the two cases may allow to explore several interconnected dimensions of entrepreneurship in extreme contexts: livelihood generation, social well-being, community resilience, digital connectivity, inclusion, leadership, and hope. The cases may indicate that the value of entrepreneurship may extend beyond the establishment of firms or the generation of financial returns. It may also lie in the capacity to preserve capabilities, maintain professional identities, connect people to wider economic networks, strengthen social relationships, and create credible grounds for hope. This perspective might be consistent with approaches that emphasize the relationship between entrepreneurship, inclusion, social value creation, and peace-building processes (Joseph and Van Buren, 2022), while also recognizing the tensions and paradoxes involved in combining economic survival, social objectives, and highly uncertain environments (Smith and Lewis, 2011).

Finally, the study may consider the extent to which these extreme-context experiences may generate lessons beyond conflict settings. The challenges addressed by these initiatives—economic disruption, social fragmentation, forced mobility, digital exclusion, and uncertainty—are not exclusively associated with war. Global pandemics, climate emergencies, growing inequality in many parts of the world, and broader systemic socio-ecological disruptions are challenging established socioeconomic models and creating new forms of vulnerability. The experiences analyzed in this study may therefore may provide transferable insights for designing entrepreneurship programs capable of combining economic opportunity with social inclusion and well-being. The ultimate contribution of the research may then highlight entrepreneurship not simply as a mechanism for creating businesses, but as a potential source of livelihoods, resilience, social connection, and hope when conventional pathways are disrupted.

Keywords: social entrepreneurship; conflict and displacement; digital livelihoods; social well-being.

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UNIVERSITY ENTREPRENEURSHIP AND RESEARCH CAREER DEVELOPMENT: AN EXPLORATORY COMPARATIVE STUDY OF BARRIERS AND INCENTIVES

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Abstract

In recent decades, the production and transfer of scientific knowledge have undergone significant transformation, as they have increasingly become integrated into innovation systems characterized by complex interactions among universities, businesses, public administrations, and other social actors. In this context, knowledge transfer should not be understood solely as the dissemination of scientific results. Rather, it encompasses processes of collaboration, exchange, and co-creation of value involving multiple non-academic stakeholders, as highlighted in the literature (see, for example, Molas-Gallart et al., 2002; Ramos-Vielba and Paneque, 2025). Academic entrepreneurship represents one of the manifestations of these new forms of interaction between universities and their broader environments. Within this field, the creation of university *spin-offs* and *startups* constitutes a relevant mechanism for the social and economic valorization and exploitation of knowledge generated within higher education institutions and has received considerable attention in the

literature (see, for example, Miranda et al., 2018; Pattnaik & Pandey, 2014; Ziakis et al., 2022).

However, the creation and consolidation of university *spin-offs* and *startups* is a process shaped by multiple opportunities and constraints. The literature on the so-called third mission of the university indicates that these activities depend on a broad range of factors, including institutional, organizational, financial, and contextual factors, as well as the capabilities of individual universities and the characteristics of the ecosystems in which these initiatives develop (Compagnucci and Spigarelli, 2020). In this regard, the literature on academic *spin-offs* has also emphasized the need to consider the different dimensions involved in their formation and development, including the motivations underlying their creation and the conditions that facilitate or constrain their emergence and growth (Miranda et al., 2018; Pattnaik and Pandey, 2014). Recent research has also examined the role of entrepreneurial orientation in academic *spin-off* formation, further highlighting the multidimensional nature of the process (Anjum et al., 2025).

Furthermore, the promotion of academic *spin-offs* and *startups* should not be understood exclusively as an additional mechanism for knowledge transfer. It may also constitute a complementary professional activity for researchers and, potentially, contribute to the development of new hybrid academic-professional career paths, professional development opportunities, and mechanisms for the research career development. This dimension is particularly relevant in a context in which academic careers are undergoing transformation and in which more diverse and innovative models of professional development are being considered for researchers, particularly during the early stages of their careers (Chatzea et al., 2022).

From this perspective, this study develops an exploratory comparative analysis of the barriers and incentives associated with the compatibility between academic entrepreneurship and research careers, with particular attention to early-career researchers. The objective is to identify and analyze the main factors that may facilitate or hinder the creation and development of university *spin-offs* and *startups*, paying particular attention to elements related to academic and professional incentives (Lenzer and Kulczakowicz, 2021; Ziakis et al., 2022). In particular, the study examines the recognition—or lack of recognition—of academic entrepreneurship activities within processes for evaluating and accrediting research activity and faculty careers, as well as within specific competitive funding calls for predoctoral and postdoctoral researchers, research projects, research groups, and related initiatives.

This issue is relevant because researchers' decisions regarding their participation in this type of knowledge-transfer activity may be influenced not only by the availability of funding, infrastructure, or institutional support, but also by the way in which these activities are valued within their academic careers. The existence of tensions between entrepreneurial activities and traditional mechanisms of academic recognition may therefore constitute a factor limiting researchers' participation in business creation processes. In this regard, the literature has emphasized the importance of jointly considering the characteristics of support ecosystems, university structures, and the conditions under which research careers develop (Compagnucci and Spigarelli, 2020; Meoli et al., 2019). University governance may be particularly relevant in this context, given its relationship with the establishment and development of academic *spin-offs* (Meoli et al., 2019).

The study adopts an exploratory and comparative approach based on the analysis of different cases corresponding to several Spanish autonomous communities. The analysis

comparatively examines, among other aspects, the structures and mechanisms supporting university entrepreneurship, existing programs for its promotion and their evolution, and the extent to which these programs take into account the specific realities of research careers. Particular attention is paid to the way in which activities related to academic entrepreneurship are considered within evaluation and accreditation systems developed by university quality assurance agencies. The objective is not to establish a ranking of the different models analyzed, but rather to identify differences and common elements that can contribute to a better understanding of the institutional conditions under which researchers can combine scientific careers with entrepreneurial activities.

The analysis is complemented by an exploratory examination of a case in the Italian context, providing an international comparative perspective on the relationship between academic entrepreneurship, research careers, and evaluation and accreditation systems. The inclusion of the Italian case is relevant because its system for faculty evaluation and accreditation presents certain similarities with the Spanish context, although it is currently undergoing reform. At the same time, it operates within a context with different institutional characteristics. The comparison therefore makes it possible to extend the discussion beyond the Spanish context and explore how different institutional configurations may generate different incentives or barriers to researchers' participation in entrepreneurial activities.

The exploratory analysis thus highlights the need to consider university entrepreneurship from a broader perspective than one focused exclusively on business creation. University *spin-offs* and *startups* can be understood as part of broader ecosystems for knowledge transfer and valorization involving different actors, resources, and institutional mechanisms (Miranda et al., 2018; Meoli et al., 2019). From this perspective, policies promoting academic entrepreneurship should also take into account the professional trajectories of the individuals developing these initiatives and, in particular, the conditions that may support their continued participation and development within the university system. This perspective is especially important for early-career researchers, whose professional trajectories may be more strongly shaped by existing evaluation and recognition mechanisms (Chatzea et al., 2022).

The analysis also considers financing as a relevant dimension in the development of university-based entrepreneurial initiatives. Although access to funding is not the sole factor determining the creation and consolidation of *spin-offs* and *startups*, it forms part of the broader set of conditions that can facilitate their development. Previous research has examined different approaches to financing university-based technology startups and the role of funding mechanisms in supporting their emergence and development (Lenzer & Kulczakowicz, 2021). Accordingly, the study considers financing together with institutional support, entrepreneurial ecosystems, and academic recognition rather than treating it as an isolated factor.

Based on this exploratory comparative analysis, the study finally proposes initial context-specific recommendations for improving the university entrepreneurship ecosystem in Gipuzkoa, within the Basque Autonomous Community. This territory represents a particularly relevant context due to the active involvement of different stakeholders in entrepreneurship, innovation, and knowledge transfer. The recommendations are therefore aimed at identifying potential areas for improvement related to academic and professional incentives, institutional support, financing, training, and the conditions required to reconcile research careers with academic entrepreneurship. Rather than proposing a single model, the exploratory study seeks to identify elements that could contribute to a more supportive environment for researchers who wish to combine scientific activity with entrepreneurial

initiatives.

The first findings from the exploratory analysis suggest that, despite the widely held assumption that academic and entrepreneurial career paths are fundamentally different, they may be more similar than one might think, particularly in terms of the skill sets required and the organizational practices they involve as pointed out by Sinell et al. (2015). The exploratory evidence also indicates —consistent with Rizzo's (2015) findings for the Emilia-Romagna region of Italy— that early-career researchers may be drawn to the creation of academic spin-offs primarily as a form of 'necessity entrepreneurship'. In this context, scholarly *spin-off* creation may be perceived as a way to secure employment related to their field of expertise while circumventing the considerable bottlenecks associated with academic recruitment (with as stated certain similarities with the Spanish context). By contrast, the incentives and motivations of researchers or faculty members who already enjoy a greater degree of employment stability appear to differ substantially, as their decision to engage in academic entrepreneurship is less directly shaped by the need to obtain employment and may instead be influenced by other professional, institutional, or career-related considerations.

Overall, the study contributes to the discussion on university entrepreneurship by connecting two dimensions that are often considered separately: the development of university-based entrepreneurial initiatives and the professional trajectories of the researchers involved in them. By comparing different institutional contexts, the analysis seeks to identify how evaluation and accreditation systems, university support structures, funding mechanisms, and entrepreneurial ecosystems may shape the opportunities and constraints faced by researchers. In particular, the focus on early-career researchers provides an additional perspective on how academic entrepreneurship may interact with emerging research career models. Future research could build on this exploratory analysis through a more systematic comparison of institutional frameworks and through empirical research examining the experiences and perceptions of researchers involved in university *spin-offs* and *startups*.

Keywords: academic entrepreneurship; university spin-offs; research careers; knowledge transfer; university ecosystems.

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DESIGNING AND VALIDATING A DIGITAL MATURITY ASSESSMENT INSTRUMENT FOR SOCIAL ECONOMY ORGANIZATIONS IN THE CONTEXT OF TWIN TRANSFORMATION

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Abstract

Social economy organizations are under growing pressure to incorporate digital technologies without losing their social purpose, while also advancing toward more sustainable models. The literature frames this dual challenge as Twin Transformation, in which digital and sustainable transformation reinforce each other. Yet most digital maturity models have been built for conventional business settings and rarely reflect the realities of the social economy, and Twin Transformation, a concept introduced in 2021, remains scarcely explored in this sector. This study addresses that gap by designing and validating an instrument to assess digital maturity in social economy organizations, and by examining the role of digital maturity as an enabler of Twin Transformation. Following a qualitative approach, the instrument is developed through a literature review and semi-structured interviews with organizations in the sector, then refined through expert judgment and tested in a pilot

application in five organizations. The study is expected to deliver a validated diagnostic tool that helps organizations identify gaps in their digital development and guide their transformation decisions, along with empirical evidence on the link between digital maturity and Twin Transformation in a still underexplored field.

Keywords: Social economy; Twin Transformation; Digital maturity; Instrument design and validation; Digital and sustainable transformation.

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CORPORATE SOCIAL RESPONSIBILITY AS A FOUNDATION FOR SUSTAINABLE CULTURAL ENTREPRENEURSHIP

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Abstract

Cultural ventures sit at the intersection of entrepreneurship and responsibility. Museums, festivals, independent publishers, craft workshops and small creative firms must remain economically viable while sustaining social, environmental and cultural resources that are shared with their communities. This makes the sector a particularly revealing setting for sustainable entrepreneurship, especially because it is characterised by micro-businesses and freelance or self-employed work (Komorowski & Lewis, 2023). Recent CSR reviews have focused on settings such as controversial industries and hospitality and tourism rather than on cultural ventures (Jansen et al., 2024; Kuhzady et al., 2025). Recent sustainable entrepreneurship reviews likewise map the field broadly but offer limited sector-specific guidance for cultural ventures (Abbas & Bulut, 2024; Jindal et al., 2025). This paper therefore asks how CSR can serve as a strategic foundation for the sustainability and long-term viability of cultural ventures, particularly micro-enterprises and creative organisations.

"CSR in culture" has become a convenient label, and like many convenient labels it is used in at least two different ways. The first meaning refers to firms outside the sector that support culture through sponsorship, patronage or foundation activity. The second refers to cultural

ventures themselves, which adopt responsible practices in their own operations: fair pay for artists, accessible pricing, environmental management of venues, and the safeguarding of local heritage. The two meanings are frequently mixed. The result is conceptual noise. Sponsorship is treated as evidence of responsibility, while the working conditions inside the sponsored organisation remain unexamined. This paper separates the two and concentrates on the second. We define cultural CSR as the integration of social, environmental and heritage-related obligations into the business model of a cultural venture, in a way that is continuous rather than occasional, and that creates value for the venture and for its community at the same time. The emphasis on community value and collaboration is consistent with research on community-based cultural initiatives and stakeholder collaboration in cultural and creative industries (Sica et al., 2025).

Building on this definition, we propose that cultural CSR rests on three components. The first is cultural stewardship: the venture treats the heritage, the skills or the repertoire it works with as a resource held in trust, not as stock to be consumed. The second is community embeddedness: the venture is anchored in a specific place and accepts obligations towards the residents, audiences and craftspeople of that place. The third is responsible enterprise: standard CSR practice, such as fair contracts, transparent governance and environmental management, applied at the small scale at which cultural firms actually operate. These components are supported by two layers. A resource layer, in which small cultural organisations mobilise funding, creative labour and community relationships under resource constraints (Zhang & Kennedy, 2025). And a legitimacy layer, in which responsible conduct is converted into reputation, access to funding and audience loyalty. Together, these elements explain how CSR can support both mission continuity and venture viability. Sustainability in this sector is therefore not only environmental. It also concerns the continuity of the cultural practice itself, extending the broad social, environmental and economic framing of sustainable entrepreneurship (Abbas & Bulut, 2024; Jindal et al., 2025).

The gap is easy to state. Recent CSR reviews provide substantial evidence in specific sectors, such as controversial industries and hospitality and tourism, but do not directly address the small cultural-venture context considered here (Jansen et al., 2024; Kuhzady et al., 2025). Cultural entrepreneurship research, for its part, has examined identity, resources, networks,

local embeddedness, governance and resilience (Näsholm & Eriksson, 2025; Bocconcelli et al., 2025). The two literatures therefore provide limited direct guidance on how CSR can become a strategic resource for long-term viability when social, environmental and heritage obligations must be balanced with economic survival. They do not resolve how a ten-person festival organisation decides between paying its performers better and keeping ticket prices low, although this is exactly the kind of decision that responsible management involves in the sector. Small size is not simply a limitation to be noted in passing. It changes the nature of the problem, because the founder is at the same time the ethics officer, the fundraiser and the programmer.

To examine this framework, the study proposes a mixed-method design. Ethics approval for the study has already been obtained from the Universitat Politècnica de València (UPV), and all fieldwork will be conducted under that approval. The planned survey will target 120 cultural ventures in Spain, including museums, festivals, performing arts companies, craft producers and creative agencies. It will examine the extent to which ventures engage in practices associated with cultural stewardship, community embeddedness and responsible enterprise; whether those practices are communicated explicitly as CSR; and how they relate to perceived legitimacy, access to funding and long-term viability. The survey will be followed by twelve semi-structured interviews with founders and cultural managers. Three comparative case studies are also proposed: a regional music festival, a heritage craft cooperative, and a privately funded contemporary art space. These cases will examine how responsible choices are made under resource constraints and how cultural, community and enterprise obligations are balanced in practice. No empirical results are reported at this stage; the purpose of the proposed design is to test the framework through fieldwork conducted under the approved protocol.

The empirical stage will focus on three tensions suggested by the conceptual framework. Measurement is the first: indicators developed for large firms may not capture heritage stewardship, community value or the continuity of cultural practice. Proportionality is the second: certification and reporting can impose costs that may be excessive for an organisation of five or ten people. Credibility is the third: cultural ventures must distinguish substantive partnerships from uses of culture primarily for reputational visibility. These issues will be

treated as questions to investigate rather than as findings. In particular, the study will ask how small ventures document responsible practice, how they evaluate the costs and benefits of formal CSR communication, and how they assess sponsors whose search for visibility may conflict with the venture's mission. This concern will be examined directly in the fieldwork. When CSR in culture is reduced to a logo on a poster, the sector may supply legitimacy while receiving very little in return.

The contribution of the paper is threefold. Conceptually, it clarifies a term that is used loosely and proposes a definition that can be tested. Empirically, it sets out a mixed-method design for examining cultural ventures, a context not directly addressed by the CSR reviews cited above. In particular, the design will test whether responsibility-related practices in cultural ventures are sometimes carried out without being labelled explicitly as CSR. This is treated as an empirical question, informed by research on the work of cultural entrepreneurs and on sector-specific CSR practices (Näsholm & Eriksson, 2025; Kuhzady et al., 2025). Practically, it proposes instruments adapted to the size of these organisations for refinement during the empirical stage: a simplified reporting template, criteria for evaluating sponsors instead of only being evaluated by them, and training in the vocabulary of responsibility. Policy implications will also be examined. Public funding schemes could reward the continuity of responsible practice rather than isolated projects, and could treat fair remuneration of artists as a condition rather than as an aspiration.

Because the fieldwork has not yet begun, the empirical limitations are prospective rather than observed. The planned study will be confined to Spain and will rely partly on self-reported data; the recruitment process may also attract ventures already interested in the topic. These risks will therefore need to be considered in sampling and in the interpretation of the subsequent findings. Several questions remain open. Does explicit CSR communication help small cultural ventures, or does it damage the perception of authenticity on which they depend? How should cultural stewardship be assessed alongside the social, cultural and economic dimensions of creative and cultural industry sustainability (Komorowski & Lewis, 2023)? And what governance arrangements allow a micro-enterprise to sustain responsible practice across successive generations of managers? These questions define an agenda rather than close one. The paper is offered in that spirit, as a conceptual framework and proposed

empirical programme that gives the cultural sector a proper place in the discussion of sustainable entrepreneurship, and gives responsibility a place in the discussion of cultural work.

Keywords: Corporate Social Responsibility, Cultural Entrepreneurship, Sustainable Entrepreneurship, Cultural Sector

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FROM FIRM-LEVEL ESG TO SECTORAL SUSTAINABILITY: IMPLICATIONS FOR CORPORATE DIVIDEND POLICY

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Abstract

Research on the link between ESG performance and corporate dividend policy has expanded considerably in recent years. Prior studies have predominantly assessed sustainability from the perspective of individual firms (e.g., Benlemlih, 2019), leaving the potential influence of broader sectoral sustainability conditions insufficiently addressed. In particular, the extent to which sector-specific sustainability conditions at the national and European levels influence firms' dividend decisions has received limited empirical attention. This study seeks to fill this gap by examining whether dividend policy is associated with ESG performance at the firm level as well as with sectoral sustainability conditions at the country and European levels. This multi-level approach broadens the conventional firm-centred perspective and offers a more comprehensive view of the ways in which sustainability-related factors operating at different levels of the business environment may shape corporate payout decisions.

Prior empirical research has yet to establish a consistent conclusion regarding the implications of corporate sustainability performance (CSP), commonly captured through ESG scores or CSR ratings, for firms' dividend decisions. A substantial part of the literature points to a positive relationship, indicating that companies demonstrating stronger sustainability performance are generally more inclined to make distributions to shareholders (Benlemlih, 2019; Ellili, 2022; Salvi et al., 2024). The potential benefits of ESG engagement appear to extend beyond the amount of dividends paid. Previous research associates stronger ESG involvement with more stable payouts and a greater likelihood of paying dividends (Matos et al., 2020; Ryu et al., 2025). Such findings can be explained by stakeholder, legitimacy, and agency perspectives: superior ESG performance may strengthen relationships with stakeholders, alleviate information asymmetry and perceived risk, and contribute to more effective corporate governance.

ESG performance is not a homogeneous construct, and its individual dimensions may have distinct implications for corporate payout decisions. Evidence concerning the

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environmental and social dimensions, for example, points to potentially beneficial effects on dividend policy (Ryu et al., 2025), whereas other research demonstrates that the direction and magnitude of the relationship may differ between ESG pillars and be sensitive to the specification of the empirical model (Matuszewska-Pierzynka et al., 2023). A contrasting perspective is provided by studies identifying negative or ambiguous effects, which suggest that resources allocated to sustainability initiatives may reduce the funds available for shareholder distributions (Nirino et al., 2020).

The ESG–dividend nexus cannot necessarily be considered independently of the institutional and organisational setting in which firms operate. Prior research indicates that factors such as ownership arrangements, corporate governance, audit quality, and the availability of alternative mechanisms for distributing corporate resources can modify this relationship (Zahid et al., 2023). Taken together, these findings point to the context-dependent nature of the relationship between sustainability performance and dividend policy. They also suggest that concentrating exclusively on firm-level ESG characteristics may provide an incomplete picture, as sustainability conditions operating at higher levels may also influence corporate payout decisions. This leads to the following research question: To what extent do sector-level sustainability conditions at the national and European levels influence firms' dividend policy?

The research question is examined using data covering the period from 2010 to 2024. The study sample consists of 322 non-financial companies included in the STOXX Europe 600 Index, providing a total of 3,663 firm-year observations.

We employ fixed-effects panel data regression models. The general specification of the panel regression model is below:

$$DPR_{i,t} = \alpha_0 + \alpha_1 ROE_{i,t-2} + \alpha_2 QR_{i,t-2} + \alpha_3 LTD/TE_{i,t-2} + \alpha_4 lnMarketCap_{i,t-2} + \beta \boldsymbol{X}_{i,t-2} + \varepsilon_{i,t} \quad (1)$$

where: $DPR_{i,t}$ – dividend payout ratio of the i-th company in year t; $ROE_{i,t-2}$ – return on equity of the i-th company in year t-2; $QR_{i,t-2}$ – quick ratio of the i-th company in year t-2; $LTD/TE_{i,t-2}$ – long-term debt to total equity of the i-th company in year t-2; $lnMarketCap_{i,t-2}$ – natural logarithm of market capitalization of the i-th company in year t-2; $\boldsymbol{X}_{i,t-2}$ – a vector of ESG performance, all variables lagged by two years; $\varepsilon_{i,t}$ – error term.

The composition of the vector $\boldsymbol{X}$ varies across model specifications. The ESG measures considered are as follows: $ESG_Firm_{i,t-2}$ – ESG performance of the i-th company in year t-2; $ESG_Country\text{-}Sector_{i,t-2}$ – sectoral ESG performance in a given country in year t-2; $ESG_Europe\text{-}Sector_{i,t-2}$ – sectoral ESG performance in Europe in year t-2.

All data was obtained from the LSEG database.

Across all models, *ESG_Firm* is positive and statistically significant at 1%, indicating that stronger firm-level ESG performance is associated with higher dividend payouts. In contrast, sectoral ESG performance at the country level has a negative and significant coefficient at 5% in Model 1, but loses significance when sectoral ESG performance at the European level is introduced in Model 3. *ESG_Europe-Sector* is negative in both Models 2 and 3 and statistically significant at 5% and 10%, respectively, indicating an inverse relationship between sectoral ESG performance and dividend payouts. This may reflect higher investment requirements arising from sector-specific sustainability standards, financed through retained earnings and thus reducing free cash flow available for dividends (Table 1).

Table 1. Panel regression results with firm fixed effects

Variable	Model 1	Model 2	Model 3
Intercept	3456.920* (0.0578)	4416.780** (0.0225)	4622.410** (0.0172)
ROE	0.927 (0.1310)	0.972 (0.1135)	0.986 (0.1086)
QR	1145.640*** (<0.0001)	1138.780*** (<0.0001)	1141.870*** (<0.0001)
LTD/TE	−1.420** (0.0228)	−1.486** (0.0175)	−1.504** (0.0162)
lnMarketCap.	−201.050** (0.0135)	−179.294** (0.0279)	−187.480** (0.0218)
ESG_Firm	14.147*** (0.0011)	12.532*** (0.0032)	13.661*** (0.0016)
ESG_Country-Sector	−13.319** (0.0364)		−9.470 (0.1597)
ESG_Europe-Sector		−39.5140** (0.0198)	−31.224* (0.0819)
No. of observations	3,663	3,663	3,663
R-squared within	0.0999	0.1001	0.1007
F-statistic	61.731*** (<0.0001)	61.925*** (<0.0001)	53.377*** (<0.0001)

Note: p-values are in parentheses. For individual coefficients, the null hypothesis is that the coefficient equals zero. The F-test assesses the joint significance of the regressors. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Source: authors' elaboration

The reported F-tests indicate that the regressors are jointly significant in all three models ($p < 0.0001$). The within R^2 ranges from 0.0999 to 0.1007, indicating that the models explain approximately 10% of the variation in dividend payout ratios over time within firms.

The findings demonstrate a robust and statistically significant positive association between firm-level ESG performance and dividend payouts. This result corresponds with previous research showing that firms with stronger ESG scores tend to distribute higher dividends (Benlemlih, 2019; Ellili, 2022; Salvi et al., 2024). It is also consistent with evidence that ESG engagement contributes to more stable and shareholder-oriented payout policies (Matos et al., 2020; Ryu et al., 2025). From the perspective of stakeholder and agency theories, this relationship may reflect the ability of stronger sustainability performance to foster stakeholder confidence, mitigate perceived risk, and strengthen corporate governance.

The effects observed at the sectoral level, however, suggest a different underlying mechanism. Although the country-level sectoral ESG variable loses statistical significance after European-level sectoral ESG is introduced, the latter remains negative and statistically significant, suggesting that greater sustainability pressure across a sector is associated with lower dividend payouts. This finding supports arguments concerning a potential trade-off between corporate sustainability commitments and distributions to shareholders (Nirino et al., 2020), while also reinforcing the view that the consequences of ESG performance for

corporate decisions may vary depending on the broader context in which firms operate (Matuszewska-Pierzynka et al., 2023).

The empirical evidence indicates that stronger ESG performance at the firm level is associated with higher dividend payouts, implying that companies with greater sustainability performance are more inclined to pursue shareholder-oriented distribution policies. By comparison, ESG performance at the European sector level exhibits a negative relationship with dividend payments, whereas the effect observed for country-level sectoral ESG is less pronounced and loses significance when European-level sectoral sustainability is taken into account. These results demonstrate that the relationship between sustainability and dividend policy varies according to the analytical level considered. Taken together, the findings suggest two distinct patterns: firm-level ESG performance may support dividend distributions, while sustainability pressures operating at the sectoral level may constrain payouts, potentially due to increased investment needs and the resulting reduction in free cash flow available to shareholders.

These findings have implications for managers and investors. Managers may find it useful to assess whether their dividend targets leave enough financial flexibility to meet sector-specific sustainability investment needs. Investors comparing firms' dividend payout ratios may benefit from considering each firm's ESG score alongside sectoral ESG indicators at both the national and European levels.

Keywords: corporate sustainability; dividend policy; ESG; European companies; sectoral sustainability)

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HOW BUSINESS MODEL INNOVATION ENABLES ENTREPRENEURIAL SCALING IN SMEs: A SYSTEMATIC REVIEW OF MECHANISMS AND BOUNDARY CONDITIONS

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Abstract

Introduction and research problem
Scaling is becoming an increasingly important phenomenon in entrepreneurship and strategic research, yet its conceptual boundaries remain less established than those of conventional firm growth (Shepherd & Patzelt, 2022; Palmié et al., 2023). Whereas growth can refer broadly to an increases in sales, employment, assets or performance, scaling is more closely associated with a substantial shift in a venture's growth trajectory, persistent rapid growth, and the replication or extension of activity across customers, markets or geographies (Reuber et al., 2021; Tippmann et al., 2022). This distinction makes the business model particularly relevant because it specifies the architecture through which firms create, deliver, and capture value (Teece, 2010; Zott et al., 2011).

Business model innovation (BMI), understood as substantive change to the components or architecture of a firm's business model, has been associated with strategic renewal, adaptation, and growth (Foss & Saebi, 2017). Yet research connecting BMI specifically to entrepreneurial scaling remains fragmented across different areas such as entrepreneurship, strategy, digital business, international business and platform research. Existing studies examine BMI as an antecedent of growth, business model scalability, or mechanisms such as standardization, platformization and international replication. Consequently, the literature still lacks an integrated explanation of how BMI enables entrepreneurial scaling and under which conditions.

This study raises the following question: How does business model innovation (BMI) enable entrepreneurial scaling in SMEs, and through which mechanisms and boundary conditions does this relationship operate?

Conceptual framing
Following established BMI research, BMI is understood as a meaningful change in the configuration through which firms create, deliver and capture value (Teece, 2010; Foss & Saebi, 2017). Scaling is distinguished from generic performance improvement by its

emphasis on persistent rapid expansion and on organizational configurations that permit growth to be replicated across customers, markets, or geographies (Reuber et al., 2021; Palmié et al., 2023; Tippmann et al., 2022). The review therefore considers business model scalability, scale-up processes, rapid venture growth, replication, and international expansion when they explicitly illuminate how business model change enables expansion.

The synthesis distinguishes between the mechanisms, which explain how BMI contributes to scaling, and the boundary conditions, which explain when these mechanisms are strengthened or constrained by internal (entrepreneurial, organizational, technological) or external (market or institutional) factors.

Methodology

A systematic literature review was conducted using Web of Science and Scopus. The search combined terms related to business model innovation and redesign, entrepreneurial scaling and rapid growth, and SMEs, startups, and new ventures. Sensitivity searches were subsequently used to capture adjacent terminology. After deduplication, 156 records entered the screening process.

Screening was conducted in two stages. Titles and abstracts were first assessed for a substantive business model phenomenon combined with scaling, growth, replication, or expansion. Full texts were then evaluated against predefined inclusion/exclusion criteria. Studies were retained when they examined BMI, business-model reconfiguration, or a clearly innovative business-model architecture in relation to scalability, scale-up, rapid growth, replication, international expansion, or a closely related entrepreneurial expansion process. Studies focused only on generic firm performance, BMI antecedents without a scaling outcome, or product/process innovation without substantive business-model change were excluded. The analytical sample was restricted to peer-reviewed journal articles.

The final sample consisted of 20 studies. Each of them was coded for context, method, BMI conceptualization, scaling outcome, antecedents, mechanisms, boundary conditions, and theoretical perspective. An inductive thematic synthesis was then used to identify recurring explanatory patterns through these studies.

Findings

Five recurring mechanism groups emerge from the review.

First, scaling frequently depends on continuous business model adaptation rather than simple replication of a fixed model. Longitudinal studies show firms repeatedly reconfiguring value propositions, revenue models, organizational arrangements, and market orientation as they move from startup to scale-up (Randhawa et al., 2021; Shao et al., 2026). BMI therefore operates as an adaptive mechanism, suggesting that successful scaling may require successive cycles of BMI rather than the discovery of one final “scalable business model.” Randhawa et al., for example, explicitly trace an SME's BMI process from startup to scale-up, while Shao et al. develop a scaling process model centered on continuous BMI.

Second, BMI enables scaling by reducing the resource intensity and operational complexity associated with additional growth. Standardization, automation, modular architectures, cloud

delivery, and digital platforms allow offerings to be replicated with limited additional infrastructure or customization. Cavallo et al. (2024) conceptualize business-model scaling as a BMI and experimentation process occurring specifically during the scaling phase, while evidence from digital-platform ventures associates scalable configurations with platform-enabled interactions and innovative business-model architectures (Ruggieri et al., 2018).

Third, platformization and network-based business models allow entrepreneurial firms to leverage resources beyond organizational boundaries. Users, customers, complementors/producers, and partners can become contributors to value creation, while network effects increase value as participation grows. Freemium and platform-inspired configurations show how distinct customer groups can generate reciprocal value flows, economies of scale, higher asset utilization, and reputation effects (Layrisse et al., 2021). Related evidence shows that redesigning stakeholder roles and revenue flows can improve financial autonomy while enabling operations to scale (Reficco et al., 2021).

Fourth, value-capture innovation affects the financial scalability of growth. Subscription, recurring revenue, freemium, and performance-based models can improve revenue predictability, customer retention, and the financing of expansion. The evidence also suggests that value capture must evolve together with value creation and delivery: rapid customer growth without corresponding adaptation of cost structures or operational capacity can create scaling bottlenecks.

Fifth, BMI facilitates replication across geographical and market contexts. Internationalization emerges as an important route through which scalable business models translate into realized growth. Grimstad et al. (2025) find that scalable business model innovation is positively associated with both internationalization and growth, with internationalization mediating part of the relationship between SBMI and growth targets.

Across these mechanisms, frequent boundary conditions are found including product-market fit, dynamic capabilities, entrepreneurial cognition, access to capital and organizational capacity. External conditions are also consequential: regulation, institutional legitimacy, market readiness, ecosystem quality, customer switching costs, data availability and technological path dependency can accelerate or inhibit scaling. Scalability therefore appears not as an intrinsic property of the business model alone, but as an outcome of the interaction between business model architecture and context.

Integrative framework and theoretical contribution

Collectively, these findings suggest that BMI does not generate entrepreneurial scaling through a single direct pathway. Instead, BMI creates or reconfigures mechanisms that reshape the relationship between expansion and the resources, capabilities and organizational arrangements required to sustain it. These mechanisms can be grouped around continuous adaptation, standardization and replication, digital and platform leverage, scalable value-capture architectures, and market or geographic expansion.

The review also supports a dynamic rather than static understanding of scalability. Scaling changes the organization itself: new customers, markets, partners, technologies, and regulatory demands create additional complexity and may render an initially successful

business model inadequate. Entrepreneurial scaling can therefore be understood as a recursive process in which BMI enables expansion, while expansion generates new conditions that may require further BMI.

Implications and conclusion

The review contributes to BMI and entrepreneurship research by shifting attention from whether BMI improves firm performance toward how BMI enables entrepreneurial scaling. It also highlights the need to distinguish more clearly between growth, scaling, and business model scalability. Future studies should develop more precise scalability measures, use longitudinal designs capable of capturing successive BMI episodes, and examine how different scaling mechanisms interact. Greater attention is also needed to boundary conditions such as environmental turbulence, regulation, digital technologies, resource constraints, and entrepreneurial ecosystems.

Overall, BMI enables entrepreneurial scaling when it reconfigures value creation, delivery and capture in ways that make company development more replicable, less resource-intensive or better supported by external actors. However, no single business model appears universally scalable. Sustained scaling depends on the firm's ability to adapt its business model as organizational and environmental conditions evolve.

Keywords: Business model innovation, entrepreneurial scaling, business model scalability, SMEs, scale-ups, scaling mechanisms, boundary conditions, literature review.

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RELATIONSHIPS BETWEEN FOOD SUPPLY CHAIN ACTORS AND THEIR RELATION TO FOOD WASTE

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Abstract

Food waste has significant economic and environmental implications and constitutes a major challenge for human nutrition (Domínguez et al., 2026). At the global level, an average of 273 calories per person per day is wasted, equivalent to 15% of an adult's energy requirements (Domene et al., 2024). These figures illustrate the relevance of food waste and the need to consider the different factors involved in its generation.
However, the magnitude of food waste and the causes underlying its generation vary depending on a country's level of development (Jayalath et al., 2023). Similarly, the concepts of food waste and food loss take different forms depending on the organization that defines them (PNUMA, 2024). In this regard, “Ley” 1/2025 (2025) defines "food waste" as the portion of food intended for human consumption that ultimately becomes waste. These differences in conceptualization are relevant when considering the magnitude and causes associated with food waste.

In quantitative terms, in 2023, Spain recorded a food waste rate of 53 kg per capita, while the European Union average stood at 129 kg per capita (Eurostat, 2026). These differences reflect the variability in the magnitude of food waste across contexts and highlight the importance of considering each context's specific characteristics when addressing the phenomenon.

Within the food sector, fruit and vegetables are particularly prone to losses due to their high perishability and limited shelf life, these characteristics affect the different stages of the food supply chain in different ways (Rodríguez-Martínez et al., 2023).
Among the causes of food waste identified in this sector are production losses in manufacturing companies (Ministerio de Agricultura, 2024), quality standards (Soma et al., 2021), and losses resulting from environmental factors and pests (Ammann et al., 2025; Petrescu-Mag et al., 2024; Soma et al., 2021). Therefore, the generation of food waste in the

fruit and vegetable sector is associated with various factors that affect different stages of the supply chain.

To mitigate food waste generation, Spanish legislation establishes a management hierarchy based, first, on prevention and, when prevention is not possible, on redistribution for human consumption (Ley 1/2025, 2025). Some factors that may hinder prevention include overproduction arising from contexts of uncertainty and the aesthetic standards imposed on products (Soma et al., 2021). When prevention is not possible, food redistribution constitutes an alternative that offers environmental, social, and economic benefits, particularly at the primary production and manufacturing stages (Parsa et al., 2024).

Despite the existence of policies aimed at promoting food donation, these may be ineffective for fresh products due to inefficiencies in collaborative networks (Torres Arroyo et al., 2024). Such inefficiencies may lead to an insufficient distribution of food surpluses and, consequently, contribute to increased food waste. In Spain, differences in food donation can also be observed according to company size. While 83% of large companies have collaboration agreements with NGOs to donate marketed products, this percentage falls to 42% among small and medium-sized enterprises (Ministerio de Agricultura, 2024).

Therefore, strategies to mitigate food waste should go beyond the recovery and redistribution of surplus food and require structural changes across the various stages of the food supply chain (de Almeida Oroski, 2025). In this regard, some studies identify unequal power relations among supply chain actors as a cause of food waste (Herzberg et al., 2022). This approach introduces a perspective that goes beyond factors directly associated with each actor and focuses on interactions among them. Considering these interactions may therefore provide a broader perspective on the factors involved in food waste generation.

This perspective is particularly relevant given that current legislation focuses mainly on the final stages of the food supply chain, applying voluntary and communicative approaches without addressing power relations or the establishment of private quality standards (Herzberg et al., 2023). Consequently, considering relationships between actors represents a relevant dimension when examining the factors associated with food waste and the limitations of current approaches to its reduction.

The aim of this paper is to analyze the influence of relationships between food supply chain actors on the generation of food surpluses. To this end, analytical and regulatory frameworks will be developed to examine both the scientific literature and the specific legislation in selected European Union countries. This approach will make it possible to address the phenomenon from both analytical and regulatory perspectives.
A systematic literature review will be conducted using the PRISMA methodology and complemented by bibliometric techniques. Both approaches will aim to identify the causes of food waste at each stage of the food supply chain and to determine the role of relationships with other actors in its generation. The combination of these approaches will enable in the literature, as well as the roles attributed to the different actors and their relationships. The results of the systematic literature review will help identify the main dimensions and variables to be incorporated into the questionnaire for subsequent interviews with various actors along the food supply chain.

Furthermore, an in-depth analysis will be conducted of the specific legislation on food waste prevention and reduction in Italy, France, and Spain, as these are the only European Union member states with such legislation. A comparative regulatory framework will be developed to compare the legislation of these countries, their evolution, and whether reductions in food waste can be observed in relation to the quantitative data collected by Eurostat. This analysis will allow differences between the regulatory approaches adopted by the countries considered to be identified.

Once the analytical and regulatory frameworks have been established, semi-structured interviews will be conducted with experts in the food supply chain to identify the factors perceived to cause food waste. Based on the results obtained and using multicriteria models, the relative weight of each factor will be determined. This will make it possible to assess the importance of relationships among actors compared with other factors identified as relevant to the generation of food waste.

One of the main contributions that this thesis aims to make is to determine the relevance of relationships between the different food supply chain actors as an explanatory factor in the generation of food waste. This approach is based on a relational perspective and will allow the importance of interactions among actors to be assessed relative to other factors associated with food waste.

Furthermore, the research aims to contribute to prioritizing the main factors associated with food waste in the fruit and vegetable sector by determining the relative weight of relationships among actors compared with other factors identified in the literature. In this way, the research will provide a framework for considering the relational dimension alongside the other factors associated with food waste generation.

The comparative analysis of specific food waste legislation across European Union countries will help identify potential limitations in current legislation and areas for improvement. Likewise, the combination of the proposed methodologies will contribute to the development of a framework for understanding the factors involved in generating food surpluses. The results could inform the design of more effective policies and strategies to reduce food waste.

Keywords: food waste; fruit and vegetables; relationships between actors; multicriteria models.

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FROM SUPPORT TO SUSTAINABILITY: EXAMINING THE ROLE OF ENTREPRENEURIAL ECOSYSTEMS IN SUPPORTING STARTUPS' SURVIVAL IN JORDAN

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Abstract

Jordan is home to a diverse entrepreneurial ecosystem comprising government institutions, incubators, accelerators, investors, universities, corporations, mentors, and other entrepreneurship-support organizations. According to the Global Entrepreneurship Monitor (GEM) report 2025 for Jordan, the Early-stage Entrepreneurial Activity (TEA) declined from 21.1% of adults in 2024 to 10.7% in 2025, while Established Business Ownership declined from 4.8% to 3.8%. At the same time, 58.2% of adults perceived good opportunities to start a business in their area, and 69.7% reported possessing the skills and knowledge required to start a business. This entails that there is a contrast between perceived entrepreneurial opportunities and capabilities on the one hand, and lower levels of early-stage and established business activity on the other. In addition, this raises a question about how ecosystem builders can impact and enable early-stage startups not only to develop their ideas and ventures but also to survive and sustain after and beyond tailored acceleration and incubation programs.

The entrepreneurial ecosystems perspective emphasizes that entrepreneurship is not a solo activity; however, it is shaped by both the support of multiple actors comprising different types of ecosystem builders, the interaction of entrepreneurs and business owners, and the enabling conditions, including resources (OECD, 2025)[2]. From this perspective, startups' survival is not determined solely by the capabilities and decisions of individual entrepreneurs but can also be influenced by the availability, accessibility, and continuity of ecosystem support and resources.

In the context of Jordan, research studies identified that several challenges affect startups' journey, especially for idea- and early-stage startups, such as access to finance, operational capabilities, networking, commercial relationships, market access, legal and regulatory requirements, and access to investment (Alawamleh et al., 2023). These challenges are not only related to ecosystem builders, but to the whole entrepreneurial ecosystem in a developing country like Jordan, where, on the one hand, the market is relatively small, and on the other hand, the geodynamics around Jordan are highly intense. However, these

[2] https://www.oecd.org/en/publications/entrepreneurial-ecosystem-diagnostics_7096961f-en.html?utm_source=chatgpt.com

challenges can become particularly less significant if startups are developed to move beyond structured incubation or acceleration programs and operate independently in competitive markets.

Entrepreneurship support represents one of the key mechanisms through which entrepreneurial ecosystems support early-stage ventures. Incubators and accelerators commonly provide a combination of training, mentoring, technical assistance, networking, business development support, access to finance, and connections to external ecosystem actors (OECD, 2026). Importantly, contemporary incubation is increasingly understood not simply as a temporary program but as a mechanism for connecting startups with the wider entrepreneurial ecosystem, including investors, customers, universities, mentors, suppliers, and public support organizations (OECD, 2026). Nevertheless, the phase after the incubation or acceleration program constitutes a transition point for startups because once a startup graduates from a program, they still need support in mentorship, creating more partnerships, or even market access to consolidate operations and achieve sustainable growth.

This transition is particularly relevant in Jordan, where entrepreneurship-support programs have expanded considerably but where startups continue to face structural and operational challenges. Jordanian entrepreneurs encounter difficulties related to financial and logistical support, operational experience, information, networking, commercial relationships, expansion, financing, investment, and legal and intellectual-property knowledge. Similarly, the increasing number of startups entering the entrepreneurial pipeline may not be sufficient if ecosystem support is not sustained throughout subsequent stages of venture development.

Despite the growing body of research on entrepreneurial ecosystems and startup challenges in Jordan, comparatively less attention has been given to the transition from incubation or acceleration to post-program sustainability. Existing studies have examined the conditions of the entrepreneurial ecosystem, the barriers faced by entrepreneurs, or the role of particular support institutions. Little literature has been dedicated to how startups experience the ecosystem after completing structured support programs and how continued or discontinued access to ecosystem resources affects their ability to survive and develop. Examining this transition is important because the end of an incubation or acceleration program does not necessarily correspond to the end of a startup's support needs. Instead, it may mark a shift from structured capacity building toward the more complex requirements of market access, revenue generation, investment, partnerships, and organizational development.

This study aims to examine how Jordan's entrepreneurial ecosystem supports startups as they transition from incubation and acceleration towards long-term sustainability. The researcher in this study aims to answer the following questions:

(1) What forms of ecosystem support do Jordanian startups receive during incubation and acceleration?

(2) What forms of support remain available after startups graduate from these programs?

(3) What ecosystem factors facilitate or constrain startup survival during the post-incubation stage?

(4) How do entrepreneurs perceive gaps in ecosystem support following program completion?

The study will employ a qualitative case study approach focusing on Jordanian startups that have participated in incubation or acceleration programs. Semi-structured interviews will be conducted with startup founders or co-founders who have completed such programs, complemented where appropriate by interviews with ecosystem stakeholders such as incubator and accelerator managers, and mentors. The study will explore the startup journey across five interconnected stages: pre-incubation, incubation or acceleration, graduation, post-program development, and current business status. The researcher aims to analyze the situation from a dual perspective, where entrepreneurs and ecosystem builders will be interviewed to assess the pre-, during, and post-support phases that startups encounter and the interconnection between the end of support and the survival and sustainability of the startup, considering the maturity of business ideas and the interventions of the founders.

The study positions incubation not as a solo intervention but as one component of a broader entrepreneurial ecosystem. It proposes that the effectiveness of incubation may depend partly on the strength of the connections that startups can establish with other ecosystem actors and on the continuity of these relationships after program completion. The study therefore shifts attention from the question of whether incubation programs support startups to a broader question of how ecosystems sustain startups beyond incubation. This perspective can contribute to the entrepreneurial ecosystem literature by highlighting the importance of transitions and continuity of support rather than examining ecosystem actors as independent interventions. The study is expected to provide empirical insights into the post-incubation experiences of Jordanian startups and identify ecosystem-level factors that may facilitate or hinder their survival. Rather than evaluating individual incubation programs, it will examine the broader network of relationships and resources surrounding startups and how these evolve as ventures progress through different stages of development. The findings may help policymakers, incubators, accelerators, investors, universities, corporations, and other ecosystem actors identify potential gaps between startup creation, program graduation, and long-term business sustainability. In doing so, the study aims to contribute to the development of more continuous and connected entrepreneurial support systems in Jordan, moving beyond a focus on creating new ventures toward strengthening their ability to survive, consolidate, and grow.

Keywords: Sustainability, Entrepreneurial Ecosystem, Business Support, Entrepreneurial Survival

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INNOVATION AND GENERATIONAL COLLISION IN ALCOHOL BUSINESS

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Abstract

1. Introduction

The global alcohol industry and the broader European economy are currently navigating a profound structural paradigm shift, driven simultaneously by radical changes in consumer behaviour and deeply embedded regulatory blind spots. At the core of this transformation is a prominent generational collision between traditional industry operators and modern consumers. Older generations and classical producers continue to emphasize the heritage, terroir and prestige of traditional categories, such as fine wines and historically brewed ales, relying on a deeply rooted, traditionalist approach to market engagement. However, the contemporary economic landscape explicitly demonstrates that this established prestige does not intrinsically guarantee the necessary revenue to sustain operations. When consumer demand rapidly pivots, historical prestige alone cannot pay agricultural salaries in European vineyards, nor can it maintain the immense infrastructural overheads of classical beer breweries.

Modern consumers, particularly Generation Z and younger millennials, demonstrate a marked and growing indifference to traditional raw-material purism. When comparing a classic, naturally fermented apple cider to a highly engineered, beer-based cocktail infused with synthetic cider flavouring, the modern consumer frequently disregards agricultural origins entirely. Instead, they exhibit a distinct preference for the novel, hybrid product, driven primarily by its appealing sensory profile, modern branding and innovative presentation. Furthermore, it is a critical industry misconception that these innovative, hybrid beverages are confined exclusively to the entry-level or budget price segments. Increasingly these highly engineered drinks are commanding premium market positioning, actively displacing traditional premium products for forcing existing brands to evolve. Simultaneously, this generational transition is unfolding against a broader cultural trend characterised by a general decline in total alcohol consumption volume, as emerging demographics shift toward alternative substances or eagerly adopt sophisticated, premium alcohol-free cultures.

2. Technological innovation, economic choices and legal opportunities

As the entrepreneurial ecosystem evolves at an unprecedented pace to meet these changing consumer preferences, technological advancements in beverage production have rapidly

outpaced the existing European regulatory framework. This severe misalignment between industry innovation and rigid state regulation creates a dangerous state of regulatory blindness, where national statistical models fundamentally fail to capture actual market dynamics.

A central mechanism of this conflict is tax arbitrage through strategic raw material substitution. Driven by the necessity to maintain profit margins in a highly competitive landscape, industry actors strategically utilise advanced production know-how to engineer products that meticulously substitute the sensory profiles of traditional, more taxed beverages, while legally falling into considerably lower tax brackets. For example, the European market has witnessed a massive surge in cider-like beverages and ready to drink (RTD) cocktails that are systematically produced from a deodorised and decolorised beer, cider and wine base. By exploiting favourable tax conditions originally designed to protect traditional brewers, these hybrid products circumvent higher taxation.

Similarly in Southern European markets producers frequently utilise wine bases to manufacture alcoholic cocktails, deliberately avoiding the heavy, punitive excise duties typically applied to distilled spirits. The industry is currently approaching, and in some jurisdictions has already achieved, the technological capability to legally sell liqueurs derived entirely from a heavily manipulated white-wine base, completely bypassing traditional spirit excise taxes. This creates an inevitable ideological and operational clash between the state and the industry. Businesses rigorously demand respect for the law, actively utilising legal arbitrage as a standard tool to maximise corporate profit and shareholder value. Conversely, the state argues that while technically legal, these practices fundamentally breach the boundaries of ethical business practice and violate the original aim of the law.

3. Information asymmetry and statistical distortion

The widespread adoption of raw material substitution and tax optimization leads directly to critical statistical anomalies and a systemic information asymmetry between the state and market actors. Because taxation and production reporting are overwhelmingly tied to the agricultural base rather than the final product's presentation or chemical reality, state records become profoundly distorted. For instance, national revenue services may record a substantial annual increase in beer excise revenue. Policymakers interpreting this data will logically conclude that traditional beer production and consumption are thriving. However, the market reality often dictates that traditional beer consumption is actually shrinking and the recorded revenue growth is entirely driven by the production of beer based RTD cocktails or cider alternatives.

This resulting information asymmetry forces both state authorities and competing businesses into a precarious position. The state inherently fails to control actual consumer market, leading directly to misdirected public investments, flawed fiscal projections and the development of public health policies based on entirely incorrect statistical modelling. At the same time traditional businesses who frequently express frustration over the competitors with unknown to them new capabilities and skills along with aggressive tax strategies of their hybrid-producing competitors, are compelled to base their strategic, financial and operational decisions on a completely distorted macro-picture of market data.

4. Macroeconomic consequences and fiscal vulnerability

These shifting consumption patterns, combined with the previously mentioned statistical distortions, carry severe macroeconomic aftereffects for the European Union. The European alcohol industry is striving not only to survive and adapt, but also to preserve its vital contribution to the region's overall quality of life and cultural heritage. However, national

governments remain heavily and sometimes unsurely dependent on the industry's immense financial support.

Excise tax revenues, corporate profit taxes, export duties and value added taxes generated by the alcohol sector act as critical, irreplaceable components of European state budgets. These funds are frequently earmarked to directly finance essential public services, including national defence initiatives, public infrastructure and increasingly burdened state healthcare systems. If classic producers and state policymakers fail to proactively synchronise their strategic frameworks with these new market realities and consumption habits, states risk facing massive, unmanageable shortfalls in uncollected taxes. Furthermore, the inability of traditional producers to compete with hybrid innovators threatens agricultural and manufacturing labour market, particularly in rural regions historically reliant on viticulture and traditional brewing.

5. Implications for theory and practice

The current European regulatory architecture, predominantly anchored in Council Directives 92/83/EEC and 92/84/EEC, fundamentally relies on taxing the agricultural raw material rather than the final, objective chemical ethanol content of a beverage. The preliminary qualitative and econometric findings of our study conclusively demonstrate that this outdated paradigm provides a legally compliant, but functionally destructive loophole for the modern entrepreneurial ecosystem.

This generational and economic collision is significantly sharpened by these outdated regulatory frameworks. Despite rapid, continuous product innovation and an unprecedented influx of hybrid drinks, taxation models stubbornly stick to historical categorisations. This regulatory blindness actively creates market distortions, punishes traditional producers and stimulates industry development unevenly and unfairly across different jurisdictions not only within the Baltic Sea region, but also broader for European single market.

To prevent further regulatory misfires and to intelligently adapt to the evolving consumption habits of younger generations and incoming new cultures, EU member states must urgently reconsider their foundational taxation philosophy. Drawing critical parallels from recent, highly successful regulatory shifts implemented in the United Kingdom, our research strongly advocates for a systemic transition toward an excise model singularly focused on the final packaged product and its unified pure ethanol content. Implementing a volumetric, ethanol-based taxation system would effectively eliminate the financial viability of tax arbitrage through raw material substitution, thereby forcing producers to compete on product quality, branding and genuine innovation rather than regulatory exploitation. Or taxation should be reorientated towards strict categorization, production standardization and according taxation for each type of alcoholic beverages depending on state support politics. That would lead to increased bureaucracy and administrative burden, including limits of industry development.

Ultimately, it is paramount to state that our study does not seek to promote alcoholism, endorse general alcohol consumption or advocate for deregulation. Rather, it aims to unravel the highly complex, multifaceted collision between classical industry structures, rigid state bureaucracies and modern market demands. By explicitly placing side by side what the traditional industry currently knows and can produce against what the new generation of consumers actively demands, our research provides a vital, critical framework. Bridging the information asymmetry gap and mandating transparent data interoperability is absolutely essential to ensure that state support policies, fiscal strategies and entrepreneurial innovation align seamlessly with fair market competition and accurate and modern state administration.

Keywords: Alcohol industry; Consumer behaviour; Excise tax policy; Generational shift; Market innovation

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THREATS TO THE ACADEMIC FREEDOM IN THE 21ST CENTURY

SAFEGUARDING DEMOCRATIC VALUES - INNOVATION, SCIENCE AND EDUCATION

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Abstract

The contemporary university is a core institution in society, shaping national character, and serving as a training ground for democratic citizenship, creativity, and problem-solving competences that are essential for the 21st century and the foundation of dynamic entrepreneurial ecosystems. At the heart of this institutional functionality is academic freedom. However, as noted in the 2019 joint statement by All European Academies (ALLEA), the European University Association (EUA), and Science Europe, academic freedom and institutional autonomy are no longer self-evident in Europe and around the world, presenting severe consequences for academics, science, and society (All European Academies [ALLEA] et al., 2019).

As J.S.Mill (1869) concludes: "The struggle between Liberty and Authority is the most conspicuous feature in the portions of history." In 21st century globalization and digitalization develop history in the same way crucially affecting academic work. Education and research are increasingly politicized or reduced to financial transactions and an obsession with competition and profit. Consequently, academics are sometimes viewed less as independent explorers of new knowledge, ideas, conclusions and more as instruments to advance the economic interests of the state or private sectors.

The purpose of the research is to legally define the parameters of academic freedom within Europe's and the European Union's (EU) contemporary legal landscape by integrating fundamental human rights standards with academic accountability. Furthermore, the research critically evaluates how political pressure and social challenges exploit gaps in the existing regulatory framework, causing serious threats to university autonomy and research integrity in the 21st century. The main research question explores how the absence of a unified, legally binding protection mechanism at the EU level facilitates the erosion of academic freedom, thereby justifying the urgent need for a academic freedom canon and protection system.

To comprehensively evaluate the complex nature and current vulnerabilities of academic freedom the legal dogmatic method is applied to systematically interpret the constitutional, EU-level, and international regulations governing academic freedom. This includes an analysis of Article 13 of the Charter of Fundamental Rights of the European Union (European Union, 2010) and Article 15 of the United Nations (UN) International Covenant on Economic, Social and Cultural Rights (UN General Assembly, 1966). The comparative method is utilized to evaluate the divergence in institutional autonomy across different EU jurisdictions, contrasting varying national interpretations of fundamental rights. To reconcile legal theory with de facto practice, the research utilizes a multiple-case study design. This allows for an in-depth investigation into how legal, political, and digital pressures converge to undermine institutional safeguards in specific member states (e.g., Hungary, Latvia, and Denmark), providing a multi-dimensional perspective on the current fragility of university autonomy.

The research establishes that academic freedom possesses a dual nature and a binary functionality. In its subjective dimension, it functions as an autonomous, independent fundamental human right guaranteed to every person, essential for intellectual self-determination. In its institutional dimension, it serves as a structural safeguard for society and a cornerstone of democracy. Despite its inclusion in Article 13 of the EU Charter, which explicitly stipulates that academic freedom must be respected, there remains a lack of a clear, binding, and universally accepted definition across the EU, leading to divergent applications and vulnerabilities.

The 21st-century society requires objective expert opinions provided by academically independent researchers. However, the Internet and social media have created an environment where public backlash, emotional prejudices, and digital harassment frequently target academics, leading to fear and self-censorship. Activist groups and the public increasingly demand government intervention against specific fields of study, such as gender studies or migration studies. Furthermore, private sector interests actively challenge academic findings. The case study reflects several cases than researcher has negative consequences because of the conclusions and dissemination of research results. For example, a professor, who faced a defamation lawsuit initiated by an agricultural industry organization due to his public statements concerning agricultural pollution (Defirmation case, 2021). Although the university supported the researcher and he was found not guilty, this case exemplifies a clear violation and ongoing threat to academic freedom originating from private economic interests.

The political pressure remains a fundamental factor undermining institutional autonomy. Instruments of political power include regulatory changes, economic restrictions, and politically driven closures of study programs. The research highlights legislative changes in different EU countries that affects study process - prohibiting of certain fields of study, expanding the rector's sole authority to appoint and dismiss deans, shifting power away from democratically elected faculty councils (Grozījumi Augstskolu likumā, 2021). Such legislation “improvements” weaken university autonomy, reflects the structural erosion of self-governance and create internal threats to a safe environment for free academic activity.

The research has comprehensive implications for the future of higher education, innovation, and democratic sustainability. While academic freedom is widely recognized as a fundamental right of special importance, *de facto* reality shows that Article 13 of the EU

Charter does not currently provide a sufficient basis for unified application or strict protection.

To safeguard the educational environments that drive entrepreneurship and societal progress, more precisely academic freedom is at the heart of scientific progress "as an intellectual engine for creativity and innovation" (Tierney & Lanford, 2014). The EU Parliament and the European Commission must adopt a unified definition of academic freedom. This definition must be accompanied by explicit criteria for application and a strict enforcement mechanism. Furthermore, the conceptual understanding of academic freedom remains incomplete without formally integrating the duties and responsibilities of the individual, such as accountability and research integrity, which are currently only found in non-binding documents.

The universities should remain financially and politically autonomous to protect their academics from undue state and corporate pressure. Additionally, in the digital age, social media platforms and policymakers must foster digital literacy and critical thinking to combat the manipulation of information and protect researchers from abusive litigation (such as SLAPPs). Protecting academic freedom is not merely about defending the professional privileges of scholars, it is an absolute necessity for maintaining universities as intellectual core of problem-solving and innovation. By establishing legal protections and proactive governance at both institutional and European levels, society can ensure that higher education continues to advance the sum of human knowledge and support the entrepreneurial and social well-being of future generations.

Keywords: academic freedom; institutional autonomy; universities; democracy; digital harassment.

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I PREMIO TEACHERPRENEUR AWARD 2026: RECONOCIENDO LA LABOR DE DOCENTES EMPRENDEDORES DE EDUCACIÓN PRIMARIA

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Resumen

El emprendimiento es considerado una competencia clave que implica actuar sobre oportunidades e ideas para transformarlas en valor para las demás personas, sea ese un valor social, cultural o económico (McCallum et al., 2018). En el año 2016, la Comisión Europea publicó el marco de referencia para la competencia emprendedora conocido como EntreComp (Bacigalupo et al., 2016). Su objetivo es el de dotar a la ciudadanía de una serie de competencias transversales orientadas a la realización personal, la inclusión social y el empleo en materia de emprendimiento. Años más tarde, y en base al marco EntreComp, se desarrolló el marco EntreCompEdu (Grigg, 2021). En esta ocasión, el objetivo fue el de potenciar el desarrollo profesional del profesorado de los niveles de primaria, secundaria y formación profesional, para ayudarles a desarrollar una mentalidad creativa y emprendedora. Se trata de una acción educativa clave en un momento (siglo XXI) en el que los retos sociales, medioambientales y económicos exigen una formación docente integral. Al fin y al cabo, como afirman Cárdenas Gutiérrez y Azqueta Díaz de Alda (2022), si no se empodera primero al cuerpo docente, el alumnado no podrá adquirir con éxito las competencias clave necesarias para su futuro crecimiento personal y profesional.

En este contexto, la Facultad de Educación y Deporte de la Universidad de Deusto, junto con la Unidad de Innovación Docente de la misma universidad, lanzó con éxito el Premio I TEACHERPRENEUR Award 2026. Su principal objetivo era impulsar, visibilizar y premiar a docentes de educación primaria con mentalidad emprendedora de toda la Comunidad Autónoma del País Vasco (CAPV). La convocatoria se envió a los centros educativos de la CAPV e invitaba al profesorado a presentar iniciativas educativas propias más innovadoras que reflejaran una mentalidad emprendedora. Las personas candidatas debían cumplimentar un formulario de autoevaluación basado en el marco EntreComp, y adjuntar un vídeo personal o de equipo en el que, por una parte, dejar constancia de su mentalidad emprendedora como docentes en el centro educativo al que pertenece(n), y, por otra, del impacto generado.

Las preguntas de cuestionario de autoevaluación fueron las que se presentan en la Tabla 1:

Tabla 1. Dimensiones y preguntas del cuestionario en base a EntreComp

Dimensiones de EntreComp	Subcompetencias	Preguntas de opción múltiple con única respuesta
Ideas y Oportunidades	1.1 Identificar oportunidades	▪ Identifico oportunidades que crean valor para otras personas ▪ Identifico oportunidades para necesidades que aún no han sido satisfechas ▪ Aprovecho oportunidades que responden a retos y necesidades, aportando valor a las demás personas.
	1.2 Creatividad	▪ Produzco y desarrollo ideas con valor ▪ Pruebo y redefino ideas con valor ▪ Transformo ideas en soluciones
	1.3 Visión	▪ Imagino un futuro deseable ▪ Imagino un futuro deseable para mí para otras personas ▪ Uso mi visión para tomar decisiones estratégicas
	1.4 Evaluar ideas	▪ Entiendo y aprecio el valor de las ideas ▪ Entiendo y aprecio que una idea puede tener diferentes tipos de valor y pueden ser usadas de maneras diferentes ▪ Desarrollo estrategias que aprovechen las ideas generadas
	1.5 Pensamiento ético y sostenible	▪ Reconozco el impacto que mis decisiones tienen en el entorno y medio ambiente ▪ Mis decisiones están determinadas por el impacto que puedan tener en el entorno y el medio ambiente ▪ Me aseguro de que las metas éticas y de sostenibilidad se cumplan
Recursos	2.1 Autoconocimiento y confianza en uno mismo	▪ Confío en mis propias habilidades y capacidad de crear valor para otras personas ▪ Aprovecho y potencio mis habilidades y capacidad de crear valor para otras personas

		▪ Compenso mis puntos débiles trabajando en equipo para desarrollar mis fortalezas
	2.2 Motivación y perseverancia	▪ Persigo mis sueños y creo valor para las demás personas ▪ Identifico y sigo mis gustos y pasiones ▪ Me concentro y mantengo mis intereses y pasiones a pesar de posibles contratiempos
	2.3 Movilizar recursos	▪ Encuentro y utilizo recursos de manera responsable ▪ Identifico y movilizo recursos de una manera responsable ▪ Defino estrategias para movilizar recursos necesarios que creen valor para otros
	2.4 Educación financiera y económica	▪ Diseño presupuestos para proyectos sencillos ▪ Identifico vías de financiación y gestiono presupuestos para actividades o proyectos ▪ Diseño planes que sean sostenibles a nivel financiero
	2.5 Involucrar a otras personas	▪ Comunico mis ideas de manera clara y genero interés ▪ Persuado, involucro e inspiro a otras personas para llevar a cabo una actividad ▪ Involucro e inspiro a otras personas, consiguiendo que se integren en el equipo del proyecto a desarrollar
	3.1 Tomar la iniciativa	▪ Tomo partido y demuestro iniciativa a la hora de solucionar problemas que afectan a la comunidad ▪ Inicio actividades que crean valor añadido ▪ Busco oportunidades y tomo la iniciativa para añadir o crear valor
Pasar a la Acción	3.2 Planificar y gestionar	▪ Defino los objetivos de actividades sencillas ▪ Defino planes de acciones que incluyan prioridades e hitos clave para crear valor

	▪ Redefino prioridades y planes de acción para adaptarme a las circunstancias cambiantes
3.3 Manejar la incertidumbre, la ambigüedad y el riesgo	▪ No tengo miedo a equivocarme cuando hago algo nuevo ▪ Evalúo diferentes opciones y preveo los riesgos de las decisiones ▪ Defino estrategias para movilizar recursos necesarios que crean valor para otros
3.4 Trabajar con otras personas	▪ Trabajo en equipo y creo acciones conjuntas ▪ Trabajo en equipo diversos y creamos valor en grupo ▪ Creo equipos y redes de colaboradores de acuerdo a la actividad a desarrollar
3.5 Aprender de la experiencia	▪ Aprendo al participar en actividades de valor ▪ Reflexiono y valoro los logros alcanzados y los errores para aprender de la experiencia ▪ Mejoro las habilidades para crear valor aprendiendo de la experiencia y de las interacciones con las demás personas

NOTA: Realización propia a partir de Bacigalupo et al. (2016), Grigg (2021) y McCallum et al. (2018)

Se recibieron un total de 15 candidaturas individuales y grupales inspiradoras, de las cuales un jurado de expertos en emprendimiento preseleccionó a los 10 finalistas.

Las propuestas finalistas se enmarcan en torno a los ODS y la Agenda 2030, la personalización del aprendizaje, las metodologías activas, y el pensamiento computacional.

Para maximizar la visibilidad de los proyectos y/o acciones emprendedoras preseleccionadas, el trabajo de los finalistas se expuso a través de pósteres en los campus de Bilbao y San Sebastián de la Universidad de Deusto. Además, se puso en marcha una campaña digital dinámica a través de las redes sociales LinkedIn e Instagram de la Universidad de Deusto con la finalidad de involucrar no solo a la comunidad universitaria deustense, sino a toda la comunidad en general. Este enfoque colaborativo generó un gran interés, lo que llevó a que alrededor de 3300 personas —entre alumnado, profesorado y participantes externos de la Universidad de Deusto— votaran por sus candidaturas favoritas.

Tras la valoración del grupo de expertos y las votaciones de la comunidad, de esta primera edición del premio al teacherpreneur resultaron ganadoras dos profesoras. A una de las teacherpreneur ganadoras se le reconoce especialmente por su capacidad de crear experiencias de aprendizaje inmersivas que fusionan tecnología, creatividad y autonomía

estudiantil mediante la integración de robótica y electricidad a través de un enfoque eminentemente práctico. La segunda teacherpreneur fue premiada por su trabajo transformador con alumnado con necesidades educativas especiales. Su forma de trabajar, basada en la promoción de la equidad, destaca por el desarrollo de materiales personalizados, actividades adaptadas a cada alumno/a y por el uso de inteligencia artificial y herramientas digitales para diseñar canciones terapéuticas.
Se espera que el premio, que en su primera convocatoria ha estado dirigido al profesorado de educación primaria de la CAPV, extienda su alcance a otros niveles educativos y comunidades autónomas con apoyo de otras instituciones.

Palabras clave: emprendimiento; premio teacherpreneur; educación primaria.

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AGILE LEADERSHIP AS A STRUCTURAL ENABLER OF ORGANIZATIONAL RESILIENCE – A CONCEPTUAL FRAMEWORK FOR INTRAPRENEURIAL ADAPTABILITY IN DIGITAL TRANSFORMATION

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Abstract

Organizations are increasingly operating in an environment characterized by digital transformation, technological disruption, geopolitical uncertainty, skilled labour shortages, dynamic crises and rising complexity (Bhimani, 2020; Uhl-Bien & Arena, 2018; Cascio & Montealegre, 2016). Under these conditions, it is no longer sufficient for organizations merely to plan efficiently, optimize existing processes or rely on formal control mechanisms. Rather, the ability to perceive changes early on, to react swiftly to unexpected developments, to learn from uncertainty and to evolve existing structures, processes and routines becomes paramount. Organizational resilience should not be understood merely as the capacity to revert to a previous state following a crisis, rather it also encompasses the capacity for anticipation, adaptation, renewal and transformation (Hillmann & Guenther, 2021; Cameron et al., 2003).

Particularly in dynamic and digitally driven environments, resilience is closely intertwined with the ability to enable entrepreneurial action within existing organizations. Intrapreneurship describes entrepreneurial thinking and action on the part of employees, teams, and leaders within established organizations (Antoncic & Hisrich, 2001). This includes identifying opportunities, developing new ideas, experimenting with innovative solutions, actively shaping change and creating new value within existing organizational structures.

Agile leadership is frequently regarded as a promising response to uncertainty, complexity and the pressure for change (Attar & Abdul-Kareem, 2020). Agile leadership emphasizes principles such as empowerment, self-organization, transparency, psychological safety, iterative learning processes, continuous feedback, decentralized decision-making authority and the constructive handling of ambiguity (Attar & Abdul-Kareem, 2020; Joiner & Josephs, 2007). At the same time, however, existing literature often describes agile leadership primarily as a form of leadership behaviour or as a specific leadership style (Geffers et al. 2024; Rialti & Filieri, 2024). If agile leadership is understood only as the individual behaviour of specific leaders, the organizational conditions under which employees and teams can truly act in a self-organized, innovative and entrepreneurial manner remain underexamined.

A closer examination of the academic literature reveals that agile leadership is understood not merely as a leadership style, but also as a structural-cultural leadership paradigm (Moarefi & Janami, 2025). Based on these considerations, agile leadership does not automatically generate organizational resilience. Rather, agile leadership exerts its full impact only when embedded within an organizational design that enables decentralized decision-making, transparent information flows, cross-functional collaboration, learning routines and adaptive governance.

For this reason, this paper addresses the following research question: **How can Agile Leadership enable organizational resilience and intrapreneurial adaptability through an agility-enabling organizational design in dynamic digital environments?**

The aim of the paper is to develop a conceptual framework that integrates agile leadership, organizational design, intrapreneurship, and organizational resilience. The paper proposes that agile leadership contributes to organizational resilience primarily by establishing organizational design conditions that enable entrepreneurial action within the organization. Thus, agile leadership is not viewed in isolation as a mere leadership behaviour, but rather as an enabler of an organizational context in which employees and teams can perceive change, identify opportunities, make decisions, experiment, learn and actively co-create transformation.

Methodologically, this contribution is designed as a conceptual paper. The methodology for the systematic literature review is based on *Ogawa and Malen* as well as the PRISMA approach (Ogawa & Malen, 1991). Two databases, Web of Science and Scopus, are used for the literature review. The search period starts from 2015. A former bibliometric analysis showed that relevant publications in the research field of agile leadership have been published since 2015 (Skorková & Burggraf 2024). It is grounded in a theory-oriented literature synthesis and integrates insights from research streams concerning agile leadership, organizational resilience, intrapreneurship and organizational design. To evaluate the articles for their relevance to the research question, the language of the papers were reviewed firstly. Publications in German and English language were included. Duplicates were subsequently removed. Additionally, the publications were screened by the title, abstract and finally by the full text. Another inclusion criteria is that papers and surveys which have at least agile leadership as a research focus. Papers and surveys which only have a focus on technical application of agile methods, to individual psychological resilience or operational project management are excluded.
Preliminary findings from this analysis suggest that the field of research remains fragmented and that the interconnections among agile leadership, organizational design and resilience, adaptability have not yet been sufficiently clarified at a conceptual level.

Based on the systematic literature review the paper has the fundamental assumption that agile leadership does not directly generate organizational resilience but rather exerts its influence through organizational design conditions that enable decentralized decision-making capabilities, learning, self-organization and entrepreneurial action within existing organizations (Duchek 2020; Rialti & Filieri 2024). Thus, agile leadership is understood not exclusively as individual leadership behaviour but rather as a potential structural-cultural

leadership paradigm that influences behaviour, coordination and adaptability within organizations (Spiegler et al., 2021).

The conceptual framework posits two interconnected mechanisms of action. Firstly, agile leadership shapes the organizational design conditions within which employees and teams operate, as organizational design can be understood as a bundle of design decisions that influence structure, processes, roles, coordination, decision rights and behaviour (Puranam et al., 2014). Secondly, these design conditions enable intrapreneurial adaptability that is, the capacity of employees and teams to identify opportunities, develop innovative solutions, proactively initiate change and contribute to the strategic renewal of the organization (Antoncic & Hisrich, 2001). Building on intrapreneurial research (Antoncic & Hisrich, 2001; Gawke et al. 2019) and the perspective of dynamic capabilities (Teece 2007), this study conceptualize intrapreneurial adaptability as a context-specific form of intrapreneurial behaviour through which organizational members recognize changing environmental conditions and initiate and experiment with adaptive solutions. In contrast to general intrapreneurial research, the approach explicitly focuses on adaptation-oriented entrepreneurial action.

While leaders can foster empowerment, experimentation and self-organization, if decision-making rights remain highly centralized, information remains fragmented, roles are rigidly defined, and errors are penalized, intrapreneurial behaviour remains unlikely (Antoncic & Hisrich, 2001). Only when organizational design supports decentralization, transparency, cross-functional collaboration and iterative learning can agile leadership become an effective enabler of organizational resilience (Duchek, 2020; Rialti & Filieri, 2024).

As a result and a synthesis of the literature review, the article identifies six central design dimensions of an agility-supporting organizational design. The first dimension is the decision architecture. Decentralized decision-making capability increases response speed and enables employees to perceive opportunities, risks and disruptions earlier to respond to them in an action-oriented manner (Rialti & Filieri, 2024).
The second dimension concerns role and collaboration design. Flexible roles, cross-functional teams, and cross-departmental collaboration enable organizations to recombine knowledge and address complex challenges beyond functional silos (Puranam et al., 2014; Spiegler et al., 2021).
The third dimension encompasses information flow and transparency. Intrapreneurial action presupposes that employees have access to relevant information, strategic priorities, customer needs and contextual signals (Duchek, 2020).
The fourth dimension is adaptive governance. Agile organizations do not forget structure. They require lightweight, learning-oriented steering mechanisms that provide direction without stifling individual initiative (O'Reilly & Tushman, 2013; Rialti & Filieri, 2024).
The fifth dimension encompasses learning and feedback routines. Short feedback cycles, retrospectives, pilot projects, experiments and iterative evaluations enable organizations to learn amidst uncertainty before disruptions escalate into crises (Duchek, 2020; Lengnick-Hall et al., 2011).
The sixth dimension is the ambidextrous balance between stability and flexibility. Organizational resilience does not arise from maximum flexibility alone, but rather from the

ability to integrate operational reliability with explorative renewal (O'Reilly & Tushman, 2013; Teece, 2012).

Based on this foundation, this article proposes understanding intrapreneurial adaptability as a mediating capability situated between organizational design and organizational resilience. Employees and teams who identify opportunities, test new solutions, mobilize knowledge across functional boundaries, and initiate change from within the organization bolster the organization's resilience. They enable the organization to detect disruptions earlier, react more swiftly, maintain operational capacity and learn from unexpected developments.

This article makes several scientific contributions. Firstly, it bridges research on agile leadership with research on intrapreneurship by demonstrating how entrepreneurial action can be enabled within established organizations. Secondly, it extends resilience research by conceptualizing resilience not merely as a reactive recovery capability but as an adaptive and transformative capability.

Organizations seeking to enhance their resilience during digital transformation should not rely exclusively on leadership development and agile methodologies. Rather, they must assess whether their structures, processes, and governance mechanisms genuinely empower employees to act in an entrepreneurial manner. This entails clearly defined yet decentralized decision-making authority, transparent information flows, cross-functional collaboration, safe spaces for experimentation, short feedback cycles and governance mechanisms that provide guidance without stifling initiative.

In summary, this article argues that agile leadership can serve as a key enabler of organizational resilience. However, only if agile leadership principles are translated into organizational design. Instead, they become resilient when leadership, structure, culture and entrepreneurial action are integrated in such a way that individuals within the organization are empowered to perceive change, take initiative, experiment, learn and actively shape the transformation process. By conceptualizing agile leadership as a structural enabler of intrapreneurial adaptability, this article offers a framework for making organizations more resilient and entrepreneurial amidst the digital transformation.

Keywords: Agile Leadership, Organizational Resilience, Intrapreneurship, Digital Transformation, Organizational Design

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ENTREPRENEURSHIP EDUCATION AND ENTREPRENEURIAL INTENTION IN EUROPEAN HIGHER EDUCATION: A THEMATIC EVIDENCE MAP AND EXPLORATORY META-ANALYTIC STRUCTURAL EQUATION MODEL

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Abstract

Entrepreneurship education (EE) has become an increasingly prominent component of European higher education, reflecting the expectation that universities should contribute not only to knowledge acquisition but also to students' capacity to identify opportunities, develop entrepreneurial competencies, and consider entrepreneurship as a viable career path. Entrepreneurial intention (EI) has consequently become one of the most frequently investigated outcomes of entrepreneurship education. The Theory of Planned Behavior (Ajzen, 1991) and Social Cognitive Theory (Bandura, 1986) have provided two of the dominant theoretical foundations for this literature, emphasizing attitudes, perceived behavioral control, social influences, and self-efficacy as proximal determinants of intentional behavior. In particular, entrepreneurial self-efficacy (ESE), reflecting confidence in one's ability to successfully perform entrepreneurial tasks, has been repeatedly proposed as a psychological mechanism through which education may translate into entrepreneurial intention (Piperopoulos & Dimov, 2015; Nowiński et al., 2019).

However, evidence concerning the effects of entrepreneurship education remains heterogeneous. Previous meta-analytic and systematic reviews have shown that the association between EE and EI is generally positive but highly dependent on educational design, measurement, institutional context, and student characteristics (Bae et al., 2014; Nabi et al., 2017). Europe provides a particularly interesting setting because entrepreneurship education is implemented within highly heterogeneous higher-education systems and socio-economic environments. Accordingly, the present study had two objectives. First, it mapped the constructs and theoretical themes investigated in European studies located within a broad Scopus search on EE, ESE, and EI. Second, as a quantitative extension of this evidence map, it estimated an exploratory meta-analytic structural model of the pathway EE → ESE → EI using the European studies for which a complete correlation triangle could be recovered.

A systematic search was conducted in Scopus using combinations of terms referring to entrepreneurship/entrepreneurial education, entrepreneurial self-efficacy, entrepreneurial/start-up intention, and higher-education students. The search initially retrieved 301 records. Titles, abstracts, keywords, study populations, and available full texts were screened to identify studies conducted in European higher-education contexts. Studies were retained in the European mapping when they presented empirical evidence involving university or higher-education students from a European setting; transnational studies were retained when a European student component was explicitly identifiable. Reviews, purely conceptual contributions, studies focusing exclusively on non-student entrepreneurial populations, and studies without a relevant higher-education context were excluded.

The screening identified 45 empirical publications pertaining to the European higher-education context. Sample sizes were explicitly recoverable for 34 of these records and represented at least 13,836 participants; therefore, this figure should be regarded as a conservative minimum rather than the total number of participants represented by the entire set of 45 studies. The evidence covered a heterogeneous range of European contexts, including Spain, Portugal, Italy, France, Germany, the United Kingdom, Denmark, Norway, Greece, Romania, Hungary, Poland, Croatia, Latvia, the Czech Republic, and multi-country Central and Eastern European samples.

One of the authors reviewed the titles and abstracts of the 45 included studies, identified the variables investigated in each empirical study, and classified them into non-mutually exclusive thematic categories. Entrepreneurial intention was examined in all 45 studies (100%), consistent with the search strategy's focus on this construct. Entrepreneurial self-efficacy appeared in 44 studies (97.8%), while entrepreneurship education, training, or educational exposure was explicitly investigated in 44 studies (97.8%). Beyond these three core constructs, entrepreneurial attitudes or perceived desirability were examined in 17 studies (37.8%), and personality or broader psychological characteristics in 16 (35.6%). Entrepreneurial skills, competencies, or knowledge appeared in 10 studies (22.2%); entrepreneurial role models or family entrepreneurial background in 8 (17.8%); university support, institutional support, or entrepreneurial climate in 7 (15.6%); and perceived behavioral control or entrepreneurial feasibility in 7 (15.6%). Subjective or social norms were examined in 6 studies (13.3%), while only 6 studies (13.3%) explicitly extended the analysis toward entrepreneurial behavior or action. Digital technologies, online entrepreneurship education, or AI-related educational tools emerged in only 4 studies (8.9%), highlighting the limited representation of these mechanisms within the mapped studies. Recent work nevertheless suggests increasing attention to digitally mediated entrepreneurship education; for example, Primario, Rippa, and Secundo (2024) examined how digital technologies embedded within an online entrepreneurship course were associated with ESE and entrepreneurial intention among Italian STEM students.

The thematic synthesis also revealed considerable variation in how entrepreneurship education was operationalized. Studies examined participation in entrepreneurship courses, perceived educational support, learning outcomes, experiential versus theoretical pedagogies, compulsory versus elective education, extracurricular activities, entrepreneurial role models, and institutional entrepreneurial climates. This variation draws attention to the design and content of educational experiences, beyond a simple distinction between participation and non-participation in entrepreneurship courses. Piperopoulos and Dimov (2015), for example, showed that the association between ESE and EI differed depending on whether entrepreneurship courses were theoretically or practically oriented, using 114

students from a British university. Similarly, Nowiński et al. (2019) identified cross-national variation in the education–self-efficacy–intention mechanism across the Czech Republic, Hungary, Poland, and Slovakia.

To complement the thematic mapping, an exploratory pooled-correlation MASEM was estimated using three European studies for which the correlations necessary to represent the education–ESE–EI triangle could be extracted. These studies represented Spain (Asimakopoulos et al., 2019; N = 208), Central and Eastern Europe through students from Latvia, Poland, and Ukraine (Wasilczuk & Licznerska, 2024; N = 2,085), and Romania (Dodescu et al., 2021; N = 313), producing a combined analytic sample of N = 2,606. The studies did not operationalize education identically: the Spanish study used participation in entrepreneurial education, the Central/Eastern European study assessed perceived entrepreneurial education results, and the Romanian study captured education-related knowledge and benefits. The pooled education-related construct thus represents a broader domain of educational experiences and outcomes, rather than a single identically measured variable. The relevant zero-order correlations are directly reported in the Spanish and Central/Eastern European studies, while the Romanian study reports a construct correlation matrix including entrepreneurship-related educational knowledge, ESE, and EI.

Random-effects pooling of Fisher-z-transformed correlations produced positive pooled associations between the education-related construct and entrepreneurial self-efficacy ($r = .552$), between education and entrepreneurial intention ($r = .397$), and between entrepreneurial self-efficacy and entrepreneurial intention ($r = .435$). The corresponding exploratory structural model indicated a positive association between education and ESE ($\beta = .552$), while ESE remained positively related to EI after accounting for education ($\beta = .311$). The residual direct path between education and EI was also positive ($\beta = .226$). The resulting indirect association through ESE was $\beta = .172$, representing approximately 43% of the total education–intention association ($r = .397$). Together with the positive direct path, this pattern was consistent with partial statistical mediation within the exploratory model.

The three pooled associations showed pronounced between-study heterogeneity ($I^2 = 99.2\%$ for education–ESE, 95.3% for education–EI, and 92.0% for ESE–EI). Given the three-study evidence base and differences in educational measures, the mediation pattern remains an exploratory synthesis of associations rather than a confirmatory finding. The MASEM nevertheless complements the thematic map by quantifying the proposed EE → ESE → EI pathway and highlighting the value of more comparable educational measures and consistent reporting of zero-order correlations in future research.

Overall, the mapped European studies show concentrated attention to entrepreneurial intention and self-efficacy, alongside a more varied examination of educational formats, mechanisms, and contextual factors. Only six studies addressed entrepreneurial behavior, pointing to more limited investigation of how intentions relate to entrepreneurial action. Furthermore, the relatively low frequency of digital, AI, and technology-related constructs highlights an important emerging research opportunity. Future European research should increasingly adopt longitudinal and experimental designs, examine actual entrepreneurial behavior, distinguish among pedagogical forms of entrepreneurship education, and investigate digital competencies and AI-enabled learning as potential mechanisms linking educational experiences to entrepreneurial career development. From an educational perspective, the findings shift attention from course participation alone to the characteristics of learning experiences, including practical activities and students' perceived entrepreneurial capabilities.

Keywords: Entrepreneurship education; Entrepreneurial self-efficacy; Entrepreneurial intention; MASEM; Europe

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DE LA TRIPLE HÉLICE A LA QUÍNTUPLE HÉLICE: REVISIÓN ESTRUCTURADA Y ANÁLISIS TEMÁTICO DE LA EVOLUCIÓN DE LOS MODELOS DE INNOVACIÓN HELIX

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Los modelos de innovación Helix han evolucionado desde la interacción universidad-industria-gobierno de la Triple Hélice hacia estructuras más amplias que incorporan a la sociedad civil, el ambiente y la sostenibilidad mediante los modelos de Cuádruple y Quíntuple Hélice. Esta evolución responde a un contexto caracterizado por desafíos sociales, ambientales y económicos cada vez más complejos, que requieren ecosistemas de innovación capaces de integrar múltiples actores, conocimientos y mecanismos de gobernanza. De acuerdo con van Bueren et al. (2025) estos desafíos requieren que los modelos de innovación tradicionales evolucionen a modelos que respondan a las necesidades reales y no solo teóricas.

La revisión realizada en el working paper permite articular una brecha central: aunque los modelos Triple, Cuádruple y Quíntuple Hélice amplían progresivamente la participación de actores y la consideración del ambiente, aún no explican suficientemente mediante qué mecanismos las interacciones, la gobernanza y la legitimidad se traducen en resultados sostenibles medibles y verificables. Esta dificultad reúne vacíos conceptuales sobre la integración de las hélices (Cai & Lattu, 2022), limitaciones para comprender las coaliciones y su agencia (Donati et al., 2023) y una operacionalización todavía insuficiente de la sostenibilidad (Van Bueren et al., 2025; Xin et al., 2025). Por ello, más que añadir actores al modelo, es necesario conectar teoría, mecanismos de colaboración y evidencia de resultados.

La pertinencia del análisis radica en integrar debates que suelen presentarse por separado: la compatibilidad conceptual entre los modelos Helix, la participación efectiva de la sociedad civil, la gobernanza de las interacciones y los instrumentos para evaluar la sostenibilidad. En esta línea, Cai (2022) plantea la integración de los modelos mediante la neo-Triple Hélice; Xin et al. (2025) destacan el desplazamiento hacia mecanismos y procesos; y Van Bueren et al. (2025) subrayan la necesidad de fortalecer los objetivos y la comprensión sistémica de la sostenibilidad. Estas perspectivas orientan una lectura conjunta, sin asumir que la ampliación del número de hélices garantiza, por sí sola, mejores resultados.

A partir de esta problemática, el estudio tiene como objetivo analizar cómo la literatura académica reciente ha abordado la evolución de los modelos Helix y su contribución teórica, empírica y de gobernanza para el desarrollo de ecosistemas sostenibles, para identificar las principales brechas, convergencias y líneas futuras de investigación que permitan fortalecer la integración de estos modelos con la sostenibilidad.

La investigación se originó como un ejercicio de un curso académico y se desarrolló mediante una revisión exploratoria y estructurada de literatura, con indicadores descriptivos del corpus y análisis cualitativo de contenido. El working paper registra una búsqueda en Web of Science orientada a los modelos Triple, Cuádruple y Quíntuple Helix y su relación con la sostenibilidad. Se consignaron cuatro consultas en inglés, con 40, 131, 169 y 100 resultados, respectivamente; estas cifras corresponden a resultados de búsqueda reportados por consulta y no a un total depurado de registros únicos. Los criterios de inclusión fueron artículos de revistas Q1-Q2, trabajos sobre los modelos Helix y estudios que los relacionaran con sostenibilidad; se excluyeron publicaciones fuera de esos criterios y estudios de sostenibilidad sin vínculo con los modelos Helix. De esta exploración se seleccionaron 15 artículos para el análisis detallado.

La muestra acotada respondió al alcance del curso y constituye un punto de partida. El artículo se encuentra en proceso de incorporación de bibliografía adicional y diversa en enfoques, métodos y contextos. Sobre los 15 artículos seleccionados se identificaron vacíos y líneas futuras, clasificados mediante una taxonomía de brechas (Miles, 2017) y codificación abierta y axial; la inteligencia artificial se utilizó como apoyo para relacionar patrones a partir de la información extraída. La pregunta de investigación es: ¿Cómo ha abordado la literatura académica la evolución de los modelos de innovación Helix y su contribución teórica, empírica y de gobernanza para fomentar ecosistemas sostenibles?

En los artículos examinados se observa una transición desde la coordinación universidad-industria-gobierno hacia marcos que consideran también la sociedad civil, el ambiente, la legitimidad y la gobernanza. La contribución interpretativa que emerge de la revisión es considerar la sostenibilidad no solamente como una hélice adicional o un resultado deseable, sino como una condición sistémica que redefine objetivos, relaciones y criterios de desempeño en los ecosistemas de innovación (Van Bueren et al., 2025; Xin et al., 2025). Ello implica preguntarse quién participa, cómo se construye legitimidad, qué mecanismos institucionalizan la cooperación y cómo se miden sus efectos. Esta lectura es una proposición conceptual derivada del corpus inicial, todavía pendiente de contraste con una revisión más amplia y con estudios empíricos.

El análisis de contenido de los 15 artículos permitió codificar 65 líneas futuras de investigación, 45 vacíos de conocimiento (gaps) y cinco ejes integradores. De acuerdo con la clasificación empleada en el working paper, las líneas futuras se concentran en dimensiones teóricas y de conocimiento práctico, y apuntan tanto a la clarificación de conceptos como a su traducción en gobernanza, políticas, capacidades e implementación. La codificación abierta y axial permitió pasar de recomendaciones dispersas en los artículos a una agenda temática de investigación. Estos recuentos describen las unidades codificadas en el corpus analizado, no la totalidad de la literatura sobre los modelos Helix.

Entre los 45 gaps identificados predominan los teóricos (37,8 %), seguidos por los de conocimiento (26,7 %) y los metodológicos (15,6 %). La distribución, documentada en el working paper, sugiere que en esta muestra persisten necesidades de integración conceptual, acumulación de evidencia y herramientas de medición. Los porcentajes se refieren exclusivamente a las brechas codificadas en los artículos seleccionados y no permiten inferir la distribución de vacíos del campo completo.

La convergencia entre gaps y líneas futuras dio lugar a cinco ejes articulados, no a una lista de temas aislados. El primero aborda la integración conceptual de los modelos Triple, Cuádruple y Quíntuple Helix y su relación con la sostenibilidad, incluyendo el debate sobre hélices entendidas como actores, subsistemas o condiciones transversales. El segundo se enfoca en la medición y operacionalización, mediante indicadores, diseños comparativos y longitudinales y métodos capaces de vincular interacciones colaborativas con resultados sostenibles observables.

El tercer eje examina actores no tradicionales, redes horizontales y legitimidad ecosistémica, para comprender la participación de comunidades, sociedad civil, gobiernos locales e intermediarios. El cuarto propone comparaciones contextuales, sectoriales y longitudinales que permitan observar cómo cambian los mecanismos según las condiciones institucionales y territoriales. El quinto se orienta a la gobernanza e institucionalización de la sostenibilidad mediante políticas, incentivos, coordinación y capacidades organizacionales. En conjunto, los cinco ejes conectan la evolución conceptual de los modelos con sus mecanismos de funcionamiento y criterios de evaluación (Cai, 2022; Donati et al., 2023; Loučanová et al., 2025; Zhao et al., 2026).

La brecha integradora identificada es, por tanto, la distancia entre la ampliación conceptual de los modelos Helix y la posibilidad de demostrar cómo sus interacciones producen resultados de sostenibilidad verificables. Los artículos revisados ofrecen avances sobre actores y relaciones, pero señalan desafíos para explicar la agencia de coaliciones, consolidar legitimidad, institucionalizar la colaboración y medir resultados en contextos específicos. El análisis sugiere que la sostenibilidad debe examinarse como criterio que orienta tanto la configuración de las relaciones como su evaluación, y no como una característica incorporada automáticamente al añadir una hélice ambiental.

El aporte específico de este estudio preliminar consiste en sintetizar 65 líneas futuras y 45 gaps del corpus inicial en una agenda integradora de cinco ejes que relaciona teoría, medición, actores, contexto y gobernanza. A diferencia de una síntesis exclusivamente descriptiva de la evolución de las hélices, la propuesta organiza interrogantes para estudiar los mecanismos que conectan colaboración y sostenibilidad y sitúa a esta última como condición sistémica susceptible de desarrollo conceptual y análisis empírico.

Su principal limitación es el tamaño deliberadamente acotado de la muestra de 15 artículos, seleccionado en el marco de un curso académico. El artículo se encuentra en proceso de ampliación con bibliografía más extensa y diversa, y deberá documentar con mayor detalle las fechas y ecuaciones de búsqueda, los registros únicos, la depuración y las decisiones de cribado. La etapa siguiente permitirá contrastar la estabilidad de las categorías y afinar la agenda, sin presentar estos hallazgos iniciales como representativos de toda la producción académica.

Palabras clave: Triple Hélice; Cuádruple Hélice; Quíntuple Hélice; sostenibilidad; ecosistemas de innovación; gobernanza.

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THE RISK ADVANTAGE: HOW RISK PREFERENCES FUEL ENTREPRENEURSHIP AND INNOVATION

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Abstract

Understanding how individuals perceive and respond to risk is essential for designing effective incentives for entrepreneurship and innovation. Previous behavioral economics evidence shows that individuals respond differently to downside and upside risk: many shy away from small probabilities of modest losses (downside risk), while being attracted to small probabilities of large gains (upside risk), as documented by Comeig, Holt, *et al.* (2022) and Comeig and Holt (2026). This asymmetry, referred to as bipolar risk preference, has important implications for entrepreneurship and innovation through two distinct channels.

On the entrepreneurial side, bipolar risk preferences may shape individuals' motivation to engage in entrepreneurial activity, founders' decisions to invest in new ventures, investors' allocation of capital, and the effectiveness of public policies designed to foster entrepreneurship and innovation. Understanding these preferences may therefore help identify mechanisms that encourage entrepreneurial activity rather than unintentionally suppress it.

On the consumer side, bipolar risk preferences may also influence the adoption of entrepreneurial innovations. New products, services, and technologies often require consumers to make decisions under uncertainty, weighing potential gains from adoption against the possibility of losses or disappointing outcomes. Understanding how consumers respond to these different dimensions of risk can therefore shed light on their willingness to adopt innovations and, ultimately, on the market success of entrepreneurial ventures.

Existing evidence illustrates the potential relevance of upside risk for the design of incentives. Daugaard *et al.* (2024), for example, show that framing investment opportunities around future benefits can encourage responsible investment behavior, suggesting that communication emphasizing potential positive outcomes may influence investment decisions. Similarly, Goette and Stutzer (2020) demonstrate the effectiveness of a random prize-based incentive in a large-scale field experiment involving more than 10,000 previous blood donors. Relative to a standard appeal and a free cholesterol test, offering a lottery

ticket, a small probability of receiving a relatively large payoff, increased donations by 5.6 percentage points from a baseline donation rate of 46%, without reducing subsequent donations. These findings illustrate how incentives incorporating upside risk can affect relevant behavior.

Despite the potential importance of this asymmetry, standard approaches to risk attitudes often ignore it. Such an approach can obscure an important feature of many entrepreneurial and financial decisions: in practice, economic actors frequently encounter environments in which one tail of the outcome distribution is considerably more salient than the other. Collateralized borrowing, insurance decisions, and liquidity management are primarily characterized by exposure to downside risk. In contrast, prizes, venture capital investments, high-growth entrepreneurial opportunities, and investments in innovative start-ups often involve a particularly salient upside: a relatively small probability of obtaining a large positive outcome.

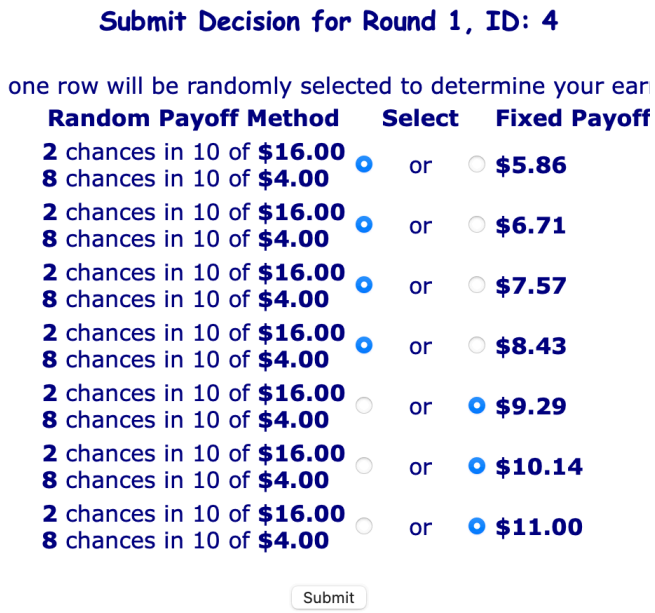
Treating these situations as manifestations of a single underlying attitude toward risk may therefore conceal systematic behavioral differences. An individual may strongly avoid exposure to a small probability of a negative outcome while simultaneously being willing, or even eager, to accept a small probability of a large positive payoff. Consequently, classifications such as globally risk-averse or risk-seeking may provide an incomplete description of behavior in settings in which the relevant risk is concentrated primarily in one tail of the distribution.

To address this issue, we introduce Separate Upside and Downside Risk Menus, two brief sets of paired lotteries designed to independently identify individuals' attitudes toward the two tails of the outcome distribution without requiring parametric assumptions. The Downside Risk Menu measures choices between a safe or near-safe outcome and an alternative involving a low-probability shortfall, thereby capturing aversion to left-tail outcomes. The Upside Risk Menu measures choices between a moderate, relatively certain outcome and an alternative offering a low-probability windfall, capturing attraction to right-tail outcomes.

The menus are short, incentive-compatible, context-free, and designed for straightforward implementation in both laboratory and field settings. Because the two measures are obtained separately, they allow researchers to identify whether an individual exhibits different attitudes toward downside and upside risk rather than imposing a single global risk parameter.

Figures 1 and 2 show the price list menus for eliciting individuals' upside and downside risk preferences, respectively.

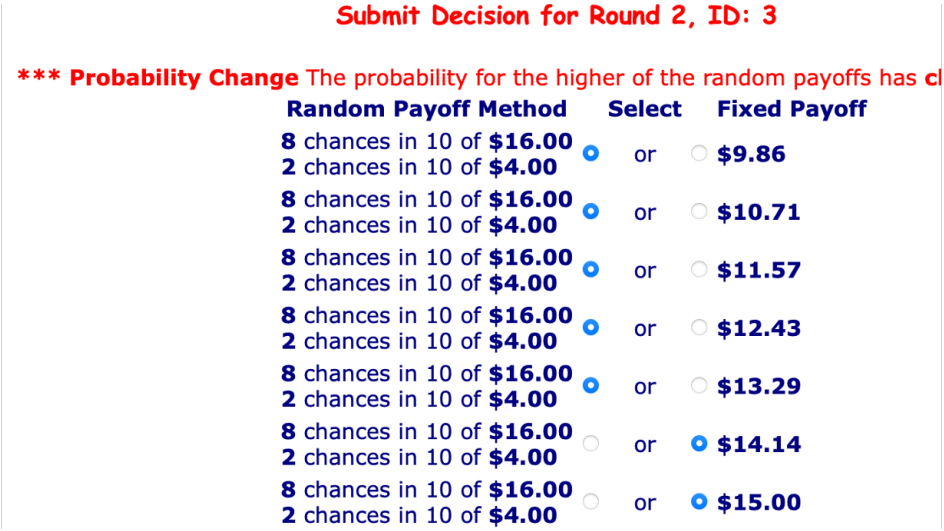
Figure 1. Price list menu for Upside Risk preference



Source. The authors, at https://veconlab.econ.virginia.edu

In the Figure 1 price list menu, a risk-neutral individual would switch from the lottery to the fixed payoff at $6.40. In the example shown in Figure 1, the individual switches at a fixed payoff between $8.43 and $9.29, indicating risk-seeking behavior. She prefers to continue playing the lottery, which has an expected payoff of $6.40 and a maximum payoff of $16, rather than receive a guaranteed payoff of $8.43.

Figure 2. Price list menu for Downside Risk preference



Source. The authors, at https://veconlab.econ.virginia.edu

In the price list menu shown in Figure 2, a risk-neutral individual would switch from the lottery to the fixed payoff at $13.60. In this example, the individual switches at a fixed payoff between $13.29 and $14.14, consistent with risk-neutral behavior. Switching earlier, at a fixed payoff of $11.57 or $12.43, would indicate risk-averse behavior.

The Separate Risk Menus therefore provide a simple way of identifying bipolar risk preferences and distinguishing behavior that would otherwise be combined within a single measure of risk attitude.

Preliminary results on a population of 38 students at the University of Virginia, 25 out of them women show, in line with previous literature, that people tend to be attracted to upside risk and repelled by downside risk.

Table 1. Preliminary experimental results

	Upside	Downside
	A	B
Avg. Elicited Value	**7.31**	**12.16**
Avg. Elicited Value Men	7.11	12.34
Avg. Elicited Value Women	7.40	12.08

Source. The authors, at Comeig and Holt, 2026b)

Measuring both attitudes separately allows us to:
-Within individuals, capture contrasting responses to upside and downside risk and improve predictions of economic choices.

-Across groups, identify differences in risk attitudes that aggregate measures may conceal.

Separating the two tails can improve both the prediction and interpretation of behavior. Upside preference may help explain participation in prize or tournament mechanisms, competitive grants, and interest in high-variance entrepreneurial opportunities. What may appear to be instability in an individual's general attitude toward risk across different contexts may instead reflect stable, tail-specific preferences activated by the structure of the decision environment.

The distinction also has direct implications for incentive design. When entrepreneurial effort, experimentation, or innovation is driven primarily by the prospect of a large positive outcome, incentives can be structured to preserve or emphasize that upside. Prize-linked incentives, innovation competitions, and milestone-based rewards, for example, can maintain positive skew while encouraging participation and experimentation. By contrast, when entrepreneurial activity or innovation adoption is constrained primarily by fear of adverse outcomes, interventions may be more effective when they explicitly limit downside exposure. Partial guarantees, capped-loss mechanisms, staged commitments, or other instruments that establish a floor on potential losses may encourage participation without eliminating the potential upside.

Tail-specific risk preferences may also inform framing and communication. In environments dominated by upside opportunities, highlighting future benefits, strategic opportunities, and potential expansion paths may increase engagement. In environments where downside

exposure is the primary barrier, explicitly communicating guarantees, grace periods, exit options, or other limits on potential losses may be more effective. Rather than simply increasing or decreasing the overall amount of risk faced by economic actors, policy and program design can therefore be aligned with the particular tail of the distribution that drives behavior.

The consumer side provides an additional application. Innovation requires not only entrepreneurs willing to create and finance new products but also consumers willing to adopt them. Adoption decisions frequently involve uncertainty: consumers may perceive the possibility of substantial benefits from a new technology while simultaneously worrying about monetary losses, switching costs, product failure, or other unfavorable outcomes. Tail-specific measures can help identify whether low adoption reflects insufficient attraction to the innovation's potential benefits or excessive sensitivity to its downside. This distinction can inform the design and communication of trials, guarantees, return policies, introductory offers, and other mechanisms intended to facilitate the adoption of entrepreneurial innovations.

Beyond these applications, the Separate Upside and Downside Risk Menus provide a practical measurement instrument for researchers, incubators, lenders, and program evaluators. The menus can be completed in minutes, do not require parametric estimation, and can be readily implemented in field environments using tablets or mobile devices. They can be incorporated into accelerator programs, innovation grants, entrepreneurial finance initiatives, and SME lending environments. They also permit pre- and post-intervention measurement and heterogeneity analysis across characteristics such as founder experience, liquidity constraints, gender, income, and previous entrepreneurial outcomes.

Overall, this work in progress contributes to the entrepreneurship, behavioral economics, and finance literatures by showing why the distinction between upside and downside risk matters both for understanding observed behavior and for designing effective incentives. The Separate Upside and Downside Risk Menus offer a simple and scalable method for identifying this distinction and applying it to entrepreneurial and innovation contexts. By recognizing that individuals may simultaneously avoid downside risk and seek upside risk, researchers and policymakers can better predict entrepreneurial choices, interpret responses to programs, and design mechanisms that encourage entrepreneurship and innovation while limiting the downside exposures that may otherwise discourage participation.

Keywords: bipolar risk attitudes; entrepreneurship; downside risk; innovation; upside risk

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BEYOND PROFIT: INTRINSIC MOTIVATIONS BEHIND WELLNESS RETREAT ENTREPRENEURSHIP IN RURAL PORTUGAL

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Abstract

Wellness tourism has grown into one of the fastest-expanding segments of the global tourism economy (Global Wellness Institute, 2025), and academic research on the topic has expanded accordingly. However, the distribution of this attention has been uneven in the literature. Research has predominantly focused on the demand side, where tourists' motivations, preferences, expectations, and experiences have been extensively analyzed(Dimitrovski & Todorović, 2015; Romão et al., 2018; Kessler et al., 2020; Bočkus et al., 2023; Gan et al., 2023; Haldar, 2023). In contrast, on the supply side, the entrepreneurs who create wellness projects remain comparatively invisible and understudied (Martins et al., 2025; Polat & Köseoğlu, 2023). This imbalance reflects a broader pattern in tourism entrepreneurship research, in which the perspective of founders has been persistently under-represented relative to that of consumers (Moura et al., 2022).

This gap has also been observed in the Portuguese context. Despite Portugal's growing prominence as a wellness destination (Global Wellness Institute, 2026), the domestic literature on wellness tourism has focused almost entirely on the thermal segment (Brandão et al., 2021; Quintela, 2023), reflecting the historical weight of thermalism in the country. However, an analysis of market data reveals a different pattern. The thermal segment is by far the smallest of the wellness sectors captured by the Global Wellness Institute (2026) in Portugal, ranking below wellness tourism, mental wellness, physical activity, healthy eating, and traditional and complementary medicine. All of these are dimensions that rural retreats typically draw on, in varying combinations, to build their offering. Even so, this emerging segment is typically characterized by its predominantly small-scale nature, with ventures often founded by individuals who have relocated to the rural interior areas (Iversen & Jacobsen, 2016; Sun & Xu, 2017; Ribeiro et al., 2025), has remained outside the scope of most empirical studies. These retreats combine accommodation with wellness practices in ways that do not fit neatly into existing tourism categories, and their founders' motivational logic remains under-theorised.

Given this gap, this paper aims to answer the following research question: what motivations underlie the decision to create wellness retreats in rural Portugal? The objective is to

characterise the supply side of a segment whose motivational logic is expected to differ from that assumed by frameworks oriented towards growth-driven ventures (Ateljevic & Doorne, 2000; Khan et al., 2025). For that purpose, and having motivations as the primary focus of analysis, the research is grounded in the Motivation–Ability–Opportunity framework (Ölander & Thøgersen, 1995), self-determination theory (Ryan & Deci, 2000) and the extant literature on lifestyle entrepreneurship (Ateljevic & Doorne, 2000; Ivanycheva et al., 2024). Methodologically, the paper draws on a qualitative multiple case study of twelve rural wellness retreats distributed across five NUTS II regions of mainland Portugal. Participants were recruited through a combination of judgement sampling, convenience sampling, and snowball referral. Data were collected in May 2026 through semi-structured interviews: eight conducted on site and four by videoconference, with eight held in English with foreign founders and four in Portuguese with national founders. Transcripts were analysed through thematic content analysis (Bardin, 2016), with categories organised around intrinsic and extrinsic motivations. This design responds directly to recent calls for more qualitative work in a field dominated by quantitative approaches (Martins et al., 2025).
The findings demonstrate that intrinsic motivations clearly predominate overextrinsic ones, exhibiting a motivational logic consistent with lifestyle entrepreneurship (Ateljevic & Doorne, 2000; Khan et al., 2025), thus diverging from the assumptions of growth-oriented frameworks. The profile of the participants, who are largely foreign-born founders without formal training in the sector, situates these entrepreneurs at the intersection of lifestyle entrepreneurship and lifestyle migration (Iversen & Jacobsen, 2016; Sun & Xu, 2017). This finding suggests that individuals' engagement with these projects is driven by life decisions and by personal motivations, rather than specialised career choices. The study contributes to the characterisation of the supply side of an under-documented segment and opens avenues for further research on rural wellness entrepreneurship in Southern Europe.

Keywords: wellness retreats; lifestyle entrepreneurship; intrinsic motivations; rural Portugal; regenerative entrepreneurship.

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GRADUALLY IMPLEMENTING GENERATIVE AI IN INDUSTRIAL FIRMS: THE CASE OF FERROLOIU

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Abstract

Entrepreneurship is being reshaped by artificial intelligence (AI). New digital tools support data processing, pattern recognition, workflow optimisation and faster responses to market changes (Singh et al., 2026). Given rapid technological advancements and global market changes (Uriarte et al., 2026), business leaders should bet on AI and accept the fact that the companies that deny using it or are slow to adopt it will face the risk of being left behind (Haefner et al., 2021; Sharma, 2025). Generative AI enhances entrepreneurs' ability to identify opportunities and make decisions (Matytsin et al., 2023). AI has been reported useful to innovate quickly, especially when uncertainty is high and managers have to process big amounts of information (Aziz, 2026). AI can help transform dispersed information into usable business insights and expand the informational base from which entrepreneurial action is taken.

AI enables entrepreneurs to simulate complex scenarios, since it can process vast amounts of data to reveal patterns, offering practical solutions and different ideas to entrepreneurs (Ayele and Skielse, 2022). AI is especially relevant for growing ventures, considering that these firms often have fewer resources and seek tools that increase productivity (Singh et al., 2026). AI works as a tool to automate tasks, giving entrepreneurs more time to think of new ideas and be creative (Chowdhury et al., 2023).

Business owners should invest in AI with clear guidance so that the company's strategic goals are mobilized alongside this technology (Lago et al., 2026). Successful integration of digital technologies requires strategic alignment with companies' priorities and contextual realities (Henderson and Venkatraman, 1993). The effect of AI depends on how it is embedded within the enterprise's priorities and situation. Implementing AI involves adjustments in business logic in addition to the development of operational and strategic capabilities that support data-driven and intelligent decision making (Kohtamäki, et al., 2024). This is especially relevant in many SMEs since innovation often comes from incremental improvements in services, customer interaction or cost structure (Lago et al., 2026).

Even though generative AI can improve productivity, it should not be used to substitute human expertise. Instead, it should be used as an amplifier of intellectual capital (Aziz, 2026). This is crucial, since the success of a company depends not only on analytical skills but also on judgement, values and ethical reasoning. Entrepreneurial judgement involves making decisions in a state of uncertainty. Therefore, although AI can mitigate uncertainty by enhancing access to information and improving analytical capabilities, entrepreneurial judgement remains a uniquely human responsibility. Consequently, AI should be viewed as a collaborative partner that complements and augments human capital, rather than as a substitute for it.

A further important consideration is that the analytical capacity of AI is limited by the quality and scope of the data on which it is trained and the information it is provided with. AI systems may reproduce or amplify biases already present in the existing data, which affects customer targeting, hiring, pricing or other strategic decisions. Moreover, AI often lacks contextual understanding and the knowledge of the concrete situation in which the company operates. Factors such as the organizational culture or the stakeholder relationships also play a role. Ultimately, entrepreneurs bear the risks associated with their decisions. They are responsible for the economic decisions, whether positive or negative, and must justify those decisions to stakeholders.

For SMEs such as Ferroloiu, the implementation of generative AI is usually more complex than in large firms. Limited budget, fewer employees and less available time for training can make adoption slower and more selective. Ferroloiu operates in the steel-processing sector, where value depends on personalized support, trust and meeting customer needs. Its activity requires information processing related to materials, dimensions and cutting technologies. AI could help process information about the user needs, recurring incidents and the used materials. In such cases, the approach should be gradual. Furthermore, the company would need to ensure that AI is trained with reliable internal information.

Nevertheless, Ferroloiu is a company in which human capital plays a central role, both through relationships among employees and through close customer relationships. Therefore, AI should not be used as a substitute for these relationships. Instead, it should be used to support and strengthen them.

Keywords: artificial intelligence; business growth; industrial firms.

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ARE MIGRANT WOMEN ENTREPRENEURS REALLY LESS GROWTH-ORIENTED, OR ARE WE MEASURING THE WRONG GROWTH THEY INTEND TO PURSUE?

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1.0 Background to the Study

Migration serves as an important driver of economic and social growth, and entrepreneurship is regarded as one of the important factors through which migrants create value for their host and home countries (McAuliffe & Oucho, 2024; OECD, 2023; Ram et al., 2017). Migrant entrepreneurship contributes to creating jobs, innovating, expanding markets, trading internationally, and growing regional and national economies (Yasin & Hafeez, 2023). Among these diverse groups, migrant women entrepreneurs (MWEs) have emerged as an increasingly important yet comparatively underexplored segment of the entrepreneurial population (Marlow & McAdam, 2013; Nziku & Henry, 2021). Therefore, understanding MWEs requires examining not only their current entrepreneurial activities but also the future outcomes they seek to achieve.

This future outcome is consistent with the broader nature of entrepreneurship. Entrepreneurs constantly imagine, build, and pursue preferred future states through their decisions and actions (Munoz & Dimov, 2023; Skade, 2026). Intention is the specific construct through which this future-orientation can be theorised and measured, capturing the cognitive process of imagining a preferred future venture state, prior to, and independent of, whether that future state is ever actually realised as an outcome (Bird, 1988; Ajzen & Fishbein, 1980). However, what happens to entrepreneurial intentions after business is initiated is a bone of contention in research as most studies persistently focus on entrepreneur's initial intention to start or launch a business.

One such post-entry form of entrepreneurial intention is growth intention. However, existing research predominantly conceptualises growth intention through business-oriented indicators such as firm size, employment creation, sales growth, and market expansion (Autio & Acs, 2010; Tominc & Rebernik, 2007). Consequently, this may explain why substantial body of entrepreneurship research has reported that women entrepreneurs have less ambitious growth compared to their male counterparts (Bulanova, Isaksen, & Kolvereid, 2016; Cliff, 1998; Davis & Shaver, 2012). This pattern is further compounded by findings that women entrepreneurs tend to have less aggressive growth objectives, slow business growth, and set lower targets for growth compared to male entrepreneurs (Morris et al., 2006).

However, instead of seeing growth intention as being influenced by gender, these results may instead stem from measurement frameworks that do not capture the broader, life-embedded forms of growth intention that are relevant to MWEs, whose entrepreneurial success and value creation may extend beyond conventional indicators of firm expansion and financial performance to encompass broader personal, family, and social considerations (Kwiatek & Villares-Varela, 2022; De Luca & Ambrosini, 2019). Therefore, this study explores how MWEs conceptualise and define growth intention and examines the dimensions through which their growth intentions can be understood and operationalised.

2.0 Methodology

The study adopts non-probability sampling which is suited for qualitative research in gaining understanding rather than producing statistically generalizable results and useful to reach hard-to-reach populations where a complete sampling frame is often unavailable (Creswell & Poth, 2018; Saunders, Lewis, & Thornhill, 2019). Accordingly, this study adopted a combined purposive and snowball sampling, consistent with qualitative research designs (Patton, 2015; Creswell & Poth, 2018). Purposive sampling enables the researcher to purposively select participants based on predefined inclusion criteria namely, the migrant status, business ownership, and gender. In addition, snowball sampling technique enables existing participants to refer other potential participants who meet the study's eligibility criteria (Creswell & Poth, 2018; Patton, 2015).

As shown in figure 1, the process recruitment of participant was conducted through four (4) primary channels: email outreach, personal networks, in-person engagement and referrals. A total of nineteen (19) MWEs were interviewed between April and August 2024. Data saturation was reached at this stage, as iterative analysis revealed redundancy in emerging themes (Guest et al., 2006; Saunders et al., 2018). All interviews lasted between approximately 40 and 60 minutes and were conducted online via Microsoft Team. Online interviews generate data quality, enhance participant comfort and openness, allow for in-depth probing and rapport building when compared with face-face interview (Iacono, Symonds, & Brown, 2016; Salmons, 2015).

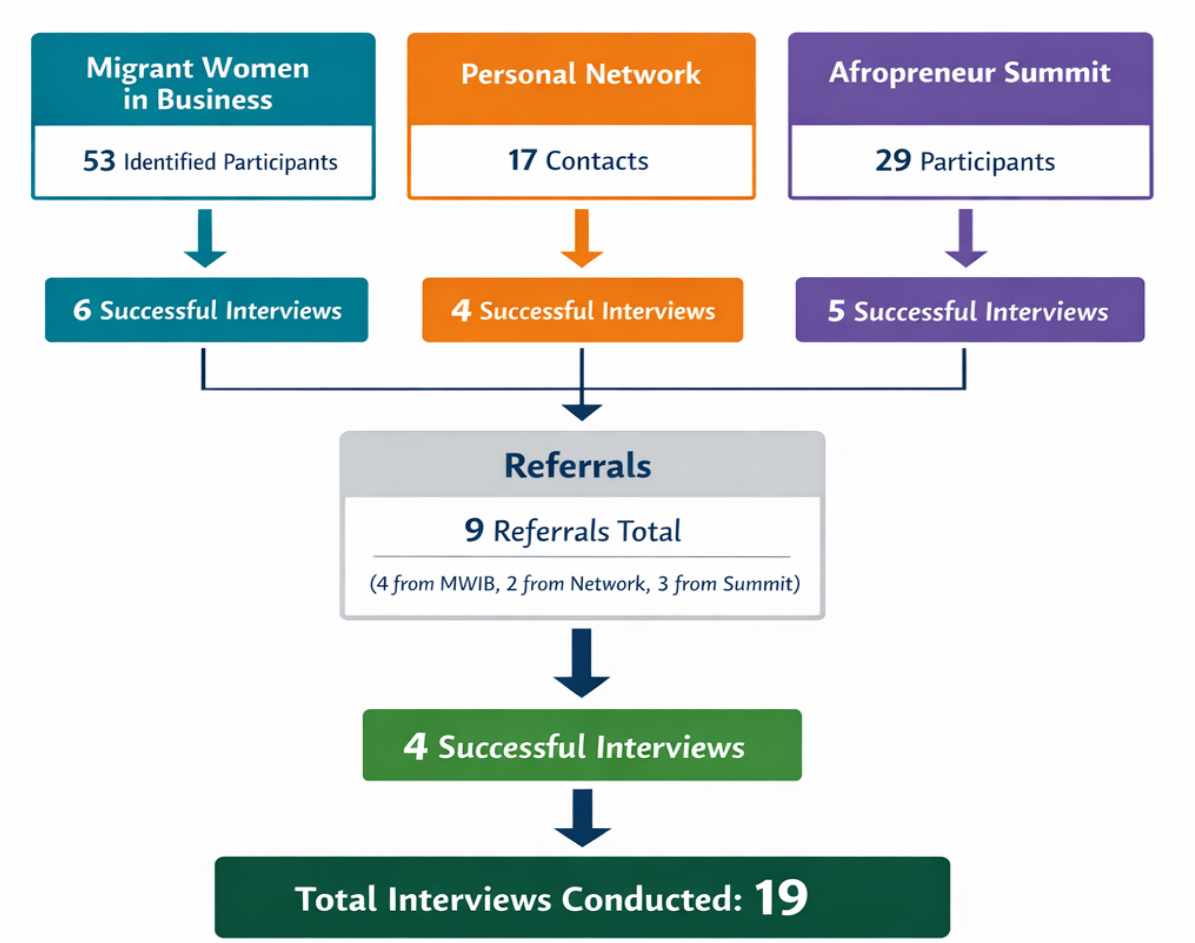


Figure 1
Overview of Participant Recruitment (Author Develop)

3.0 Findings

The findings reveal that growth intention is neither uniformly defined nor solely by economic imperatives, thereby challenging the assumption that a "one-size-fits-all" model of growth applies to MWEs. Instead, MWE articulate growth intentions through interplay of business and personal oriented goals. While some MWE express conventional business growth intentions such as business expansion, increased sales, employment growth, and product or service diversification these accounts are less dominant. For most MWEs, growth intention is primarily framed through personal growth dimensions, including inner peace, fulfilment, flexibility, achievement, family support, retirement security, and the pursuit of a fulfilling future. As illustrated in figure 2, these differing priorities give rise to three distinct growth-intention pathways: personal-fulfilment orientation, conditional growth orientation, and business-expansion orientation.

The first pathway, the personal-fulfilment orientation, captures MWEs for whom personal growth intention is not merely a precursor but the end goal of their entrepreneurial engagement. For these individuals, business growth is not necessary nor desirable; the objective lies in sustaining personal wellbeing, achieving life satisfaction, and realising meaningful outcomes. Here, entrepreneurial activity functions as a vehicle to support these

ends, but the business itself is not the focus. This underlines that for some MWE, the essence of growth is personal, not organizational, and business growth is secondary or even irrelevant in the pursuit of a fulfilling life.

The second pathway, the conditional growth orientation, reveals a more interdependent relationship between personal and business growth intentions. The business-expansion orientation represents the comparatively smaller group of MWEs for whom business growth intention constitutes the goal. Business expansion and other firm-level objectives were often framed as contingent upon prior satisfaction of personal intentions. In this sense, personal growth intention acted as a guiding logic, shaping whether business growth will pursue, delayed, moderated, or even rejected. This is to say that entrepreneurs assessed opportunities for scaling, increasing sales, or hiring additional staff against benchmarks such as inner peace, fulfilment, flexibility, family security, and lifestyle aspirations. Business growth, where it occurred, was therefore subordinate to personal priorities, highlighting the primacy of personal growth as both a filter and a prerequisite for entrepreneurial decision-making.

The third pathway, business-expansion orientation reveals that for few MWEs, business growth intention represents the ultimate end goal of their entrepreneurial engagement. For these individuals, personal considerations, while not absent, are secondary to the pursuit of business development. Growth is primarily defined in conventional economic terms, including scaling operations, increasing revenues, expanding the workforce, and diversifying products or services. In this orientation, personal lifestyle outcomes are largely framed as consequences of successful business growth rather than primary objectives. Entrepreneurial activity is therefore pursued with a clear emphasis on organisational development, positioning the business itself as the central focus through which success is measured.

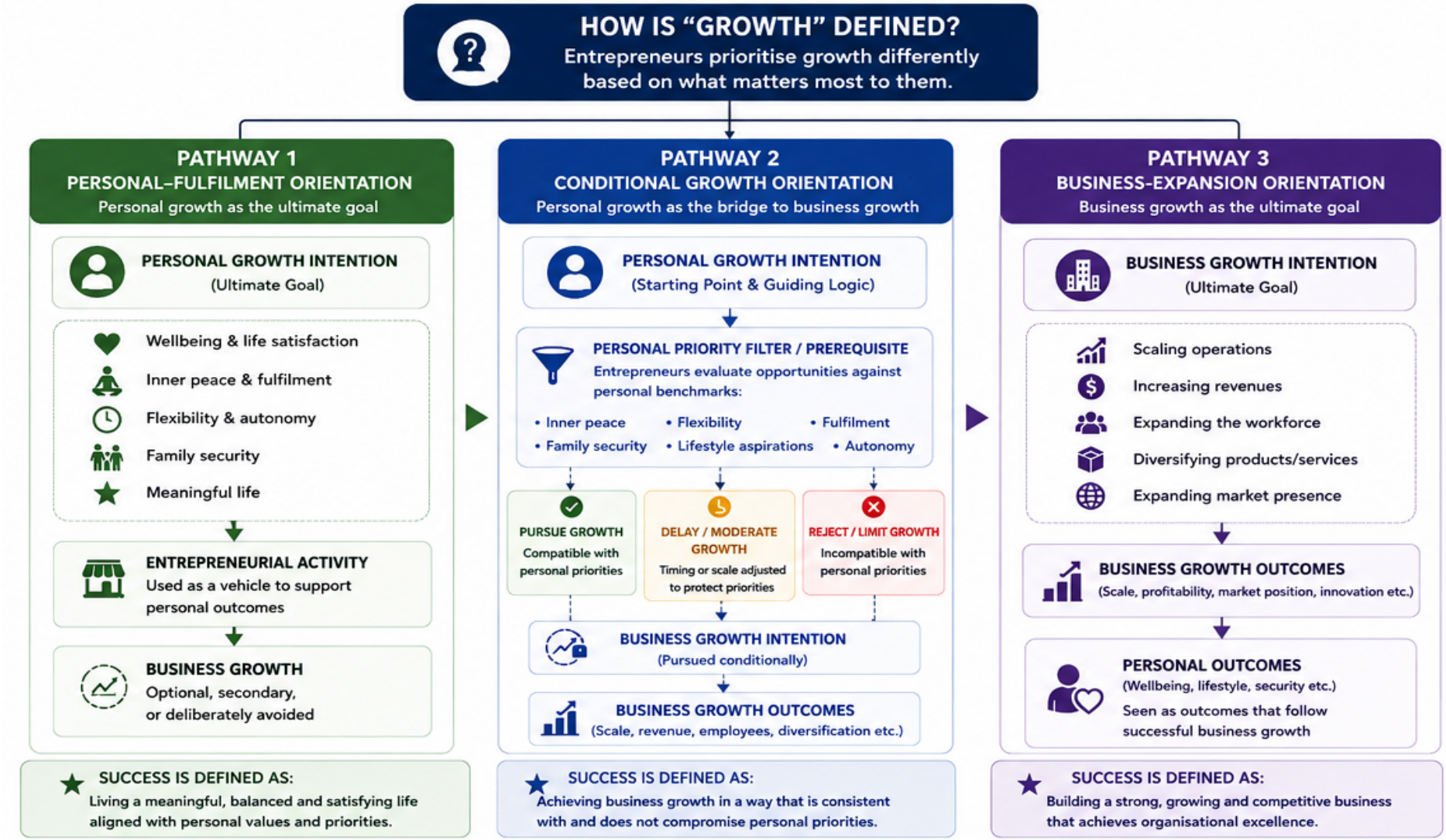


Figure 2
Three Pathways of Growth Intention among MWEs

4.0 Discussion of Findings

This finding provides an alternative interpretation of what may appear in previous research as a low-growth orientation in women entrepreneurs (Douglas & Venugopal, 2025; Nyakudya et al. 2024). Research that equates entrepreneurial ambition primarily with business expansion may classify MWEs who do not seek business growth as having weak or absent growth intentions (Wiklund & Shepherd, 2003; Douglas, 2013). However, the present findings suggest that such an interpretation may conflate the absence of business expansion intentions with the absence of growth intentions altogether. MWEs may reject business expansion while actively pursuing growth in other domains. Thus, what is interpreted as a low-growth entrepreneur from a conventional business-growth perspective may from the MWEs perspective, represent an intentional and meaningful form of growth.

5.0 Conclusion

The items that make up personal growth intention resemble the reasons that women give for starting a business, such as independence, flexibility, fulfilment, and family security. Yet in this study they function as intentions and not as motives. Entrepreneurs who start a business in the hope of achieving these things often find that they are not achieved immediately, and so the aspiration continues as something to be worked towards. In this sense, personal growth intention reflects the carrying forward of unmet motives into the future, which distinguishes it from the pre-entry motivations that explain why women start businesses.

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DO INNOVATION MOTIVATORS VARY BY NOVELTY? EVIDENCE FROM POLISH SOCIAL ENTERPRISES

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Abstract

Social enterprises must respond to commercial demands while preserving their public-benefit missions. Yet the circumstances they identify as reasons to innovate may not be equally relevant to small adjustments, major upgrades and entirely new offerings. This contribution investigates whether the relationship between reported innovation motivators and product novelty differs across these three outcomes.

The analysis draws on survey responses from 585 social enterprises in Poland, collected in 2023 using a nationally representative sampling design. Innovation introduced during 2020–2022 is classified as incremental modification, substantial improvement or radical product introduction. Three separate logistic regressions relate these outcomes to indicators of organizational initiative, market and stakeholder demands, and institutional or situational pressures, with controls for organizational characteristics.

The evidence points to different motivational profiles rather than a common pattern across all innovations. Employee initiative is associated with lower odds of incremental and substantial changes, but higher odds of radical product introductions. In the case of substantial improvements, expectations expressed by partners and legislative changes are positively associated with innovation, whereas several other stakeholder-related indicators have negative associations. For radical innovations, cost-saving intentions and efforts to reach new clients are positively associated with the outcome. External shocks and policy-related factors exhibit selective associations and do not emerge as consistently positive correlates across novelty levels.

These contrasts suggest that the intermediate category deserves attention in its own right: substantial improvements cannot be adequately described as merely a weaker version of radical change. For managers and public support institutions, the findings argue against assuming that a single set of incentives will accompany every form of product innovation. Because the data are cross-sectional, the estimates describe statistical relationships, not causal effects.

Keywords: social enterprises; innovation novelty; product innovation; innovation motivators; Poland

CREATING CONDITIONS FOR ENTREPRENEURSHIP: THE ROLE OF ENTREPRENEURIAL ECOSYSTEMS

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Abstract

Entrepreneurship is increasingly understood not only as a result of individual entrepreneurial capabilities, but also as a process embedded in a broader institutional, social, economic and technological context. This perspective has contributed to the growing importance of the entrepreneurial ecosystem concept in entrepreneurship research. Entrepreneurial ecosystems emphasize the interdependence between entrepreneurs, firms, universities, financial institutions, public authorities, support organizations, infrastructure and cultural conditions that jointly shape entrepreneurial activity within a particular territory (Stam, 2015; Stam & van de Ven, 2021). Rather than treating entrepreneurship as an isolated individual-level phenomenon, the ecosystem perspective highlights the conditions under which entrepreneurial opportunities can be identified, developed and transformed into productive economic activity.

The purpose of this study is to examine how entrepreneurial ecosystems create conditions that support the emergence and development of entrepreneurship, with particular attention to the interactions between ecosystem actors, institutional conditions and entrepreneurial resources. The study addresses the following research question: How do entrepreneurial ecosystems create and shape the conditions necessary for the development of entrepreneurship? Three complementary questions are considered: (1) Which actors and institutional conditions are particularly important for entrepreneurial ecosystem development? (2) How do interactions and resource flows between ecosystem actors influence entrepreneurial activity? and (3) What mechanisms allow entrepreneurial ecosystems to generate productive entrepreneurship and innovation?

The study adopts a conceptual research design based on a structured review and synthesis of the entrepreneurial ecosystem literature. The analysis draws on seminal contributions to the field, including Isenberg (2010), Stam (2015), Spigel (2017), Stam and van de Ven (2021), and Wurth et al. (2022). The literature is analysed thematically, focusing on four dimensions: ecosystem actors, ecosystem resources, institutional and cultural conditions, and interactions connecting these elements. This approach allows the analysis to move beyond descriptive lists of ecosystem components and examine how different elements interact to create an environment conducive to entrepreneurship.

The literature indicates that entrepreneurial ecosystems should be understood as systems of interdependent actors and factors rather than collections of independent support institutions. Stam and van de Ven (2021) conceptualize entrepreneurial ecosystems as configurations of interdependent actors and factors that enable and constrain entrepreneurship within a

particular territory. Their framework includes formal institutions, culture, networks, physical infrastructure, finance, leadership, talent, knowledge and intermediate services. These elements do not operate independently. Their interaction determines the extent to which a territory is able to support productive entrepreneurial activity.

A central finding from the literature is therefore that the presence of individual resources does not necessarily guarantee a functioning entrepreneurial ecosystem. The effectiveness of an ecosystem also depends on the relationships between its components and on the ability of actors to access and mobilize resources. Spigel (2017) emphasizes the importance of cultural, social and material attributes and their interactions. Entrepreneurs are not merely beneficiaries of ecosystem resources. They also contribute to ecosystem development by generating knowledge, establishing networks, creating firms and participating in entrepreneurial communities.

Networks represent an important mechanism through which ecosystem resources become accessible to entrepreneurs. Entrepreneurial ecosystems provide access not only to financial and physical resources but also to knowledge, skills, legitimacy, contacts and entrepreneurial experience. These resources can circulate through relationships between entrepreneurs, investors, universities, corporations, public institutions and intermediary organizations. Consequently, the quality of interactions between ecosystem actors may be as important as the resources themselves.

The literature also indicates that entrepreneurial ecosystems are heterogeneous and cannot be understood through a single universal model. Ecosystems differ according to their institutional structures, resource endowments, historical trajectories, industrial specialization and geographical characteristics (Spigel, 2017). Consequently, policies based on the direct replication of successful ecosystems may overlook the specific characteristics of individual territories. An effective ecosystem approach therefore requires attention to local conditions and the ways in which existing resources can be connected and mobilized.

This perspective is particularly relevant to entrepreneurship policy. Stam (2015) argues that the ecosystem approach allows policymakers to move beyond policies focused primarily on increasing the quantity of entrepreneurship toward policies concerned with the quality and productivity of entrepreneurial activity. The objective should therefore not simply be to increase the number of new firms, but to create systemic conditions that allow entrepreneurial activity to generate innovation and broader economic and social value.

Entrepreneurial ecosystems should also be considered dynamic rather than static. Wurth et al. (2022) highlight the need for entrepreneurship research to develop a stronger understanding of ecosystem evolution and the mechanisms through which ecosystem elements influence entrepreneurial outcomes. Entrepreneurial activity can itself generate new resources, networks, knowledge and role models. This creates the possibility of cumulative processes in which successful entrepreneurial activity strengthens the ecosystem and subsequently creates conditions for additional entrepreneurial activity.

Based on the literature synthesis, this study proposes a conceptual interpretation of entrepreneurial ecosystems as systems for creating, connecting and mobilizing

entrepreneurial resources. Their key function is not simply to provide resources, but to create conditions under which resources can be accessed, combined and transformed into entrepreneurial opportunities. Universities can contribute knowledge and talent; investors can provide financial resources and expertise; public institutions can shape institutional conditions and support mechanisms; established firms can provide market access and technological capabilities; while start-ups can generate experimentation, innovation and new knowledge. The interaction between these actors may create systemic effects that cannot be explained by individual ecosystem components alone.

The study contributes to the entrepreneurial ecosystem literature in three ways. First, it emphasizes the importance of moving from an actor-centred perspective toward an interaction-based understanding of ecosystems. Second, it distinguishes between the presence of ecosystem resources and their effective mobilization through networks and institutional arrangements. Third, it conceptualizes entrepreneurial ecosystems as dynamic environments in which entrepreneurial activity is simultaneously an outcome of ecosystem conditions and a mechanism contributing to their subsequent development.

The findings have implications for policymakers and organizations supporting entrepreneurship. Effective ecosystem development requires more than establishing incubators, accelerators or financial support programmes in isolation. Policies should facilitate connections between ecosystem actors, improve access to knowledge and finance, strengthen university–business cooperation, support entrepreneurial networks and reduce institutional barriers to experimentation and business creation.

The study concludes that creating favourable conditions for entrepreneurship requires a systemic approach. Entrepreneurial ecosystems can be understood as evolving configurations of actors, institutions, resources and relationships that jointly influence entrepreneurial activity. This perspective provides a foundation for future empirical research comparing entrepreneurial ecosystems across cities and regions and examining how different ecosystem configurations influence start-up formation, innovation, internationalization and long-term entrepreneurial development.

Keywords: entrepreneurial ecosystems; entrepreneurship; start-ups; innovation; entrepreneurial development

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