



Institutions, resilience, and intrapreneurship in healthcare: a critical literature review

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Abstract

In this paper, we investigate how institutional conditions shape individual-level resilience in healthcare organizations which in turn facilitates the intrapreneurial behavior of healthcare professionals. Using a critical literature review methodology, we identify that the current literature centers around three dominant clusters defined by intrapreneurial outcomes: organizational performance, innovation and knowledge creation, and intrapreneurial agency. Across these clusters, both formal and informal institutions play a complementary role in shaping resilience. This resilience, enables professionals to navigate uncertainty, cope with institutional barriers, and drive bottom-up change within hierarchical healthcare organizations, fostering intrapreneurship predominantly related to internal innovation and organizational improvement. Based on these insights, we propose a conceptual model illustrating how institutions jointly foster resilience, which acts as a mediating mechanism between institutional conditions and intrapreneurial behavior in healthcare. The study offers theoretical contributions to research on intrapreneurship and resilience, as well as managerial implications for healthcare leaders and policymakers.

Keywords Intrapreneurship · Resilience · Institutional theory · Entrepreneurship · Healthcare · JEL CODES: L2; L26: O31

1 Introduction

Healthcare systems and organizations, in both the public and private sectors, are experiencing substantial transformation influenced by various factors. These encompass the proliferation of digitalization and artificial intelligence and the repercussions of the pandemic and persistent war conflicts, alongside evolving political priorities (Burau et al. 2024a, b; Kluge 2022). Collectively, these elements are redefining the

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management of healthcare systems, the delivery of care, and the capacity for innovation to confront emerging challenges. Among the most significant results of these transformations are enhancements in patient care delivery and improved management of aging populations, adaptation to swift technological advancements, and increased capability to tackle climate-related and pandemic crises (OECD 2024).

In this situation, the capacity of healthcare professionals to adapt and innovate in the face of resource constraints, and rapid technological change, is increasingly critical. Intrapreneurship, understood here as employee-initiated, opportunity-oriented behavior within existing organizations, offers one route through which healthcare professionals can initiate and help implement new or improved services, processes, and work practices, and occasionally contribute to strategic renewal or internal venturing (Antoncic and Hisrich 2003; Neessen et al. 2019; Gawke et al. 2019; Lajči 2025; Di Fabio 2014). Resilience, in turn, is commonly conceptualized as a developable capacity, supported by organizational and institutional conditions, that enables employees to continually adapt, learn, and maintain effective functioning when confronted with challenging circumstances (Kuntz et al. 2016; Britt et al. 2016). In healthcare, such employee resilience underpins the ability to sustain high-quality care under uncertainty and operational strain (Ree and Haraldseid-Driftland 2022).

Institutional theory demonstrates how specific behaviors are encouraged or discouraged within the organizations depending on the institutions, defined as the formal and informal rules of the game that manage social interactions (North 1990; Scott 2008; Poček et al. 2020, 2024). While prior research has examined how institutions relate to resilience (Sjösted 2015), including those of organizations (Malik and Terzidis 2025; Vaz et al. 2025; Koporcic et al. 2025), individuals (Kuntz et al. 2016; Wears et al. 2015; Braithwaite et al. 2024) or by theorizing about the institutional level resilience alone (Cruz et al. 2016), our review takes this discussion a step further by exploring critically how institutional conditions relate to individual resilience that, in turn, may facilitate individual level intrapreneurial behavior.

Understanding these processes helps clarify how healthcare professionals can innovate within such systems and how these systems may enhance or constrain innovation. Against this background, we ask: How do institutional conditions relate to resilience in healthcare, and how does resilience, in turn, enable intrapreneurial behavior? To do so, we employ a critical literature review method and analyze the literature on intrapreneurship, resilience, and institutions within healthcare system organizations.

Our analysis of the literature suggests three main clusters in the body of existing literature based on the suggested influence or results of intrapreneurial activities. The clusters are: (i) results on organizational performance; (ii) results linked to innovation and knowledge creation processes and (iii) results impacted by the presence of intrapreneurial agents. Across the three clusters, we found that both formal and informal institutions may complement each other in ways that support individual resilience, thereby enabling intrapreneurial activity. Specifically, when institutional rules are in harmony, they provide structural resources (as seen in the first cluster on organizational performance), foster trust-based collaboration (as in the second cluster on innovation and knowledge creation), and encourage change agents to navigate hierarchies (as in the third cluster on intrapreneurial agents). This supportive institutional

context can enable the employees' ability to bounce back from challenges, which in turn makes intrapreneurship possible even in constrained environments. We also find that across the reviewed studies, intrapreneurship is predominantly framed as internal innovation and organizational improvement, with comparatively limited attention to radical innovation and new venture creation.

The critical review of existing literature comes with three key contributions. First, we contribute to intrapreneurship literature by advancing a conceptual understanding of individual-level resilience as a conceptual mediator of individual intrapreneurial behavior under specific institutional conditions in high-pressure, hierarchical environments. Hence, we extend prior work on employee-driven change (e.g., Blanka 2019a, b; Gawke et al. 2017; Kraus et al. 2019; Urbano et al., 2022) by showing how resilience bridges institutional constraints and innovation from within. Second, we contribute to theory by elucidating how intrapreneurial behavior can be fostered in hierarchically structured organizations, addressing a gap in understanding how institutional arrangements influence internal entrepreneurship (Scott et al. 2000; Marques et al. 2022). Third, we respond to calls for context-specific theorization of resilience as a developable capacity, constructed through institutional frameworks (Kuntz et al. 2016; Lengnick-Hall et al. 2011; Sjöstedt 2015) and translated to intrapreneurial behavior.

2 Theoretical framework

2.1 Intrapreneurship and resilience

Both intrapreneurship and resilience are central constructs in this review, yet both are defined and operationalized differently across research streams (e.g., entrepreneurship, organizational behavior and healthcare management). To improve conceptual clarity and comparability, Table 1 summarizes representative definitions used in prior research and highlights the main points of conceptual diversity that are most relevant for our arguments.

Intrapreneurship research has expanded substantially in recent years, but reviews continue to emphasize conceptual fragmentation and inconsistent measurement, particularly regarding levels of analysis and intended outcomes (Neessen et al. 2019; Hernández-Perlines et al. 2022; Lajçi 2025; Urbano et al., 2022). In this paper, we focus on intrapreneurship at the individual level: bottom-up, discretionary initiatives by employees who recognize opportunities and mobilize organizational resources to create value inside an existing organization (Blanka 2019a, b).

Across the literature, two emphases are especially salient. First, outcome-focused definitions link intrapreneurship to organizational new venture creation and strategic renewal. For example, employee intrapreneurship has been defined as an agentic and strategic work behavior aimed at new venture creation and strategic renewal (Gawke et al. 2019). Second, behavior-focused definitions describe intrapreneurship through entrepreneurial behavioral dimensions (e.g., innovativeness, proactiveness, and risk taking), often complemented by opportunity recognition/exploitation and networking (Neessen et al. 2019).

Table 1 Selected definitions of intrapreneurship and resilience (representative, not exhaustive)

Construct	Source	Level of analysis	Definition focus	Typical intended outcomes
Intrapreneurship	Pinchot (1985)	Individual	Employees act entrepreneurially within an established organization; internal initiative and ownership of ideas/projects.	New ideas, internal innovations, local initiatives
Intrapreneurship	Antonicic and Hirsch (2003)	Organizational/multi-level	Entrepreneurship within existing organizations, including venturing and strategic renewal.	New business venturing, innovation, strategic renewal
Intrapreneurship	Neessen et al. (2019)	Multi-level	Intrapreneurial behavior described through behavioral dimensions (e.g., innovativeness, proactiveness, risk-taking, opportunity recognition/exploitation, networking).	Opportunity pursuit; innovation and change initiatives
Intrapreneurship	Gawke et al. (2019)	Individual	Employee intrapreneurship as agentic, strategic work behavior aimed at new venture creation and strategic renewal.	Venture behavior and strategic renewal behavior
Intrapreneurship	Lajči (2025)	Individual	Intrapreneurship as extra-role behavior by entrepreneurial employees concerned with improving the organization; highlights measurement fragmentation.	Organizational improvement; implemented initiatives
Resilience	Wildavsky (1988)	Individual/system	Resilience as the capacity to cope with and recover from unanticipated challenges and adversity.	Recovery and continued functioning under shocks
Resilience	Kuntz et al. (2016)	Individual (employee)	Employee resilience as a developable capability, facilitated by the organization, to utilize resources and continually adapt and flourish at work under challenging circumstances.	Adaptation, learning, sustained performance and well-being
Resilience	Lengnick-Hall et al. (2011)	Organizational	Organizational resilience as a strategic capacity to adapt and thrive under change and adversity.	Adaptive capacity; sustained organizational functioning
Resilience	Wears et al. (2015)	System (healthcare)	Resilient health care as the ability of the healthcare system to adjust functioning before, during, or following events and thereby sustain operations under expected and unexpected conditions.	Sustained care delivery through adaptation
Resilience	Braithwaite et al. (2024)	System (healthcare)	Resilience as the capacity of a system to maintain its performance before, during and after some level or type of disturbance.	Maintained performance; flexible, adaptive care delivery

This diversity has practical implications for how findings should be interpreted. Studies sometimes blur intrapreneurship with broader constructs such as ‘innovative behavior’ or general proactivity. In this review, we use the term intrapreneurship for opportunity-oriented, agentic initiatives that go beyond routine role requirements and have an intended organizational value-creation component (e.g., championing, developing, and/or implementing new ideas, services, processes, or work practices).

Importantly, intrapreneurial outcomes range along a continuum from incremental improvements (e.g., redesigning workflows, improving patient pathways, process and service innovations) to more radical innovation (e.g., new clinical services, new business models, internal ventures/spin-offs). In regulated healthcare settings, intrapreneurship is more often discussed and studied in terms of incremental-to-moderate internal innovations and organizational improvement than in terms of full new venture creation; we therefore calibrate our interpretations and implications accordingly.

Resilience is likewise polysemous, spanning individual psychological resilience, employee/work resilience, and system-level resilience perspectives in health care. Within organizational behavior, employee resilience is typically conceptualized as a developable capability, facilitated and supported by the organization, to mobilize resources and continually adapt and flourish at work when faced with challenging circumstances (Kuntz et al. 2016). In health care, system-level definitions emphasize the ability to sustain performance through ongoing adaptation under disturbance (Wears et al. 2015; Braithwaite et al. 2024).

In this review, we adopt an individual-level, employee-focused definition of resilience as the developable capacity of healthcare professionals to adapt, learn, and maintain effective functioning when confronted with disruptions. We conceptualize resilience as a conceptual mediating capability through which formal and informal institutions shape the likelihood that healthcare professionals engage in intrapreneurial behavior.

We next turn to institutional theory to explain why regulated health care contexts systematically enable and constrain both resilience and intrapreneurship, and how these formal and informal institutions interact.

2.2 Institutional influences in healthcare

Institutional theory helps explain how rules, both written and unwritten (formal and informal) shape individuals and organizations (DiMaggio and Powell 1983). It highlights how organizations strive to follow regulations and standards to function effectively (Scott 2008) and to signal legitimacy to their environment. In short, institutions are “social structures that provide meaning and stability to social life” (Scott 2010). The healthcare context is particularly interesting, however, because it represents a highly regulated environment that frequently undergoes change through the introduction of new laws and practices, as well as evolving “belief systems ... financing, managing and delivering services” (Scott et al., 2000, p.17). This often also brings change in the ways in which services are delivered or the manner in which the healthcare employees deal with what was a routine in solving medical issues (Scott et al., 2000). In the healthcare context, three key actors influence institutions (e.g. rules

of the game): (i) regulatory organizations, (ii) professional (membership) organizations, and (iii) healthcare organizations (Meyer et al. 2017).

Regulatory organizations, such as government agencies and accreditation bodies, set rules that healthcare providers must follow to ensure quality and accountability (Fuenfschilling and Truffer 2014). Professional healthcare membership organizations, define best practices, ethical guidelines, and educational standards for practitioners (Meyer et al. 2017). These institutions influence both individual behavior and organizational operations, affecting service delivery and practitioners' autonomy. Healthcare organizations such as hospitals and clinics must balance compliance with both regulatory and professional expectations, making adherence to institutional rules a priority (Scott 2008).

2.3 Challenges in navigating institutional frameworks

Navigating these frameworks is challenging. Formal institutions expressed through regulations are complex and, in some contexts, require continuous learning and adaptation (Alvesson and Spicer 2019). Pressures from both regulatory and professional organizations can create conflicting priorities, complicating clinical decisions (Thornton et al. 2012). In some cases, strict regulations override healthcare professionals' judgment, limiting their ability to prioritize patient-centered care (Currie and Spyridonidis 2016). For example, physicians treating chronic pain may believe that long-term opioid therapy is necessary for a patient but may have to reduce or stop prescriptions due to strict opioid regulations (Dineen and DuBois 2016). Similarly, strong compliance requirements may discourage innovation and restrict opportunities to explore new approaches to patient care (Battilana et al. 2009).

Such conflicts between institutional logics manifest in many ways. For instance, while a physician may prefer keeping a patient longer for recovery, hospital policies emphasize bed turnover, insurance companies impose limits, and regulations enforce discharge protocols. These pressures often force practitioners to balance compliance with professional judgment, sometimes leading to suboptimal decisions or decision paralysis, which is also needed for experimenting with new approaches or proposing new solutions. Moreover, the constantly evolving regulatory landscape demands that practitioners update their knowledge continuously, a requirement that can sometimes overshadow professional judgment (Currie and Spyridonidis 2016).

Understanding the governance role of these institutional types is essential for health practitioners, who must navigate between regulatory and professional expectations while providing optimal care. Given these factors, researchers and healthcare workers need to rethink how institutional theory affects healthcare, addressing the complicated issues that come up when institutional demands conflict with the realities of patient care (Currie and Spyridonidis 2016). The hierarchical governance roles of various institutional types in the health system are characterized by different logics that shape decision-making processes for professionals (Thornton et al. 2012). This institutional logic, as described by Currie and Spyridonidis (2016), highlights the limitations imposed on the agency of actors in making decisions in the patient's best interest, including through intrapreneurial initiatives. For example, health professionals frequently navigate a landscape where professional norms, organizational

policies, regulatory constraints, and financial imperatives converge. Taken together, these dynamics illustrate how institutional arrangements in healthcare can constrain agency, even as they seek to ensure coordination, accountability, and quality.

The overlapping and sometimes conflicting governance roles of various institutional types highlight the dynamic interaction between conformity to established rules and the search for innovative practices in healthcare. As employees deal with these established rules, their ability to act is closely connected to the rules and beliefs of the institutions, which include not just the current health situation but also the larger social and political environment where these institutions function. Understanding the implications of this institutional scenario is vital to unlocking paths for improving patient care and overcoming the obstacles that come with a complex, multifaceted health system. In this regard, and because institutional pressures limit individual agency, we need to ask how institutions can nevertheless contribute to resilience, that is, the capacity for adaptation, which in turn enables innovation and intrapreneurial behavior. The concept of resilience is theoretically well-aligned: institutions themselves are a central concern for scholars in the resilience field (Sjöstedt 2015), partly because “resilience thinking has dynamic change at its core” as well as adaptive thinking (Sjöstedt 2015, p. 22) and these in turn have been of interest for institutional scholars for decades (Sjöstedt 2015; Greif and Laitin 2004; Ostrom and Basurto 2011). When institutions provide support, they can contribute to employee resilience, equipping workers with the capacity to adapt, learn, and innovate for solutions to challenges, even in emergency situations (Burau et al. 2024a, b). This makes resilience a key conceptual mediating mechanism through which institutional arrangements enable intrapreneurship and innovation to take place.

3 Methods

The study adopts the critical literature review method (Wright and Michailova 2022), which we find particularly adapted for this type of study for two reasons. First, the topic of intrapreneurship, resilience and institutions in healthcare is an interdisciplinary and complex topic, which requires an engagement across various disciplines such as management, business, entrepreneurship, health policy and others to help us understand how different concepts interact within the healthcare setting. A critical literature review can help integrate these themes across disciplines, and allow for an in-depth understanding of how the themes emerge and interact. Secondly, so as to employ the institutional theory as a lens that explains what fosters and what acts as obstacles to intrapreneurship and resilience in healthcare, we need to examine studies from the interpretative rather than systematic point of view (Poček 2020).

We identified papers for the literature review primarily in the Scopus and Web of Science databases, following the procedures outlined in Cavallo et al. (2019) and Su et al. (2017), and supplemented the search with Google Scholar (Mikki 2009). While the search process followed transparent and structured steps outlined below, these were used as heuristic tools rather than as strict inclusion protocols, consistent with the interpretative logic of critical literature reviews (Wright and Michailova 2022).

Step 1: initial Scopus search

We initially employed the Scopus database. The search started by searching for “intrapreneurship and healthcare” as part of the title, abstract, or keywords of manuscripts published up to date. This search demonstrated that there are only 25 published documents matching the criteria, with only 19 being published as peer-reviewed articles.

Step 2: broader Scopus search

Following this, we decided to broaden the search to ensure that we capture as many articles as possible touching on the topic of relevance (Zott et al. 2011). This time, the search query included the following keywords: “intrapreneurship OR intrapreneurs OR intrapreneurial AND doctors OR nurses OR hospitals OR medical OR healthcare OR health AND care.” The results obtained in terms of number were deemed to be better, as we had a result of 47 documents. We further refined the search to include only academic peer-reviewed articles and those published in English. The result was 40 articles. We then applied the time dimension criteria in line with the critical approach to the literature review rather than a systematic one (Cavallo et al. 2019) and excluded a sample of articles published prior to 2000 for two reasons: first, we wanted to focus on more recent conceptualizations related to intrapreneurship and healthcare that reflect the evolution in the 21st century and practices related to contemporary settings and intrapreneurial activity. However, the time-based criterion was used to structure engagement with contemporary debates rather than as a strict exclusion rule, consistent with the interpretative logic of critical literature reviews. Second, we aimed to include studies that reflect current methodological standards and engage with contemporary scholarly debates. Following the application of the time dimension criteria, we were left with 19 articles.

Step 3: web of science search

Following this, we browsed the Web of Science database because it offers complementary international coverage (Mikki 2009), which is helpful for identifying additional literature on emerging topics such as intrapreneurship in healthcare. We browsed the database by inserting the keywords “intrapreneurship healthcare” applied to “all fields.” The results were 15 studies, out of which, once we removed those overlapping with the Scopus search results, we were left with 4 papers. In total, we had at this point 23 studies in our sample.

Step 4: Google scholar search

We then went to another search engine, Google Scholar, and used it as a supplementary tool because it includes a wider range of publications, helping to ensure more complete coverage of relevant materials (Mikki 2009). Two of the coauthors met and together browsed Google Scholar with keywords “intrapreneurship healthcare” and “intrapreneurship health services” to cross-check whether there were studies missing from our sample. We then checked the first ten pages of the Google Scholar database results, as Google Scholar ranks entries by relevance and citation counts, which typically ensures that the most significant and frequently cited stud-

ies appear first (Mikki 2009). We identified in this manner an additional 11 articles published in peer-reviewed journals on the topic of interest and not overlapping with those we had already identified. We were then left with 33 articles in total.

In line with the methodology, which calls for a critical rather than systematic approach to literature review (Cavallo et al. 2019; De Massis et al. 2013; Zott et al. 2011; Kraus et al., 2023), we then screened the papers during the coding process by trying to understand their relevance for the topic. It appeared that all 33 papers were indeed relevant for the topic of intrapreneurship, resilience, and institutions. In Appendix 1, we provide the table with all articles included in the analysis.

3.1 Data analysis

In line with our critical literature review approach, the analysis was interpretative rather than strictly systematic, aiming to integrate findings across studies and disciplines (Cavallo et al. 2019; De Massis et al. 2013). All articles were first reviewed and coded using the scheme which captured how key themes including intrapreneurship, resilience, institutional conditions, and related outcomes, were conceptualized and discussed. Two of the authors collaborated on the coding, discussing the relevance of insights, emerging patterns, and how different studies contributed to understanding the relationships between institutions, resilience, and intrapreneurship. Any differences in interpretation were resolved through joint reflection and discussion.

In the second step, we grouped the coded papers into clusters based on the outcomes of intrapreneurial activity described in the studies. Hence, these clusters were not predetermined but emerged inductively through the analysis of commonalities and differences identified during the coding process. In the third step, we revisited the codes within each cluster to analyze how formal and informal institutions were positioned with respect to resilience and the latter in relation to intrapreneurship, and how these elements interacted across different contexts.

Rather than aiming for reproducibility in the sense of a systematic review, this process involved the iterative, dialogic nature of the analysis, which helped ensure the rigor and coherence of the findings while supporting the development of new theoretical perspectives.

4 Results

In order to perform an in-depth critical analysis of the content related to intrapreneurship, resilience, and institutions, we clustered the articles based on the dependent variable of outcome and impact of intrapreneurship that the authors report in their research. Based on this, the papers were clustered into three clusters: Organizational performance, Innovation and knowledge creation, and Intrapreneurial agency. For each one of the clusters, we identify the institutions that can be interpreted as supporting resilience and subsequently intrapreneurial action. While most studies do not explicitly theorize resilience, their findings can be interpreted as highlighting institutional conditions that support employees' adaptive capacity under pressure, which we conceptualize as resilience. Across the reviewed studies, intrapreneurship is most

frequently operationalized as internal process or service innovation and organizational improvement; explicit attention to radical innovation and new venture creation is comparatively rare, which is important for interpreting reported antecedents and outcomes.

4.1 Organizational performance

This cluster comprises papers whose intrapreneurship outcomes focus on improving the internal organizational management processes, including improving care efficiency, cost-effectiveness, and organizational performance regarding the implementation and delivery of care. Studies in this cluster generally suggest a relationship between intrapreneurship and systems-level organizational improvements, such as improved service delivery, increased operational efficiency, leading to improved quality of care. When it comes to institutions, in this cluster resilience leading to intrapreneurship can be interpreted as emerging from both formal and informal institutional dynamics, necessary for making intrapreneurial activity possible, but authors also report on institutional obstacles to intrapreneurship.

Specifically, our results suggest that formal institutional supports, such as funding schemes, strategic policy frameworks, and structured programs, can contribute to 'employees' adaptive capacity under pressure, equipping staff to take initiative and engage in intrapreneurial behavior oriented toward better organizational level performance in healthcare. For example, in Moss et al. (2020), the authors find that formal institutions such as state and federal funding not only provided financial resources but also created legitimacy and stability that helped teams adapt under pressure. The team members in the integrated care initiatives studied were able to take risks and develop solutions in part because these institutional supports strengthened their confidence and adaptive capacity. In a similar way, the study by Moss et al. (2022) discusses that initiatives in line with formal institutional structures at the governmental level, such as healthcare policies and policy priorities, can legitimize employees' efforts, making intrapreneurial activity related to improvements in care practices possible. In line with this, also Letsie (2017) found that formal institutional arrangements at the level of the government, in the form of funding policies but also regulatory policies supporting innovation, are associated with intrapreneurial behavior in the healthcare sector, because they help employees' adaptive capacity in the face of systemic pressures. Authors in this cluster also pointed to the organizational level policies that support employees' resilience and intrapreneurship outcomes, such as structured entrepreneurship frameworks within organizations, management training programs, and policies promoting the availability of resources at the level of organization (Marques et al. 2018; Moss et al. 2022; Aránega et al. 2023).

However, based on the reviewed studies, formal institutions may obstruct intrapreneurial processes, such as when a level of administrative processes, regulatory framework and lack of resource allocation prevail, as shown by studies in this cluster (Marques et al. 2018; Moss et al. 2020, 2022; Aránega et al. 2023; Letsie 2017). Such institutional context can undermine employees' adaptive capacity, increasing stress and reducing their ability to cope with ongoing demands, which in turn weakens intrapreneurial activity. For example, in their article, Heng and Loosemore (2013)

find that the lack of formal institutions at the organizational level, which promote collaboration among the departments that, in their absence, operate in isolation, hence preventing cross-departmental collaboration in the hospital, creates barriers to intrapreneurship and innovation. In this context, the authors find that the managers struggle to establish interdisciplinary teams and collaborations. This lack of formal collaboration structures hence can be interpreted as weakening their capacity to persist and adapt, making it harder to persist in building interdisciplinary teams.

Likewise, informal institutional elements have their own significant impact in enabling a workplace environment conducive to intrapreneurship in this cluster of studies. For example, informal rules that foster well-being, risk-taking, and open communication are positively associated with intrapreneurial behavior. Such informal rules can strengthen psychological safety and recovery from challenges, key dimensions of resilience, which encourage experimentation and intrapreneurship. An example is the study by Aránega et al. (2023), according to which mindfulness culture and feedback at work lead to a healthy workplace culture that supports innovation and intrapreneurial behavior. Informal rules also create barriers to intrapreneurship when stimulating fear of risk taking because for example due to the hierarchical working culture some workers may be less engaged in intrapreneurial activity (Letsie 2017; Heng and Loosemore 2013).

Overall, reviewed studies seem to suggest that it is only when both formal and complementary informal institutions are present that the conditions where intrapreneurship is capable of fostering organizational performance outcomes can be developed, as perceived by the researchers. The aspect of institutions' driven resilience is crucial in this regard: resilience related capacity, fostered by the proper institutional arrangements, is needed to achieve the intrapreneurship results (Aránega et al. 2023).

4.2 Innovation and knowledge creation

This cluster contains papers that describe the outcomes of intrapreneurship in healthcare in terms of idea generation, innovation, and commercialization efforts. Intrapreneurship is viewed as a catalyst for creative outputs and knowledge transfer that generates concrete innovation within clinical processes, academic-hospital settings, and in digital health.

In this cluster, intrapreneurship is driven by resilient employees who are supported by a formal institutional framework, both at the level of governments: government policies, dedicated public funding schemes (Faruki et al. 2022; Marques et al. 2022) and university or hospital-driven funds and policy programs (Chan et al. 2022; Burkholder and Hulsink 2022; Hoang and Perkmann 2023). Such institutional supports can help employees cope with uncertainty and sustain innovative ideas, which in turn facilitates intrapreneurial outcomes such as knowledge creation and commercialization. For example, Marques et al. (2022) find that government policy on entrepreneurship and the existence of public-private partnerships positively interact with workers' autonomy and cognitive flexibility, which can be interpreted as dimensions of resilience, needed for intrapreneurship and innovation outputs. Chan et al. (2022) show how university internal innovation funds and commercialization structures, including dedicated Technology Transfer Offices, support faculty engagement

and the development of new educational tools, even in the presence of constraints such as insufficient funding and institutional bureaucracy. Burkholder and Hulsink (2022) find that access to research funding, strong university policies, and active partnerships with industry are associated with the commercialization of research and spin-outs in universities, despite persistent bureaucratic and cultural constraints.

Simultaneously, informal institutions, which in this cluster echo collaborative networks, receptiveness to new ideas, and willingness to risk-taking, are interpreted in the reviewed studies as playing an important role in fostering intrapreneurship, as they support employees' capacity to persist in intrapreneurial efforts. Faruki et al. (2022) find that a culture of collaboration, in this case interdisciplinary collaboration among clinicians, researchers, and IT specialists can help address regulatory constraints and integration challenges, paving the way for digital health innovations that can even lead to revenue through commercialization. Hoang and Perkmann (2023) find that peer networks promoting collaboration can help overcome organizational barriers and bureaucracy built within national health systems and help intrapreneurial activity in contexts characterized by skepticism among medical practitioners.

To sum up, a broader observation from this cluster is that both formal and informal institutions are necessary to support intrapreneurship in healthcare settings for innovation and commercialization purposes. Critically, the reviewed studies suggest that these institutions operate by supporting capacities, such as autonomy, flexibility, and persistence, that can be interpreted as resilience, enabling employees to carry innovative ideas through bureaucratic and regulatory barriers. Although formal institutions are essential for providing access to resources and legitimacy for intrapreneurial ventures, informal cultural and relational patterns play a particularly important role in shaping the outcomes of innovation-driven intrapreneurship.

4.3 Intrapreneurial agency

This cluster includes papers that discuss intrapreneurship outcomes as ways in which intrapreneurial agents, “nurses”, develop intrapreneurial behavior and through this improve patient and caregiver experiences. Papers here focused on both the transformative potential of intrapreneurial practices for nurses in their workplace and the quality of patient care nurses provide.

Based on the papers in this cluster, nurses exhibit intrapreneurial behavior shaped by both formal and informal institutions which support confidence, autonomy, and persistence under pressure—capacities that we conceptualize as individual-level resilience. The results suggest a balanced representation of both types of institutions fostering this behavior. In this critical interpretative reading, these institutional contexts can be understood as supporting resilience among nurses, equipping them with the confidence and adaptive capacity needed to act as change agents, which then allows them to pursue intrapreneurial initiatives that improve care.

Specific types of formal institutions such as organizational level policies promoting management training, policies targeting leadership development, hospital policy, and national level: government programs, are described in the reviewed studies as creating conditions that incentivize intrapreneurial behavior in nurses, by providing clarity, legitimacy, and psychological safety, enabling nurses to overcome hesita-

tion and take initiative. These conditions can reduce hesitation and encourage nurses to take initiative. For example, Marques et al. (2019) underline that management training and a certain degree of autonomy to the nurse, e.g. working autonomy, can encourage entrepreneurial intentions, leading to more and better patient care but also higher job satisfaction. Also, both Marques et al. (2019) and Khelladi et al. (2023) find that supportive formal institutions at the organizational level such as hospital policies that promote managerial support and endorsement of projects initiated by the nurses and also the formal integration of their initiatives into the hospital and organizational processes, are associated with social intrapreneurship among nurses. By formally integrating nurse-driven initiatives into organizational processes, these institutional arrangements can be interpreted as validating nurses' efforts and supporting their capacity to persist despite obstacles.

On the other hand, authors found that both the existence of rigid administrative procedures but also the absence of supportive and structured formal institutions (Khelladi et al. 2023; Malik and Shankar 2023) such as the training protocols for entrepreneurship for nurses (Boore 2011) can also act as a barrier to intrapreneurship. In these contexts, nurses may become discouraged and less equipped to engage in innovation.

When it comes to the informal institutions, these are also represented in the sample related to this cluster, through studies that discuss a workplace culture that supports decentralized decision-making, peer communication and risk-taking. These informal rules are interpreted as contributing to confidence-building and the ability to navigate uncertainty, a precondition necessary for engaging with intrapreneurship (Khelladi et al. 2023; Wilson et al. 2012; Knoff 2019). Khelladi et al. (2023) show how a culture of decentralization and self-management empowers nurses to take initiatives and navigate through crises, for example during the COVID-19 pandemic, despite the presence of informal barriers, like hierarchy norms and risk aversion, that often restrain nurse engagement. Interestingly, our results also show that several studies in this cluster highlight how informal institutions supporting intrapreneurship emphasize the need for an organizational cultural shift, one that recognizes nurses as lead agents and innovators and promotes a culture of decentralization (Knoff 2019; Boore and Porter 2011). Knoff (2019) finds that this shift is particularly necessary because, due to prevailing cultural norms, nurses are viewed primarily as caregivers rather than innovators, an assumption that discourages their intrapreneurial behavior.

In summary, our results in this cluster show that formal and informal institutions must exist in harmony because nurses, that should be recognized as agents of change according to the reviewed studies, will not cross hierarchical institutional barriers unless strong policies, and hence a structured support to intrapreneurship is in place (Marques et al. 2019) alongside a culture supportive of autonomy, collaboration, and risk-taking.

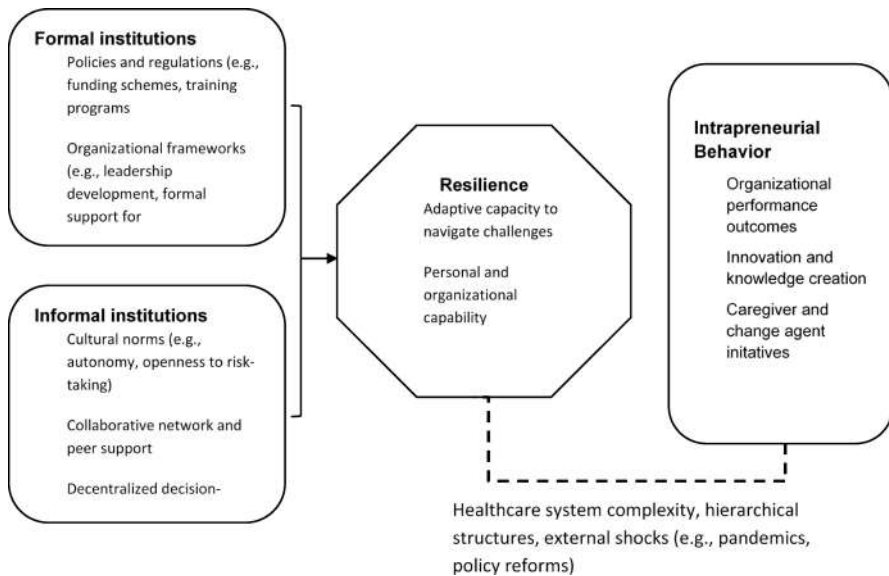


Fig. 1 Conceptual model illustrating how formal and informal institutions shape resilience, which in turn fosters intrapreneurial behavior in healthcare organizations

5 Discussion

This study develops a theoretical model that shows how institutional conditions (both formal and informal) relate to healthcare employees' resilience and how this resilience, in turn, enables intrapreneurial behavior (see Fig. 1). By reviewing critically recent research, we show that intrapreneurial activity in healthcare does not occur in isolation. Rather, the interaction between formal institutional frameworks and informal cultural norms shapes employees' adaptive capacities, which we conceptualize as resilience, and subsequently influences intrapreneurial activity in healthcare. In this interpretative reading, resilience reflects the ability to cope with occupational stressors and to initiate and implement new ideas within constrained settings.

Our findings highlight that complementarity between strong formal institutions and supportive informal ones is crucial for building the kind of resilience that facilitates effective intrapreneurship. Neither formal nor informal institutions alone are sufficient; rather, their interaction creates enabling conditions that allow healthcare professionals to adapt, respond, and initiate bottom-up innovation in line with institutional theory emphasizing the joint role of rules and norms (North 1990; Tonoyan et al. 2010; Estrin and Prevezer 2011; Poček 2020).

Across the three clusters of literature we reviewed, our analysis reveals important outcomes. In the first cluster, there is a clear focus on how important both types of institutions are. Formal institutions promoting training programs, funding mechanisms, and regulatory incentives lay the groundwork for resilient employees that engage in intrapreneurial activity, while informal ones promoting open communication, risk tolerance, and collaborative culture foster day-to-day adaptability. Resilience here is both cultivated by and responsive to these institutional supports.

In the second cluster, the importance of informal institutions is becoming more apparent. Although government policies and funding initiatives are important, literature suggests that relational dynamics, cross-functional collaboration, and trust-based networks are essential for promoting intrapreneurship in research and clinical innovation because they create psychological safety and build resilience, allowing employees to take risks and try to innovate. Individuals can engage in innovative activities in informal settings due to the necessary mental and physical autonomy, especially when formal regulations are overly restrictive. Recent research (Faruki et al. 2022) demonstrates that peer networks and transdisciplinary collaborations can aid intrapreneurs in surmounting institutional inertia and promoting innovative ideas in digital health and academic medicine.

In the third cluster, our research shows that cultural factors like decentralization and peer support can help nurses and other frontline staff come up with new ideas, by strengthening their resilience: giving them the confidence and adaptive capacity to navigate hierarchy and take initiatives. However, informal support alone appears insufficient. The literature suggests that nurse-led intrapreneurship remains limited in the absence of formal institutional endorsement and structured support (Khelladi et al. 2023; Knoff 2019). Persistent stereotypes, rigid hierarchies, and risk-averse organizational cultures continue to constrain intrapreneurial agency.

Finally, our results indicate that intrapreneurship in healthcare is mainly related with incremental, internal innovation and organizational improvement, while radical innovation and new venture creation are rare. While prior studies more often emphasize intrapreneurial behaviours related to new venture creation and strategic renewal (Antoncic and Hisrich 2003; Gawke et al. 2019; Blanka 2019a, b), such forms of intrapreneurship often involve higher levels of risk and organizational disruption. Importantly, the adoption of new technologies, particularly in intrapreneurial contexts, is shaped by human factors and by informal institutions that influence how innovations are perceived. In highly regulated healthcare settings, these human and informal institutions may be more aligned with incremental innovation than with new venture creation, contributing to the observed focus of the literature.

This study makes three key contributions to theory. First, by placing resilience as a conceptual mediator between institutional context and intrapreneurship in regulated environments, it contributes to the literature on intrapreneurship and employee-driven change (Gawke et al. 2017; Kraus et al. 2019.; Urbano et al., 2022). Second, we complement the institutional theory by showing that intrapreneurship does not emerge due to a single set of institutional conditions, but rather the interaction between formal and informal institutions creates enabling conditions that foster resilience. Finally, our analysis suggests that resilience can be understood as a developable capacity that is shaped and strengthened through institutional support and practice. This is in line with prior research on resilience as an adaptive, context-dependent capability embedded in organizational and institutional settings rather than a fixed individual trait (Kuntz et al. 2016; Lengnick-Hall et al. 2011; Sjöstedt 2015). By situating this perspective in highly regulated healthcare environments, our review extends the literature by showing how formal and informal institutions jointly influence whether such resilience translates into intrapreneurial behavior.

Our study also offers practical implications for the management of healthcare organizations. To support intrapreneurship, healthcare organizations need to develop robust formal policies that provide employees with autonomy and legitimacy for innovation in highly hierarchical environments. Equally important are the informal rules supporting trust building, encouraging cross-team collaboration and enabling open dialogue. Managers should recognize that frontline professionals such as nurses, caregivers, and other clinical staff, are often well-positioned to identify problems and opportunities for innovation. Our study calls for organizational arrangements that are not only flexible but also designed to facilitate continuous learning, support bottom-up experimentation, and empower professionals at all levels to shape the delivery of care.

6 Conclusion

This study offers a critical review on how formal and informal institutional conditions shape resilience and, in turn, support intrapreneurial behavior in healthcare organizations. Through our review, three clusters emerged from the literature: organizational performance, innovation and knowledge creation, and intrapreneurial agency. By examining the perceptions of researchers across these clusters, it is suggested that resilience is also perceived to be shaped by the institutional context. Our findings highlight that formal institutions such as policies, funding, and training programs are most effective when they work in tandem with informal supports like workplace culture, collaboration, and trust. It is this combination that helps professionals working in highly hierarchical and stressful environments navigate challenges and drive innovation. We hope this integrated understanding provides a useful foundation for future research and practical guidance for those seeking to support resilient, intrapreneurial employees, equipped to meet today's complex demands.

This paper offers multiple opportunities for future research as well as important new insights on the interaction of institutional factors, resilience, and intrapreneurial behavior in healthcare institutions. Future studies could first empirically investigate the conceptual links described in our co framework using qualitative or mixed-methods approaches to find how specific institutional arrangements improve resilience-building and hence encourage intrapreneurship at several levels of systems (organizational, departmental, and individual). Second, long-term research would be very useful for monitoring how resilience and intrapreneurial skills grow over time, especially during changes in institutions, crises (like pandemics), or shifts in policies. Though our study mostly focuses on healthcare, the procedures we observed could also be pertinent in other highly controlled and hierarchical industries such as life science (El-Awad and Poček 2023) public administration, energy, and education (Pheaha et al. 2024; Flores et al. 2024). Particularly, comparative cross-national research could look at how different institutions within which organizational policies are embedded (North 1990; Scott 2008) including those impacting intrapreneurship (Turro et al., 2016) affect the relationship between resilience and intrapreneurship.

Finally, in our study, we did not take into account the changing nature of institutions and institutional resilience in times of crisis, and their relation to intrapreneurship.

neurship. While certain types of institutions persist over time, including in times of crisis, because they are deeply embedded in the regulative, normative, and cultural-cognitive elements of the context (Cruz et al. 2016; Scott 2000; Zucker 1977), some institutions change at a faster speed. It would be important to examine the relation of institutional resilience and intrapreneurship, including in the healthcare and life science context, as a line of future research.

When it comes to limitations of our study, first of all, even when we perform a careful, critical study, the breadth and emphasis of the available literature inevitably impact our results, which might limit the generalizability of our results. Second, the studied literature lacked a precise identification of resilience. Resilience sometimes appeared discreetly, gleaned from tales of adaptation and coping rather than from direct assessment or academic study. Third, although our analysis highlights the significant role informal institutions play, secondary research indicates these are difficult to completely document. Informal cultural norms, peer dynamics, and social networks are sometimes downplayed or taken for granted in formal study papers; therefore, we underestimate their true impact.

Appendix 1. List of articles included in the analysis

Author(s)	Article title	Journal name	Year
Lega, F.	Strategic, organisational and managerial issues related to innovation, entrepreneurship and intrapreneurship in the hospital context: Remarks from the Italian experience	<i>Journal of Management and Marketing in Healthcare</i>	2009
Khan, B.A., Budhwani, Z.R., Shaikh, A.-U.-H.	Practicing the Intrapreneurship: A Case of Service-Sector Firms in Pakistan	<i>Journal of Management and Social Sciences</i>	2011
Boore, J., Porter, S.	Education for entrepreneurship in nursing	<i>Nurse Education Today</i>	2011
Clement-O'Brien, K., Polit, D.F., Fitzpatrick, J.J.	Innovativeness of Nurse Leaders	<i>Journal of Nursing Management</i>	2011
Wilson, A., Whitaker, N., Whitford, D.	Rising to the challenge of health care reform with entrepreneurial and intrapreneurial nursing initiatives	<i>Online Journal of Issues in Nursing</i>	2012
Heng, H.K.S., Loosemore, M.	Structural holes in hospital organisations: Facilities managers as intrapreneurial brokers in the tertiary health sector	<i>Engineering, Construction and Architectural Management</i>	2013
Letsie, T.M., Van Der Merwe, A.S., Botha, D.E.	Intrapreneurship amongst unit nurse managers at public hospitals	<i>International Journal of Advanced Nursing Studies</i>	2014
Andersson, A.C., Idvall, E., Perseus, K.I., Elg, M.	Two different strategies to facilitate involvement in healthcare improvements: A Swedish county council initiative	<i>Global Advances in Health and Medicine</i>	2014
Heinze, K.L., Weber, K.	Toward Organizational Pluralism: Institutional Intrapreneurship in Integrative Medicine	<i>Organization Science</i>	2015

Author(s)	Article title	Journal name	Year
Nandan, M., London, M., Bent-Goodley, T.	Social Workers as Social Change Agents: Social Innovation, Social Intrapreneurship, and Social Entrepreneurship	<i>Human Service Organizations: Management, Leadership and Governance</i>	2015
Lages, M., Marques, C.S., Ferreira, J.J.M., Ferreira, F.A.F.	Intrapreneurship and firm entrepreneurial orientation: insights from the health care service industry	<i>International Entrepreneurship and Management Journal</i>	2017
Letsie, T.M.	Antecedents of intrapreneurship practice among public hospital unit nurse managers	<i>International Journal of Africa Nursing Sciences</i>	2017
Chan, K.-Y., Ho, M.-H.R., Kennedy, J.C., et al.	Who Wants to Be an Intrapreneur? Relations between Employees' Career Motivations and Intrapreneurial Motivation	<i>Frontiers in Psychology</i>	2017
Marques, C.S., Valente, S., Lages, M.F.S.	The influence of personal and organisational factors on entrepreneurship intention: An application in the health care sector	<i>Journal of Nursing Management</i>	2018
Marques, C.S., Marques, C.P., Ferreira, J.J.M., et al.	Effects of traits, self-motivation and managerial skills on nursing intrapreneurship	<i>International Entrepreneurship and Management Journal</i>	2019
Knoff, C.R.	A call for nurses to embrace their innovative spirit	<i>Online Journal of Issues in Nursing</i>	2019
Moss, P., Hartley, N., Ziviani, J., Newcomb, D., Russell, T.	Executive decision-making: Piloting Project ECHO [®] to integrate care in Queensland	<i>International Journal of Integrated Care</i>	2020
Chahine, T.	Toward an Understanding of Public Health Entrepreneurship and Intrapreneurship	<i>Frontiers in Public Health</i>	2021
Burkholder, P., Hulsink, W.	Academic intrapreneurship for health care innovation: the importance of influence, perception, and time management in knowledge commercialization at a University's Medical Centre	<i>Journal of Technology Transfer</i>	2022
Marques, C.S., Lopes, C., Braga, V., Ratten, V., Santos, G.	Intuition and rationality in intrapreneurship and innovation outputs: The case of health professionals in primary health care	<i>International Entrepreneurship and Management Journal</i>	2022
Moss, P., Hartley, N., Russell, T.	Integration intrapreneurship: implementing innovation in a public healthcare organization	<i>Journal of Innovation and Entrepreneurship</i>	2022
Chan, T.M., Wallner, C., Swoboda, T.K., Thoma, B., Lin, M., Joshi, N., Pardhan, A.	From Innovation to Intrapreneurship: Fostering academic success via the GridlockED project and innovation fund	<i>AEM Education and Training</i>	2022
Faruki, A.A., Zane, R.D., Wiler, J.L.	The Role of Academic Health Systems in Leading the "Third Wave" of Digital Health Innovation	<i>JMIR Medical Education</i>	2022
Hoang, H., Perkmann, M.	Physician entrepreneurship: A study of early career physicians' founding motivations and actions	<i>Social Science and Medicine</i>	2023
Malik, E., Shankar, S.	Empowering nurses: exploring self-managed organizations in Indian healthcare	<i>BMC Nursing</i>	2023
Liu, Y., Zhang, X., Li, J., Chen, J.	Cultivating healthcare innovators: a cross-sectional study on entrepreneurial abilities and influencing factors among nursing undergraduates	<i>BMC Nursing</i>	2023
Layman, C.V., Sasmoko, Hamsal, M., Lim, S.	Social Performance: A Vital Turning Point for Better Hospital Care in Indonesia	<i>Journal of Industrial Integration and Management</i>	2023

Author(s)	Article title	Journal name	Year
Moss, P., Hartley, N., Russell, T.	Project ECHO®: a global cross-sectional examination of implementation success	<i>BMC Health Services Research</i>	2024
Thandiwe, L.	South African public hospital intrapreneurship culture: Unit nurse managers' governance role	<i>Public Service Delivery and Performance Review</i>	2024
Kelley, T.F., Higgins, M., Latta, M., Rynkiewicz, J.	Educating Nursing and Health Care Professionals to Create Sustainable Change Through Innovation Education	<i>Journal of Nursing Education</i>	2024
Aránega, A., Castaño Sánchez, R., Ribeiro-Navarrete, S.	Techniques to strengthen entrepreneurship: is mindfulness a useful concept for resilience development?	<i>Journal of Entrepreneurial Communities</i>	2025
Khelladi, I., Castellano, S., Vinçotte, E.C.	The role of social intrapreneurship and serious games in generating social innovation in the healthcare sector	<i>International Journal of Entrepreneurial Behavior and Research</i>	2025
Erdoğan, M., Kirilmaz, H., Arslanoğlu, A.	The Effect of Internal Entrepreneurship on Patient-Centered Care Competence in Nursing Services	<i>Journal of Evaluation in Clinical Practice</i>	2025

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