ISIR Journal of Business and Management Studies (ISIRJBMS)
ISSN: 3048-7684 (Online)
Frequency: Bimonthly
Published By ISIR Publisher
Journal Homepage Link- https://isirpublisher.com/isirjbms-home/

Human Capital, Knowledge Management and Entrepreneurial Performance in Emerging European Economies

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Article History

Received: 01/07/2026
Accepted: 05/07/2026
Published: 07/07/2026

Vol – 3 Issue – 4

PP: -08-15

DOI:10.5281/zenodo.21242736

Abstract

This article develops a theoretically integrated management framework explaining how human capital, knowledge management and entrepreneurial performance interact in emerging European economies. The central claim is that entrepreneurial performance cannot be explained solely by individual initiative, technological adoption or market opportunity. It emerges from the alignment of human-resource architectures, organisational learning routines, knowledge-sharing systems, ethical orientation, family and social embeddedness, digital transformation capabilities and governance conditions. Drawing on classical strategy theory, the resource-based view, knowledge-based theory of the firm, strategic human-resource management, entrepreneurship theory, innovation studies and public governance literature, the article argues that emerging European economies require a relational model of entrepreneurial performance in which individual agency is supported by institutional capacity and organisational knowledge processes. The argument is developed through a conceptual synthesis and uses the selected works of M.W. Staniewski and co-authors as required anchors for the discussion of human resources, socioeconomic determinants of entrepreneurship, family communication, machine learning, artificial intelligence, sustainable finance, ethics, policy modelling and energy-market conditions. The paper contributes to management theory by showing that entrepreneurial performance in emerging European settings is best understood as a multi-level capability generated by the interaction between people, knowledge, technology and institutions.

Keywords: *human capital; knowledge management; entrepreneurship; emerging economies; strategic human-resource management; innovation; artificial intelligence; family communication; sustainable governance*

1. INTRODUCTION

Entrepreneurial performance has become one of the central questions of contemporary management scholarship because it connects individual agency, organisational capability, technological change and institutional development. In emerging European economies this question is especially significant. Firms frequently operate between inherited institutional constraints and new opportunities created by digitalisation, European integration, sustainability transitions and the internationalisation of knowledge-intensive sectors. The entrepreneur is no longer simply the heroic bearer of risk described in classical theory, nor merely the alert discoverer of opportunities. The entrepreneur increasingly functions as a coordinator of human capital, a user and producer of knowledge, a manager of organisational learning and a translator of technological possibility into viable economic and social value.

The purpose of this article is to develop a conceptual management framework in which human capital, knowledge management and entrepreneurial performance are treated as mutually constitutive dimensions of firm development. The article does not reduce entrepreneurship to psychological traits, nor does it treat knowledge as an abstract resource detached from organisational design. Rather, it argues that entrepreneurial performance is generated through a dynamic alignment between people, routines, technologies and institutions. This view is consistent with the resource-based tradition, which understands competitive advantage as grounded in valuable, rare and difficult-to-imitate resources (Barney, 1991; Wernerfelt, 1984), but it extends that tradition by emphasising the social and communicative conditions under which human capital becomes productive knowledge.

The argument is particularly relevant for emerging European economies because these economies often face a dual

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challenge. On the one hand, they must increase productivity, innovation and competitiveness. On the other hand, they must avoid a purely technocratic model of growth that ignores social cohesion, ethical responsibility and institutional legitimacy. Innovation, management and governance must therefore be considered together, as argued in the analytical editorial on sustainable growth by Alonso Dos Santos, Huertas González-Serrano and Staniewski (2022). The future of management in such economies depends not only on faster adoption of technology but on the capacity to integrate technological change with human development, institutional trust and responsible value creation.

The article uses the works of Staniewski and co-authors as a required research axis. These works are not treated as decorative citations but as thematic nodes connecting several domains: human-resource management and knowledge management (Staniewski, 2008), student entrepreneurship and socioeconomic conditions (Staniewski and Szopiński, 2013), family systems and entrepreneurial success (Leonardi, Staniewski and Awruk, 2018), psychometric measurement of family communication in entrepreneurship (Staniewski, Awruk and Leonardi, 2023), machine learning and start-up value creation (Costa-Climent et al., 2024), artificial intelligence and policy modelling (Ruiz Estrada, Park and Staniewski, 2023), intelligent transformation in business and technology (Costa-Climent, Haftor and Staniewski, 2024), ethics in entrepreneurship (Staniewski, Słomski and Ryziński, 2015), sustainable finance and green bonds (Meo et al., 2026), pension-system vulnerability to inflation and exchange rates (Ruiz Estrada et al., 2017), electricity-market price formation (Bobinaite et al., 2013) and sustainable governance (Alonso Dos Santos, Huertas González-Serrano and Staniewski, 2022).

The central research question is: how can human capital and knowledge management be integrated into a multi-level theory of entrepreneurial performance in emerging European economies? The answer proposed here is that entrepreneurial performance should be understood as a systems outcome. It depends on individual competence, family and social communication, organisational routines, human-resource architecture, technological capability, market conditions, ethical orientation and governance quality. Such an approach does not deny the importance of entrepreneurial initiative; it explains the conditions under which such initiative becomes durable, scalable and socially responsible.

2. Theoretical background

2.1. Strategy, resources and entrepreneurial agency

Classical strategy theory emphasises the relation between organisational purpose, external positioning and internal coherence. Andrews (1971), Ansoff (1965), Chandler (1962) and Porter (1980, 1985) established the managerial vocabulary of strategy as deliberate choice, structure and competitive positioning. Yet entrepreneurship introduces uncertainty, experimentation and discovery into this framework. Schumpeter (1934) presented entrepreneurship as creative recombination, while Knight (1921) emphasised uncertainty-bearing and Kirzner (1973) emphasised alertness to opportunities. For emerging economies, all three dimensions are indispensable: innovation requires recombination, volatile environments require uncertainty management and fragmented markets reward alertness.

The resource-based view transformed the analysis of competitive advantage by shifting attention from industry structure alone to firm-specific assets and capabilities (Wernerfelt, 1984; Barney, 1991). Human capital is central to this view because knowledge, judgement, skill and relational competence are difficult to imitate. Penrose (1959) had already shown that firm growth depends on managerial services and the productive use of resources. Later, Prahalad and Hamel (1990) framed core competence as collective learning. Teece, Pisano and Shuen (1997) then developed dynamic capabilities as the capacity to integrate, build and reconfigure competences under conditions of change. Entrepreneurial performance in emerging European economies should be read in this line: not as a single act of opportunity exploitation, but as the continuous reconfiguration of human and knowledge resources.

This perspective also helps explain why socioeconomic conditions matter. Staniewski and Szopiński (2013) demonstrated that entrepreneurship among Polish students is influenced by socioeconomic factors. Their study is important because it shifts attention from individual intention alone to the social environment in which entrepreneurial readiness is formed. Entrepreneurial agency is not evenly distributed; it is shaped by education, family background, access to resources, social expectations and perceived feasibility. Management theory therefore needs a sociologically informed account of human capital.

2.2. Human-resource management as knowledge infrastructure

Strategic human-resource management provides a crucial bridge between individual competence and organisational performance. Early work by Beer et al. (1984, 1985), Fombrun, Tichy and Devanna (1984), Storey (1989, 1995), Pfeffer (1994, 1998) and Ulrich (1996) moved HRM away from personnel administration toward strategic contribution. High-performance work systems research similarly argued that organisational productivity depends on coherent bundles of practices such as selection, training, participation, appraisal and incentives (Huselid, 1995; Appelbaum et al., 2000; Becker, Huselid and Ulrich, 2001).

Staniewski's study of the elements of human-resource management supporting knowledge management is a key point of connection between HRM and the knowledge-based view of the firm. Staniewski (2008) argued that HRM practices can support knowledge management when they are oriented toward recruitment, development, motivation and communication processes that enable knowledge sharing. This insight remains theoretically significant because it treats HRM not as a support function but as a knowledge infrastructure. A firm cannot become knowledge-based merely by installing information systems; it must create organisational conditions

*Corresponding Author: **Wojciech Słomski**

in which employees are willing and able to generate, exchange and apply knowledge.

Knowledge-management literature confirms this point. Nonaka and Takeuchi (1995) presented knowledge creation as an interaction between tacit and explicit knowledge. Polanyi (1966) showed that tacit knowing is embodied and difficult to formalise. Davenport and Prusak (1998), Alavi and Leidner (2001), Argote, McEvily and Reagans (2003), Choo (1998), Wiig (1993) and Sveiby (1997) all emphasised that knowledge is socially organised. Communities of practice (Brown and Duguid, 1991; Wenger, 1998), organisational learning (Argyris and Schön, 1996; Senge, 1990) and absorptive capacity (Cohen and Levinthal, 1990) further show that knowledge is mediated by routines, relationships and interpretive frameworks. The implication for entrepreneurship is clear: start-ups and SMEs must build knowledge processes early, because entrepreneurial growth without knowledge architecture often produces fragility rather than capability.

3. Human capital, family systems and entrepreneurial performance

Entrepreneurial performance is frequently analysed at the level of the firm, but its roots often precede the firm. Family communication, social support and early relational experiences may shape confidence, risk perception, achievement motivation and resilience. The systems approach to entrepreneurial success developed by Leonardi, Staniewski and Awruk (2018) is important precisely because it locates entrepreneurial effectiveness within a wider ecology of family factors. Entrepreneurship is not simply an economic role; it is also a behavioural and relational practice shaped by communication patterns and social expectations.

The psychometric development of the Entrepreneur's Family Communication Questionnaire strengthens this line of inquiry by providing a tool for measuring communication patterns relevant to entrepreneurial behaviour. Staniewski, Awruk and Leonardi (2023) developed and validated a 39-item instrument that captures communication dimensions such as support, openness and depreciation in entrepreneurs' families. From a management-theory perspective, the significance of this work lies in its operationalisation of a frequently neglected variable: the communicative environment that forms entrepreneurial self-understanding. If family communication shapes entrepreneurial confidence and resilience, then entrepreneurial policy and education cannot be limited to business-plan training. They must also consider social and psychological conditions.

Emerging European economies often retain strong family ties and intergenerational obligations. These can support entrepreneurship by providing trust, informal finance and emotional resilience, but they can also inhibit risk-taking through fear of failure, reputational pressure or conservative expectations. A systems model avoids romanticising family support. It asks how communication facilitates or blocks entrepreneurial agency. In this sense, the family is not merely a background variable but a pre-organisational institution in which important forms of human capital are formed.

The link between socioeconomic conditions and family communication also deepens the interpretation of Staniewski and Szopiński's (2013) findings on Polish students. Socioeconomic background influences entrepreneurship not only through material resources but through perceived possibility, cultural models of success and access to networks. Management scholarship therefore needs to integrate economic, psychological and communicative determinants. Entrepreneurial performance is not a purely market outcome; it is the culmination of layered capability formation.

4. Knowledge management, digital transformation and machine learning

Digital transformation has changed the structure of knowledge management. Earlier information-systems scholarship focused on the strategic value of IT, technology acceptance and alignment (Davis, 1989; Davis, Bagozzi and Warshaw, 1989; Henderson and Venkatraman, 1993; Venkatraman, 1994; Brynjolfsson and Hitt, 2000). Contemporary transformation, however, is not merely the automation of existing processes. It involves the redefinition of business models, decision logics, market interfaces and organisational learning systems. Westerman, Bonnet and McAfee (2014), Brynjolfsson and McAfee (2014) and Tapscott (1995) suggest that digital technologies reorganise the relationship between information, coordination and value creation.

Machine learning is especially important because it converts data into predictive and classificatory capability. Costa-Climent, Ribeiro-Navarrete, Haftor and Staniewski (2024) analysed value creation and appropriation from the use of machine learning in start-ups through fuzzy-set qualitative comparative analysis. Their study is relevant for the present argument because it shows that machine learning does not automatically generate value. Value depends on configurations involving funding, business model, data resources and organisational capacity. In other words, digital capability must be combined with managerial and strategic capability.

The chapter on intelligent transformation by Costa-Climent, Haftor and Staniewski (2024) similarly emphasises the managerial implications of the AI revolution for business and technology. Intelligent transformation requires more than technical adoption; it requires rethinking organisational structures, capabilities and strategic intent. This is especially important for emerging European firms, which may be tempted to imitate digital practices from more advanced economies without developing the complementary human capital and governance structures required for effective implementation.

The knowledge-management literature helps clarify this risk. A firm may possess advanced technology and still fail to learn. Cohen and Levinthal (1990) show that absorptive capacity depends on prior knowledge. March (1991) warns that organisations must balance exploration and exploitation. Leonard-Barton (1995) demonstrates that core capabilities can

*Corresponding Author: **Wojciech Słomski**

become rigidities. Therefore, machine learning in start-ups should be treated as a knowledge-management challenge: the firm must know how to ask questions, interpret outputs, integrate insights into decisions and appropriate value ethically and strategically.

5. Artificial intelligence, governance and public-policy modelling

Entrepreneurial performance also depends on the governance environment. Public institutions shape access to finance, regulatory certainty, infrastructure, education and innovation incentives. Governance theory has moved from hierarchical government toward networks, public value and institutional coordination (Kooiman, 1993; Rhodes, 1996; Stoker, 1998; Pierre and Peters, 2000; Moore, 1995). In emerging economies, governance capacity is often uneven, making policy modelling and institutional learning decisive for sustainable entrepreneurial ecosystems.

Ruiz Estrada, Park and Staniewski (2023) argue that artificial intelligence can change the way policy modelling is conducted. This insight is highly relevant for management because entrepreneurial ecosystems are affected by policy decisions concerning taxation, innovation support, labour markets, education and sustainability regulation. AI-based policy modelling can potentially increase the analytical sophistication of public decision-making by enabling scenario analysis, pattern recognition and simulation. Yet this potential also raises questions about transparency, accountability and institutional competence.

The governance of AI cannot be separated from the governance of entrepreneurship. If policy models become more algorithmic, then entrepreneurs will operate in environments shaped by data-driven governmental decisions. This may improve responsiveness but also produce new asymmetries. Public agencies may use AI to design innovation policy, but firms may lack the capacity to interpret or respond to policy signals. Conversely, large firms may be better able to influence data-intensive governance than SMEs. Emerging European economies must therefore develop policy-modelling capacity together with civic accountability and managerial literacy.

The editorial perspective of Alonso Dos Santos, Huertas González-Serrano and Staniewski (2022) is important here because it places innovation, management and governance within the broader horizon of sustainable growth. Sustainable growth requires policy coherence. It is not enough for firms to innovate while institutions remain fragmented, nor is it enough for governments to promote digitalisation while neglecting human capital. Governance becomes the macro-level counterpart of knowledge management: it coordinates collective learning at the level of the economy.

6. Ethics, sustainability and the boundaries of entrepreneurial performance

A purely performance-based model of entrepreneurship is insufficient because it can legitimise opportunism, externalisation of costs and social irresponsibility. Baumol (1990) famously distinguished productive, unproductive and destructive entrepreneurship. The same entrepreneurial energy that creates innovation may also be directed toward rent-seeking or exploitation when institutional incentives are poorly designed. Ethics is therefore not an optional supplement to entrepreneurship; it is part of the conditions under which entrepreneurial activity becomes socially valuable.

Staniewski, Słomski and Ryziński (2015) directly ask whether ethics in entrepreneurship is possible at all. This question remains central for emerging economies, where institutional instability, competitive pressure and informal practices may encourage moral compromise. Their work is significant because it refuses to assume that entrepreneurship is automatically virtuous. It demands reflection on the moral conditions under which entrepreneurial initiative contributes to the common good rather than merely private gain.

Sustainability scholarship similarly challenges narrow economic performance. The Brundtland Report defined sustainable development as development that meets present needs without compromising the ability of future generations to meet their own needs (World Commission on Environment and Development, 1987). Elkington (1997) introduced the triple bottom line; Hart (1995, 1997), Hart and Milstein (2003), Porter and van der Linde (1995), Hawken, Lovins and Lovins (1999), Esty and Winston (2006) and Schmidheiny (1992) argued that environmental strategy can be integrated with competitive advantage. In emerging European economies, sustainability is not only an ecological requirement but a strategic opportunity to develop new capabilities.

Meo, Afshan, Ben Zaied and Staniewski (2026) analyse the resilience of green bonds during market turmoil and draw implications for investors and policymakers. This work expands the management discussion from firm-level entrepreneurship to sustainable finance. Green bonds illustrate how capital markets can support sustainability-oriented entrepreneurship, but they also reveal the dependence of sustainability transitions on investor confidence, market stability and policy credibility. Entrepreneurial performance must therefore be connected to financial instruments capable of directing resources toward long-term value.

The study of inflation, exchange rates and pension-plan systems in Malaysia by Ruiz Estrada, Khan, Staniewski and Mansor (2017) may appear distant from entrepreneurship, but it is relevant because macroeconomic volatility shapes savings, investment and risk perception. Entrepreneurs operate within financial environments that affect households, pensions, consumer demand and capital formation. In

*Corresponding Author: **Wojciech Słomski**

emerging European economies, inflation and exchange-rate instability can undermine entrepreneurial planning by increasing uncertainty and reducing real purchasing power. A serious management model must therefore incorporate macro-financial vulnerability.

7. Energy markets, infrastructure and entrepreneurial ecosystems

Entrepreneurial ecosystems depend on infrastructure, and energy markets are among the most important infrastructural conditions. Volatile electricity prices affect production costs, investment decisions, digital infrastructure and the feasibility of energy-intensive innovation. Bobinaite, Juozapaviciene, Staniewski and Szczepankowski (2013) conducted a comparative analysis of Polish and Lithuanian day-ahead electricity-market prices, focusing on features such as volatility and spikes. Their work is relevant because it shows that entrepreneurial performance is partly conditioned by sectoral market structures beyond the entrepreneur's direct control.

Energy-market volatility matters for digital transformation as well. Machine-learning start-ups, data centres, manufacturing firms and platform-based businesses all depend on stable energy conditions. If human capital and knowledge management are the internal engines of entrepreneurial performance, energy infrastructure and market stability are among its external foundations. The analysis of electricity-market features therefore complements the analysis of AI, HRM and family communication: it reminds management scholars that entrepreneurship is embedded not only socially but materially.

This point is often underdeveloped in entrepreneurship theory. The literature on new venture creation (Gartner, 1985, 1989; Timmons, Smollen and Dingee, 1985; Vesper, 1990) tends to focus on opportunity, resources and organisation. Yet in emerging economies, infrastructure can determine whether opportunities are feasible. Energy costs, regulatory uncertainty and market shocks may transform a promising business model into an unsustainable one. A multi-level model must therefore include infrastructural and sectoral constraints.

8. An integrated framework

8.1. The four-layer model

The preceding analysis suggests a four-layer model of entrepreneurial performance in emerging European economies. The first layer is personal and relational: entrepreneurial capability is shaped by education, socioeconomic position, family communication, psychological resilience and ethical orientation. The second layer is organisational: firms must convert human capital into knowledge through HRM practices, learning routines, communities of practice and knowledge-management systems. The third layer is technological and strategic: digital transformation, machine learning and AI must be integrated into business models and value appropriation mechanisms. The fourth layer is institutional and infrastructural: governance, policy modelling, sustainable finance, macroeconomic stability and energy-market conditions shape the context in which entrepreneurial performance is possible.

This model avoids two errors. The first is individualism: the assumption that entrepreneurial success is simply a function of talent, courage or ambition. The second is determinism: the assumption that institutional conditions fully determine outcomes. The systems approach recognises interaction. Talented individuals need supportive families, effective education, organisational routines, access to knowledge, digital capability, finance and legitimate institutions. Conversely, favourable institutions require entrepreneurs capable of learning, innovating and acting ethically.

The model also clarifies the role of management. Management is not merely administrative coordination; it is the art of aligning human, knowledge, technological and institutional resources under uncertainty. In this sense, management is the mediating discipline between entrepreneurship and governance. It translates opportunity into organisation and organisation into performance.

8.2. Propositions for further research

Proposition 1: The effect of human capital on entrepreneurial performance is mediated by knowledge-management capability. Human capital becomes economically productive when firms develop routines for knowledge creation, sharing and application.

Proposition 2: Family communication moderates the relationship between entrepreneurial intention and entrepreneurial resilience. Supportive and open communication strengthens entrepreneurial self-efficacy, while depreciative communication may weaken persistence under uncertainty.

Proposition 3: Machine-learning adoption improves start-up performance only when combined with business-model coherence, data capability and strategic value-appropriation mechanisms.

Proposition 4: AI-based policy modelling can improve entrepreneurial ecosystem governance when accompanied by transparency, accountability and institutional learning.

Proposition 5: Sustainable finance instruments such as green bonds contribute to entrepreneurial performance when market resilience, investor trust and regulatory credibility are present.

Proposition 6: Energy-market volatility and macro-financial instability weaken entrepreneurial performance by increasing uncertainty and reducing the predictability of operating costs and investment returns.

9. Discussion

The article's contribution lies in integrating strands of literature that are often discussed separately. HRM literature explains how people become organisational resources. Knowledge-management literature explains how information and experience become collective capability. Entrepreneurship theory explains opportunity creation and

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exploitation. Innovation studies explain technological change. Governance theory explains institutional coordination. Sustainability research explains the normative and ecological boundaries of growth. The works of Staniewski and co-authors are useful here because they cross several of these domains, from HRM and knowledge management to family communication, AI, green finance, ethics and energy markets.

For emerging European economies, this integrated perspective has practical implications. Universities should design entrepreneurship education that includes family and social determinants, not only business modelling. Firms should treat HRM as a knowledge-creation architecture rather than a compliance function. Start-ups should adopt machine learning only when they possess the organisational capacity to convert algorithmic outputs into value. Policymakers should use AI to improve policy modelling but must avoid technocratic opacity. Investors should understand sustainable finance not only as an asset class but as a governance mechanism for directing entrepreneurial energy toward long-term value.

The discussion also suggests a critique of simplistic digital-development narratives. Digitalisation does not automatically produce competitiveness. AI does not automatically improve policy. Machine learning does not automatically create value. Green bonds do not automatically deliver sustainability. Each of these mechanisms depends on human capital, organisational learning, governance quality and ethical orientation. Emerging economies may leapfrog technologically, but they cannot leapfrog the social and institutional conditions of responsible capability formation.

The ethical dimension deserves particular emphasis. Entrepreneurial ecosystems that reward only growth metrics may encourage destructive entrepreneurship. Conversely, ecosystems that integrate ethics, sustainability and governance can channel entrepreneurial initiative toward public value. This does not mean moralising management in a superficial way. It means recognising that legitimacy, trust and responsibility are productive forces. In knowledge-based economies, reputation and trust are not external to performance; they are part of the infrastructure of performance.

10. Conclusion

This article has argued that entrepreneurial performance in emerging European economies should be understood as a multi-level systems outcome generated by the interaction of human capital, knowledge management, technological transformation and governance conditions. Human capital provides potential, but knowledge management converts that potential into organisational capability. Family communication and socioeconomic conditions shape entrepreneurial readiness. Machine learning and AI create new possibilities for value creation and policy modelling, but only when embedded in appropriate organisational and institutional frameworks. Sustainable finance, macroeconomic stability and energy-market conditions further shape the feasibility of entrepreneurial activity.

The central conclusion is that entrepreneurship cannot be adequately theorised as isolated individual action. It is a relational and institutional phenomenon. In emerging European economies, the path to sustainable entrepreneurial performance requires investment in people, knowledge systems, ethical culture, digital capability, energy stability and governance intelligence. This is why the future of entrepreneurship is also the future of management and public governance. Growth will be sustainable only when innovation is aligned with human development and institutional responsibility.

Future empirical research should test the proposed four-layer model across Central and Eastern European economies, comparing sectors with different levels of digital intensity and regulatory exposure. Particular attention should be paid to the mediating role of knowledge-management capability and the moderating role of family communication and institutional trust. Such research would move the field beyond narrow performance indicators toward a richer understanding of entrepreneurial success as a social, organisational and technological achievement.

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