Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Activity Without Authority: A Typology of the Entrepreneurial University Based on the Locus of Commercialization Control

Orkhan Vatankah
Azerbaijan Technical University
Asiman Ilyasov
asiman.ilyasov@bsu.edu.az
Baku State University

Research Article

Keywords: entrepreneurial university, technology transfer, commercialization authority, academic entrepreneurship, university spin-offs, entrepreneurship

Posted Date: August 13th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-10550413/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: No competing interests reported.

Abstract

This study reconceptualizes the entrepreneurial university by arguing that universities differ not primarily in the breadth of their entrepreneurial activities but in the locus of commercialization authority. It examines where decision rights over intellectual property, venture creation, and equity ownership reside —whether with individual academics, universities, or delegated intermediaries—and explores how these authority structures shape commercialization pathways and entrepreneurial outcomes.

A systematic-integrative literature review was conducted using Scopus database. Data were extracted through structured coding framework encompassing commercialization authority, governance arrangements, entrepreneurial activities, commercialization channels, theoretical perspectives, methodologies, and national contexts. Evidence was synthesized through iterative comparative analysis informed by institutional theory, knowledge spillover theory, absorptive capacity theory, and the Triple Helix model.

The review demonstrates that entrepreneurial activity and commercialization authority are conceptually distinct and often decoupled. Entrepreneurial initiatives frequently expand faster than the decision rights required to govern commercialization effectively. Three principal loci of commercialization authority—academic, institutional, and delegated intermediaries were identified, each associated with a distinct commercialization pathway. By integrating authority locus with the degree of coupling between authority and entrepreneurial activity, the study develops a novel typology comprising five entrepreneurial university configurations: Proprietor, Investor, Upstream, Emerging, and Ceremonial. The findings further indicate that formal commercialization authority alone does not improve entrepreneurial performance unless supported by adequate managerial and absorptive capabilities.

The study introduces commercialization authority as a foundational analytical construct, proposes an authority-based typology of entrepreneurial universities, identifies seven testable propositions, and offers a framework for future research, policy development, and university governance reform.

INTRODUCTION

Over four decades, universities across the industrialised world have been recast from producers of open science into engines of commercialization, charged with a “third mission” of turning research into ventures, jobs, and regional growth (Etzkowitz, 2003; Perkmann et al., 2013). Governments have reinforced this mandate through legislation, funding formulae, and assessment regimes, and universities have responded by building an ever-larger apparatus of entrepreneurial activity: technology transfer offices, incubators and accelerators, proof-of-concept funds, entrepreneurship curricula, and spin-off support programmes. The scholarly literature has largely followed suit, measuring the entrepreneurial university through the visible outputs of this apparatus — patents filed, licences signed, spin-offs founded, students trained (Rothaermel, Agung, & Jiang, 2007).

Yet a persistent puzzle sits underneath this activity. Universities with comparable entrepreneurial infrastructure produce strikingly different venture outcomes, and reforms that expand a university's formal control over commercialization frequently fail to raise its output. When Germany abolished the professor's privilege in 2002, transferring ownership of academic inventions from individual researchers to their institutions, academic patenting *fell* rather than rose (Czarnitzki et al., 2016; von Proff, Buenstorf, & Hummel, 2012). When Italian universities were required to appoint external members to their governing boards, the reform produced no direct effect on the rate of academic spin-off formation (Meoli, Paleari, & Vismara, 2019). And across a longitudinal, multi-country sample, institutional reforms designed to stimulate spin-off creation increased their *quantity* while depressing their *quality*, in a pattern the authors described as “more symbolic than substantive” (Fini et al., 2017). These are not mliteratureies; they recur wherever the literature examines the relationship between institutional control and entrepreneurial performance.

We argue that these anomalies share a common root: the field has conflated two distinct constructs. *Entrepreneurial activity* — the observable portfolio of programmes and offices a university operates — is different from *commercialization authority* — the decision rights a university holds over how its knowledge becomes companies. A university can run a dense portfolio of entrepreneurial activity while holding little genuine authority over commercialization, and it is authority, not activity, that shapes outcomes. Moreover, what matters is not simply how much authority a university possesses but *where that authority is located*: with the individual academic, with the institution, or with a delegated intermediary. This locus of authority, we contend, is the fundamental axis along which entrepreneurial universities differ.

This article develops that argument through a systematic-integrative review of 473 articles and organises the resulting synthesis into a typology of entrepreneurial-university configurations. We address two research questions. **RQ1**: How does the locus of commercialization authority vary across universities, and how does it diverge from entrepreneurial activity? **RQ2**: Why does greater formal authority not reliably increase entrepreneurial output? In answering them we make three contributions: a construct (the activity–authority distinction and the locus of authority) that sharpens the vague notion of the “entrepreneurial university”; a typology of five university configurations illustrated through the USA, UK, and Germany; and a set of seven propositions that convert the framework into a testable research agenda.

METHODOLOGY

Research Design

This study employed a systematic-integrative literature review to develop a new theoretical understanding of entrepreneurial universities based on the locus of commercialization authority. A systematic review was adopted to ensure a transparent, comprehensive, and reproducible identification of relevant literature, while the integrative review approach facilitated theory development through the

synthesis of diverse empirical and conceptual evidence rather than statistical aggregation (Torraco, 2005; Snyder, 2019). This combined approach is particularly appropriate for research seeking to construct new conceptual frameworks by integrating fragmented knowledge across an established body of literature.

Literature Search Strategy

The literature search was conducted in Scopus on 20 July 2026. Scopus was selected because it is one of the largest multidisciplinary citation databases and provides extensive coverage of research in HE, innovation management, entrepreneurship, technology transfer, and public policy. Its broad interdisciplinary coverage makes it particularly suitable for synthesizing literature spanning multiple research domains. The search strategy combined three concept blocks representing the central components of the study:

1. HEIs.
2. Academic entrepreneurship and commercialization.
3. Governance, institutional authority, and technology transfer.

The search was performed within titles, abstracts, and author keywords (TITLE–ABS–KEY) and was limited to peer-reviewed journal articles and review articles published in English between 2000 and 2026 within the subject areas of Business, Management and Accounting, Economics, Econometrics and Finance, and Social Sciences.

The search identified 714 records. After removing one duplicate, 713 publications were screened. Following title and abstract screening based on predefined eligibility criteria, 473 studies were retained for the final synthesis. The study selection process followed the PRISMA 2020 reporting guidelines (Page et al., 2021) and is illustrated in Fig. 1.

Study Selection

The eligibility criteria were established before the screening process to ensure methodological consistency and transparency. Studies were included when they:

- examined universities.
- investigated academic entrepreneurship, technology transfer, commercialization, licensing, university spin-offs, or related entrepreneurial activities.
- addressed institutional governance, commercialization authority, intellectual property ownership, technology transfer offices, or organizational arrangements affecting commercialization.

Studies were excluded when they:

- focused exclusively on firm-level innovation without a university component;
- investigated student entrepreneurial intentions without institutional commercialization;
- examined innovation systems without analyzing universities;
- consisted of conference papers, editorials, book chapters, dissertations, and other non-peer-reviewed publications.

Screening was conducted by 2 reviewers using the predefined inclusion and exclusion criteria. To minimize selection bias, ambiguous records were re-evaluated against the eligibility criteria before the final inclusion decision. Although formal inter-coder reliability statistics (e.g., Cohen's kappa or Krippendorff's alpha) were not calculated, methodological rigor was enhanced through independent study selection and coding by two researchers. Predefined eligibility criteria, operational coding definitions, and a structured coding framework guided the analysis. Coding results were subsequently compared, and any discrepancies were resolved through discussion until consensus was achieved. In addition, iterative reviews of previously coded studies, transparent documentation of coding decisions, and adherence to the PRISMA 2020 reporting guidelines strengthened the consistency, dependability, and transparency of the review process.

Data Extraction and Coding

Each included study was systematically coded using a structured coding framework developed from the research questions and the theoretical foundations of the study. The coding framework was established prior to analysis to ensure consistency throughout the review. Where studies addressed multiple dimensions simultaneously, all relevant categories were recorded to preserve the complexity of the evidence. Operational definitions for each coding dimension were established before coding to minimize interpretive ambiguity and ensure consistent classification across studies. Eight analytical dimensions were extracted from each publication:

Table 1
Coding Framework Used for Data Extraction and Analysis

Coding Dimension	Description
Locus of commercialization authority	Primary holder of commercialization decision rights (academic, institutional, delegated intermediary, or not specified)
Entrepreneurial activity	Entrepreneurial mechanisms examined (e.g., technology transfer offices, incubators, entrepreneurship education, spin-off support)
Commercialization channel	Primary pathway through which university knowledge reached the market (licensing, founder-led spin-offs, university equity, intermediary-mediated commercialization)
Venture lifecycle stage	Stage of commercialization examined (ideation, formation, validation, growth, or scaling)
Outcome measured	Commercialization or entrepreneurial performance indicators investigated
Theoretical perspective	Primary theoretical framework adopted by the study
Research methodology	Conceptual, qualitative, quantitative, mixed methods, or review
National context	Country or countries investigated

Source

Developed by the authors based on the study's research questions and theoretical framework.

Coding was conducted manually using a structured coding matrix developed in Microsoft Excel. Before the coding process commenced, operational definitions were established for each analytical dimension to ensure consistency throughout the review. Each publication was read in full, and relevant information was extracted according to the predefined coding framework. Where a study addressed multiple aspects of commercialization authority or entrepreneurial activity, all applicable categories were recorded. To maintain analytical consistency, previously coded studies were periodically revisited during the iterative coding process and compared against newly coded articles to ensure that coding decisions remained consistent across the corpus.

Studies frequently addressed more than one commercialization mechanism or theoretical perspective. Consequently, multiple codes were assigned where appropriate to preserve the multidimensional nature of the evidence.

Data Synthesis

The synthesis followed an iterative comparative process. Following data extraction, studies were initially grouped according to similarities in commercialization authority, entrepreneurial activities, governance

arrangements, and commercialization outcomes. These preliminary groupings were then compared across institutional contexts to identify recurring patterns, inconsistencies, and conceptual relationships. Constant comparison was employed throughout the analysis; whereby newly coded studies were continuously evaluated against previously identified categories to refine emerging concepts and ensure conceptual coherence.

Once recurring governance patterns became evident, higher-order conceptual categories were developed by integrating similar authority structures and commercialization pathways. These categories were subsequently interpreted through the lenses of institutional theory, knowledge spillover theory, absorptive capacity theory, and the Triple Helix model to explain the mechanisms underlying observed differences. Through iterative comparison, theoretical interpretation, and continuous refinement of emerging concepts, the higher-order categories were consolidated into the five entrepreneurial university configurations proposed in this study. Consequently, the resulting typology emerged from recurring patterns identified across the reviewed literature rather than from isolated case evidence.

Methodological Trustworthiness

Several measures were adopted to enhance the credibility and transparency of the review. First, a predefined search strategy and explicit eligibility criteria ensured systematic identification of relevant literature. Second, a structured coding framework promoted consistency throughout data extraction. Third, the use of PRISMA 2020 reporting standards improves the reproducibility of the review process.

CONCEPTUAL BACKGROUND AND THEORETICAL FOUNDATIONS

The entrepreneurial university has been defined in many ways, but most definitions enumerate what such universities *do*: they patent and license, they incubate, they educate entrepreneurs, they engage industry (Etzkowitz, 2003; Guerrero & Urbano, 2012). We retain this observable portfolio under the label *entrepreneurial activity* but treat it as an explanandum rather than a definition. Our claim is that activity, on its own, tells us little about a university's character as an entrepreneurial actor, because the same activities can be governed by very different distributions of control.

We define *commercialization authority* as the effective decision rights a university holds over three levers: the ownership of intellectual property generated by its research; the terms on which equity in spin-off ventures is taken, held, or released; and the formation and support of new ventures. Authority in this sense is distinct from activity: an incubator is an activity, but the right to decide whether and on what terms a spin-off is created is authority. It is also distinct from the *organisational structure* of the technology transfer office, which prior typologies have mapped in detail (Schoen, van Pottelsberghe de la Potterie, & Henkel, 2014; Baglieri, Baldi, & Tucci, 2018). Whether a TTO is centralised or discipline specialised is a question about how the office is arranged; the locus of authority is a question about who — the academic, the institution, or a delegated body — holds the decision rights, whatever the office's shape.

The *locus of commercialization authority* is therefore our central construct, and it takes three principal values. Under an academic locus, decision rights rest primarily with the individual researcher, who owns inventions and drives their commercialization — the arrangement historically embodied in the German and Scandinavian professor's privilege. Under an institutional locus, the university itself owns research IP and exercises commercialization decisions through its offices and policies — the arrangement established in the United States by the Bayh-Dole Act (Mowery et al., 2001) and extended, with a capital dimension, in the United Kingdom. Under a delegated-intermediary locus, authority is vested in a dedicated body positioned between the university and the market — an autonomous TTO or, most distinctively, an external public research organisation such as Germany's Fraunhofer Society — which carries commercialization on the university's behalf.

The distinction between activity and authority matters because the two can move independently. Universities may expand activity while authority remains elsewhere or hold authority, they do not actively exercise. We call the gap between visible activity and effective authority *decoupling*, and we argue in the next section that decoupling is not incidental, but a predictable product of the institutional environment universities inhabits.

Our framework rests principally on institutional theory, and specifically on the concept of decoupling. Organizations facing strong normative and coercive pressure to adopt legitimate forms often adopt those forms ceremonially, buffering their technical core from the adopted structures so that the appearance of conformity and the substance of practice come apart (Meyer & Rowan, 1977; Bromley & Powell, 2012). Universities are unusually exposed to such pressure. The entrepreneurial mission arrived as a normative expectation backed by state funding and league-table visibility, and the cheapest way to display conformity is to expand *activity* — to open an incubator, launch an accelerator, add an entrepreneurship module — because activity is observable and countable. Acquiring and exercising genuine *authority* over commercialization is slower, costlier, and politically contested within the academy. Decoupling between activity and authority is therefore the expected equilibrium, not an aberration, and it explains why so many universities appear entrepreneurial without producing the ventures the appearance promises.

Two further lenses support the framework. The knowledge spillover theory of entrepreneurship holds that knowledge created in universities generates entrepreneurial opportunities, but only if some actor is positioned and authorised to penetrate the “knowledge filter” that otherwise blocks commercialization (Acs et al., 2009; Audretsch & Keilbach, 2007). The theory is agnostic about *which* actor performs this function; the locus of authority specifies it. Absorptive-capacity theory, in turn, explains why matching matters: the capacity to identify, assimilate, and exploit knowledge is unevenly distributed, so authority granted to an actor lacking the corresponding capability yields no additional output (Cohen & Levinthal, 1990). This is the mechanism behind our central proposition that authority raises output only when matched to capability. We treat the Triple Helix model of university–industry–government relations (Etzkowitz & Leydesdorff, 2000) as the symmetric baseline our account departs from: where the Triple

Helix describes overlapping spheres, we ask where, within the university sphere, commercialization authority sits.

FINDINGS (RESULTS)

The findings are reported in four steps that build the framework cumulatively: the shape of the field and the gap it leaves (5.1); the evidence that activity and authority decouple (5.2); the mapping of each locus of authority to a commercialization channel (5.3); and the typology that integrates these into five configurations (5.4).

The shape of the field

The corpus confirms a field that is both mature and accelerating. Annual output is steady from 2000 through roughly 2019 and then climbs sharply, with the highest annual counts occurring in the most recent years of the window — evidence that the entrepreneurial-university question is not settled but intensifying, and that a fresh synthesis is timely. Publication is concentrated in a recognisable set of outlets, led by the *Journal of Technology Transfer*, followed by *Research Policy*, *Science and Public Policy*, *Industry and HE*, *Technovation*, and *Small Business Economics*. This is precisely the disciplinary conversation into which the present article intervenes.

More important for our purposes is what the corpus reveals about the treatment of authority. Among the articles that can be coded to a specific locus, coverage is markedly uneven: the delegated intermediary and institutional locus dominate attention, while the academic locus — where the individual researcher holds decision rights — is addressed in only a small fraction of the literature. The field, in other words, has concentrated on the offices and the institutions and has under-theorised both the individual academic as a holder of authority and, more fundamentally, the *distribution* of authority as a variable. This asymmetry is the gap the present framework fills.

The activity–authority gap: The first pillar of our argument is that entrepreneurial activity and commercialization authority decouple, and that the decoupling is systematic. The evidence assembled in the corpus is consistent on this point even though no prior study frames it in these terms. Reforms that add activity or nominal control repeatedly fail to move outcomes. The abolition of the German professor's privilege reallocated authority from academics to institutions but was followed by a decline in academic patenting, as the incentives aligned with the prior locus were removed faster than the institution could substitute for them (Czarnitzki et al., 2016; von Proff et al., 2012). The imposition of external board members on Italian universities changed governance form without changing spin-off formation rates (Meoli et al., 2019). University rules intended to stimulate spin-offs produced heterogeneous and often negligible effects (Muscio, Quaglione, & Ramaciotti, 2016). And the broad pattern identified by Fini et al. (2017) more spin-offs of lower quality following top-down reform — is exactly what a decoupling account predicts: institutions expand the countable activity that signals conformity while the substantive authority to produce high-quality ventures lags.

This reading reframes a long-standing debate. Goldfarb and Henrekson (2003) contrasted “bottom-up” and “top-down” approaches to commercializing university IP and argued that centralised, top-down policies underperformed decentralised ones. In our terms, their findings are not about centralisation per se but about the mismatch between where authority is placed and where the capability to exercise it resides. Where activity is mandated from above, but authority is not accompanied by capability at the level that must act, the result is ceremonial adoption. The activity–authority gap thus offers a unifying explanation for a set of results that the field has treated as separate puzzles.

The corpus also indicates why the gap persists rather than closing. Because activity is observable and countable while authority is contested and slow to build, institutions under external pressure can satisfy the demand to appear entrepreneurial most cheaply by adding activity — a dynamic the descriptive overview reflects in the field’s heavy attention to offices and intermediaries and its comparative neglect of the academic locus and of authority as a distributional variable.

The locus of authority and its channels

The second pillar is that the locus of authority determines the university's dominant commercialization channel. Each of the three loci is associated with a characteristic pathway from knowledge to venture, and the United States, United Kingdom, and Germany illustrate the three configurations.

Under the academic locus, where the researcher holds decision rights, the dominant channel is the founder-led spin-off: the academic who owns the invention is positioned to carry it into a company. The pre-2002 German regime and the Scandinavian professor's privilege exemplify this arrangement, and comparative evidence indicates that inventor ownership favours founder-led entrepreneurship even as it disadvantages the arms-length licensing that institutional ownership supports (Damsgaard & Thursby, 2012).

Under the **institutional locus**, where the university owns IP and exercises commercialization through its offices, the dominant channels are licensing and university-held equity. The United States established this configuration through the Bayh-Dole Act, which vested ownership of federally funded inventions in universities and catalysed the growth of professional technology transfer offices (Mowery et al., 2001; Feldman et al., 2002; Bercovitz et al., 2001). The United Kingdom occupies a distinctive variant of the institutional locus in which the university acts not only as owner but as investor, retaining substantial equity in spin-offs and, increasingly, operating or partnering with dedicated venture funds; here the institution's authority extends into the capital structure of the venture itself (Lockett & Wright, 2005; Wright et al., 2006).

Under the delegated intermediary locus, authority is carried by a body positioned between the university and the market. Germany's applied-research organisations, above all the Fraunhofer Society, embody this configuration: the university remains comparatively upstream, concentrating on research, while translation and commercialization are delegated to an external organisation with its own capabilities, capital, and contracts. The autonomous and alliance-type TTO structures identified by Schoen et al.

(2014) are milder forms of the same delegation. The characteristic channel here is neither the founder-led spin-off nor university-held equity but intermediary-mediated translation, in which the decisive commercialization capabilities reside outside the university proper.

Table 2
The locus of commercialization authority and its channels.

Locus	IP ownership	Capital / equity role	Dominant channel	Illustrative case
Academic	Individual researcher	Founder-held	Founder-led spin-off	Germany pre-2002; Sweden
Institutional	University	University licenses; may hold equity	Licensing; spin-off with university equity	United States (Bayh-Dole); United Kingdom
Delegated intermediary	University, but translation delegated	Intermediary co-invests	Intermediary-mediated translation	Germany (Fraunhofer)

Source

Developed by the authors based on the study's research questions and theoretical framework.

A typology of the entrepreneurial university : Combining the two dimensions — the locus of authority and its coupling to activity — yields a typology. Three types are coupled, their entrepreneurial activity backed by real commercialization authority, and they differ in the form that authority takes. The decoupled region, in which activity outruns authority, is not monolithic: it resolves into two further types distinguished by trajectory, giving five configurations in all. Building a typology is itself a recognised mode of theory construction rather than mere classification, provided the types are specified as ideal-type poles that real cases may sit between or move among (Doty & Glick, 1994).

Proprietor University holds an institutional locus of authority coupled to its activity: it owns its IP and commercializes primarily through licensing, taking equity opportunistically. The major U.S. research universities are the archetype, and the internal apparatus is well mapped — Thursby, Jensen and Thursby (2001), surveying 62 U.S. research universities, and Bercovitz et al. (2001), showing that internal structure shapes patenting and licensing behaviour. The type is not uniquely American: della Malva, Lissoni and Llerena (2013) show France's 1999 Innovation Act pushing universities toward the institutional locus. Its characteristic risk is proprietary friction — the failure mode Kenney and Patton (2009) document, in which institutional ownership generates ineffective incentives, information asymmetries, and delays, and Owen-Smith and Powell (2001) trace to faculty disengagement when the apparatus is costly to use.

The Investor University extends the institutional locus into the capital structure, coupling ownership of science with an ownership stake in the venture through retained equity and dedicated funds. Research-intensive U.K. universities exemplify the type. Bray and Lee (2000) quantify its logic — an average

traditional licence returned $63,832 per year against an average equity value of $1,384,242 in their spin-off sample — and Lockett and Wright (2005) show that equity-backed spin-off creation rises with IP-protection expenditure and the business-development capability of the transfer office. Its characteristic risk is the landlord–shareholder conflict: when a university both owns the underlying science and holds equity in the venture, the two roles can distort terms and deter founders (Wright et al., 2006).

The Upstream University deliberately holds a limited institutional locus, delegating translation to an external intermediary or leaving it with the academic, as in the German division of labour with the Fraunhofer and related public research organisations. Hülsbeck, Lehmann and Starnecker (2013) capture the resulting ambivalence — German transfer offices are seen by some as vital and by others as 'superfluous and counterproductive' — precisely because a capable external layer makes the university's own office secondary. Its characteristic risk is dependence: the university's entrepreneurial fate rests on the capabilities of an actor it does not control.

The Emergent University is the first of the two decoupled types. It wants to be entrepreneurial and is actively building toward it, characteristically by imitating the visible forms of the three coupled types — the offices, incubators, and spin-off targets — before it holds the corresponding authority. The mechanism is mimetic isomorphism: facing uncertainty about how to become entrepreneurial, organisations model themselves on peers they perceive as successful (DiMaggio & Powell, 1983). The corpus documents this transition directly: Etzkowitz (2001) describes universities undergoing a 'second academic revolution'; Miller, McAdam and McAdam (2014) find universities 'in a current state of transition'; and Secundo, De Beer and Passiante (2016), through a maturity model of transfer offices, show universities adopting mature forms 'with limited success.' The defining feature of the Emergent type is a trajectory that forks where authority and capability catch up with activity, the university consolidates into a Proprietor, Investor, or Upstream configuration; where they do not, it arrests and lapses into the Ceremonial condition. Which way it turns is governed by the matching principle (Proposition 4). Its characteristic risk is imitation of form without substance. ('Emergent' here denotes a developmental stage of the university as an actor, following the latent–emergent language of the entrepreneurship-stage literature, not a university located in an emerging economy — though such universities are among the most likely to occupy this type.)

The Ceremonial University is the second decoupled type, and it differs from the Emergent type not in position but in directionality: where the Emergent University is decoupling-as-a-stage, the Ceremonial University is decoupling-as-equilibrium. It has the visible apparatus of academic entrepreneurship but neither exercises commercialization authority nor is meaningfully acquiring it; its infrastructure operates as a durable legitimacy display, in the ceremonial adoption that institutional theory predicts under normative pressure (Meyer & Rowan, 1977; Bromley & Powell, 2012). The corpus supplies converging evidence: Fini et al. (2017) find top-down reforms raise spin-off quantity while depressing quality, a result they call 'more symbolic than substantive'; Jain and George (2007) show transfer offices acting as legitimacy-builders. Its characteristic risk is hollow adoption — entrepreneurial investment that yields

legitimacy without ventures. Because direct evidence for a fully-fledged Ceremonial type remains thin, we present it as the theoretically predicted limiting case against which the other four are defined.

The proposed configurations differ in their evidential basis. The Proprietor, Investor, and Upstream University configurations are grounded in established empirical evidence, whereas the Emergent and Ceremonial configurations are conceptually derived from recurring patterns identified through the literature synthesis. As such, the latter should be regarded as theoretically informed configurations that warrant further empirical validation.

The typology is organised by two principles, and it is worth being explicit about how they combine. The primary principle is the locus of authority, which distinguishes the three coupled types by the form their authority takes. The secondary principle applies within the decoupled region, distinguishing the Emergent type (decoupling as a developmental stage) from the Ceremonial type (decoupling as a stable equilibrium). Introducing a developmental dimension alongside a structural one is deliberate and follows the logic of ideal-type theorising (Doty & Glick, 1994); it is also what makes the typology dynamic. The Emergent University is defined by movement — it is where universities enter the entrepreneurial field, and from which they either consolidate into an authority-backed type or settle into ceremony — and the matching principle is the engine of that movement. The framework thus describes not only what kinds of entrepreneurial universities exist but how universities travel between them.

This typology should be distinguished from prior classifications built on different axes. A recent typological analysis of Swedish HEIs sorts of universities by autonomy and market orientation; Guerrero and Urbano (2012) classify by internal capabilities; Clark (1998) by organisational pathways of transformation; and Schoen et al. (2014) map the structure of the transfer office. None is organised around the locus of commercialization authority or its coupling to activity, and none treats the decoupled region as containing distinct developmental types. Table 3 summarises the five configurations.

Table 3
Five entrepreneurial-university types, by locus of commercialization authority and its coupling to activity. The Emergent and Ceremonial types share the decoupled position but differ in trajectory.

Type	Locus of authority	Coupling	Dominant channel	Characteristic risk	Corpus anchors
Proprietor	Institutional (owns IP)	Coupled	Licensing; selective equity	Proprietary friction	Thursby et al. 2001; Bercovitz et al. 2001; Kenney & Patton 2009
Investor	Institutional + capital	Coupled	Equity spin-offs; funds	Landlord–shareholder conflict	Bray & Lee 2000; Lockett & Wright 2005; Wright et al. 2006
Upstream	Delegated to PRO / academic	Coupled	Intermediary translation	Dependence	Hülsbeck et al. 2013 ; della Malva et al. 2013
Emergent	Nascent / diffuse	Decoupled — in transition	Imitated forms; building channel	Imitation without substance	DiMaggio & Powell 1983 ; Etzkowitz 2001; Miller et al. 2014 ; Secundo et al. 2016
Ceremonial	Absent	Decoupled — settled	Activity without a channel	Hollow adoption	Meyer & Rowan 1977; Fini et al. 2017; Jain & George 2007

Source

Developed by the authors based on the study's research questions and theoretical framework.

DISCUSSION

The systematic-integrative review not only resulted in a new typology of entrepreneurial universities but also generated a series of theoretical propositions that translate the conceptual framework into a testable research agenda. Rather than representing hypotheses tested in this study, these propositions synthesize the recurring patterns identified across the reviewed literature and provide directions for future empirical research. The framework generates seven propositions that render it testable.

Proposition 1

(Separability). Entrepreneurial universities vary less in the breadth of their entrepreneurial activity than in the locus of their commercialization authority; activity and authority are empirically separable. This follows from the corpus-wide observation (§ 5.1–5.2) that entrepreneurial activity is widely diffused

while effective authority is not; it would be falsified by evidence that activity reliably tracks authority across institutions.

Proposition 2

(Decoupling). Under normative and coercive pressure to appear entrepreneurial, universities expand visible activity faster than they acquire or exercise commercialization authority, producing activity without authority. The proposition operationalises the decoupling mechanism of § 5.2 and is the defining condition of the Emergent and Ceremonial types (§ 5.4); it predicts that measures of activity and of authority will correlate weakly under strong isomorphic pressure.

Proposition 3

(Locus–channel). The locus of authority determines the university's dominant commercialization channel: an academic locus favours founder-led spin-offs, an institutional locus favours licensing and university equity, and a delegated-intermediary locus favours intermediary-mediated translation. This is the direct generalisation of the Proprietor, Investor, and Upstream channel mappings established in § 5.3–5.4 and is testable by relating institutions' authority locus to the share of ventures created through each channel.

Proposition 4

(Matching). Increasing a university's formal commercialization authority raises entrepreneurial output only when the authority is matched to the university's absorptive and managerial capabilities; reallocating authority against capability reduces output. This is the engine of movement in the typology: it governs whether an Emergent University consolidates or lapses (§ 5.4), and it is supported by the German professor's-privilege evidence in which authority centralised without matching capability depressed output (§ 5.2).

Proposition 5

(Configurational dynamics): Universities cluster into a small number of configurations defined by locus and coupling; the Emergent (decoupled, in-transition) configuration is unstable, resolving over time either into an authority-backed type or into the settled Ceremonial type, according to whether authority and capability come to match accumulated activity. It converts the static typology into a dynamic one and predicts observable trajectories between types over time rather than fixed membership.

Proposition 6

(Measurement): Studies that measure entrepreneurial activity without measuring the corresponding authority systematically misestimate the effect of universities on venture outcomes. This is the methodological corollary of the separability claim (P1): because much existing work counts activity as a proxy for entrepreneurial capacity, its estimates are biased wherever activity and authority diverge.

Proposition 7

(Ecosystem contingency): The effectiveness of a given locus of authority is moderated by the surrounding innovation ecosystem — the density of venture capital and specialist intermediaries, the regulatory and IP regime, and the economic conditions of the region: an authority configuration produces ventures only where the external environment supplies the complementary resources its channel depends on. Thus, the Proprietor configuration is effective where a dense capital market absorbs its licences and spin-offs; the Upstream configuration where a capable intermediary layer exists to receive delegated authority; and the same configuration transplanted into a thinner ecosystem underperforms or collapses toward the Ceremonial type.

The analysis answers the two questions posed at the outset. To RQ1 — how the locus of authority varies and diverges from activity — the findings show three coupled loci (institutional, capital-extended institutional, and delegated) whose activity is backed by authority, and a decoupled region where activity outruns authority; the two are separable, and their divergence is systematic rather than incidental. To RQ2 — why greater formal authority does not reliably raise output — the answer is the matching principle: authority produces ventures only when paired with the capability to exercise it, so authority reallocated against capability (as in the German reform) or accumulated as ceremony (as in decoupled institutions) yields little. Activity, in short, is a poor proxy for entrepreneurial capacity, and the locus of authority is the variable that the field has left implicit.

The framework reorganises a fragmented literature around a single axis. Where prior typologies map the structure of the technology transfer office (Schoen et al., 2014; Baglieri et al., 2018) or the internal capabilities of the entrepreneurial university (Guerrero & Urbano, 2012), and where recent comparative work contrasts national regulatory regimes (Yan, Sun, & Qian, 2026), the present account locates variation inside the university, in the distribution of commercialization authority, and shows how that distribution both explains the decoupling anomalies and generates a parsimonious typology. It thereby connects two literatures that have largely run in parallel — the comparative governance of HE and the study of academic entrepreneurship — by treating the university's internal locus of authority as the hinge between them.

Conceptually, it replaces the loose notion of the “entrepreneurial university” with a specified construct — the locus of commercialization authority and its coupling to activity — that is sharper than the capability-based models of Guerrero and Urbano (2012) and the autonomy-and-market-orientation axes of recent typologies. Relative to the nearest work, which classifies governance arrangements at the level of a single institution (Ghorbani & Blankesteijn, 2025), it lifts the analysis to the level of ideal-type configurations and makes the scheme dynamic by theorising movement between them. Empirically, it reframes a set of otherwise disconnected anomalies — the professor’s-privilege reversal, the null effects of governance reforms, the symbolic-versus-substantive divergence — as instances of a single mechanism.

The argument carries a clear implication for policy. Because entrepreneurial forms can be adopted ceremonially, transplanting another system's *activity* — its incubators, its accelerators, its spin-off targets — without transplanting the *authority structure* that makes those forms effective will produce the Ceremonial configuration and its disappointing yields. The lesson is not that anyone locus is best, but that authority must be placed where the capability to exercise it resides. A system with a capable intermediary layer can afford an Upstream configuration; one without must build institutional or academic authority instead and cannot short-cut that construction by importing activity alone.

The matching principle concerns *internal* fit — whether a university's authority is paired with the capability to exercise it — but a configuration's yield also depends on *external* fit with the surrounding innovation ecosystem. The corpus makes this dependence visible. Wright et al. (2006) show that venture capitalists prefer to enter after the seed stage, so the Investor and Proprietor configurations realise their spin-offs only where a capital market exists to absorb them; Bodas Freitas, Geuna and Rossi (2013) find that institutional and personal modes of governing university–industry relations suit different contexts rather than one dominating universally; and work taking an explicit context perspective (Nsanzumuhire *et al*., 2020; Cunningham et al., 2019) shows that regional conditions and external policy shape whether a given arrangement produces results. The same locus of authority can thus succeed in one ecosystem and fail in another: the Proprietor configuration depends on a dense capital market, the Upstream configuration on a capable intermediary layer, and either, transplanted into a thinner ecosystem, tends to drift toward the Ceremonial condition. This is the substance of Proposition 7, which recasts the ecosystem — the density of venture capital and intermediaries, the regulatory and IP regime, and regional economic conditions — not as a rival to authority but as the external moderator that determines whether an authority configuration can deliver.

Several limitations qualify these claims. The corpus is drawn from a single database and restricted to English-language journal articles, which under-represents non-Anglophone and grey literature, including some German-language scholarship central to the Upstream case. The decoupling mechanism is inferred from patterns across studies rather than measured directly, and its identification awaits research that operationalises authority independently of activity. Screening was conducted by 2 reviewers, so inter-coder reliability could not be established, and the Ceremonial type rests on indirect rather than direct evidence and is offered as a predicted limiting case. The ecosystem contingency of Proposition 7 is theorised rather than measured, since the review does not quantify ecosystem density, making it the most conjectural of the propositions and a hypothesis for testing rather than a synthesis of established effects. Finally, the typology is developed analytically and illustrated through three mature systems; its extension to emerging and transition contexts is a hypothesis, not a finding.

LIMITATIONS AND RESEARCH AGENDA

The review relied exclusively on the Scopus database and English-language peer-reviewed journal publications, potentially excluding relevant studies indexed elsewhere or published in other languages. Furthermore, although study selection and coding were conducted independently by two reviewers,

formal inter-coder reliability statistics were not calculated. Consequently, coding consistency was ensured through comparison of coding decisions, discussion of discrepancies, and consensus-based resolution. These limitations should be considered when interpreting the findings and provide opportunities for future research to validate and extend the proposed typology using additional databases and independent coding procedures.

The field needs measures of authority that are distinct from measures of activity — instruments that capture who hold IP, equity, and venture-formation decision rights, rather than counting the offices and programmes that surround them. Second, Proposition 4 invites empirical tests of the interaction between authority and capability, ideally exploiting reforms that reallocate authority as natural experiments, as the professor's privilege changes have begun to allow. Third, the decoupling account calls for longitudinal designs that trace how activity and authority diverge and re-converge over a university's development. Fourth, the Ceremonial type provides a natural bridge to the study of emerging and transition systems, where the importation of entrepreneurial forms without matching authority is likely to be most visible; testing whether such systems occupy the decoupled cell, and under what conditions they move out of it, is a promising avenue that also connects this framework to the comparative study of innovation systems.

CONCLUSION

This study argues that entrepreneurial universities are more accurately distinguished by the locus of commercialization authority than by the breadth of their entrepreneurial activities. Through a systematic-integrative review of 473 Scopus-indexed publications, it demonstrates that entrepreneurial activity and commercialization authority are conceptually distinct and frequently decoupled. While universities increasingly invest in visible entrepreneurial infrastructure such as technology transfer offices, incubators, accelerators, and entrepreneurship programs, these activities do not necessarily reflect genuine decision-making authority over intellectual property, equity, or venture formation.

Building on this distinction, the study introduces commercialization authority as a fundamental analytical construct and proposes a typology of five entrepreneurial university configurations—Proprietor, Investor, Upstream, Emerging, and Ceremonial. The framework explains why similar entrepreneurial initiatives often produce markedly different commercialization outcomes and why governance reforms that merely reallocate formal authority do not consistently improve entrepreneurial performance. The findings indicate that commercialization authority generates value only when it is aligned with the absorptive, managerial, and organizational capabilities required to exercise that authority effectively.

The proposed framework advances entrepreneurial university theory by shifting attention from observable entrepreneurial activities to the governance mechanisms that shape commercialization decisions. It also provides policymakers and university leaders with a more robust basis for designing commercialization systems, suggesting that successful entrepreneurial transformation depends on

aligning authority structures with institutional capabilities rather than replicating visible entrepreneurial practices from other contexts.

Although the framework is grounded in a comprehensive synthesis of the existing literature, it remains conceptual and requires empirical validation across diverse higher education systems. Future research should operationalize commercialization authority as a measurable construct, examine transitions between the proposed university configurations, and investigate how national innovation ecosystems moderate the relationship between authority, capability, and entrepreneurial outcomes.

Ultimately, entrepreneurial universities should be understood not by the number of entrepreneurial activities they undertake, but by who holds the authority to commercialize knowledge and how effectively that authority is translated into innovation and societal impact.

Declarations

Funding

No funding was received for conducting this study. The authors did not receive support from any organization for the submitted work.

Competing Interests

The authors have no competing interests to declare that are relevant to the content of this article.

Financial Interests

The authors declare that they have no non-financial interests that could have influenced the work reported in this manuscript.

Ethics Approval

Not applicable. This study is based on a systematic-integrative literature review of published academic sources and did not involve human participants, human data, human tissue, or animals.

Data Availability

The data supporting the findings of this study were obtained from peer-reviewed publications indexed in the Scopus database. All sources used in the review are cited in the manuscript. Additional information regarding the review protocol and coding framework is available from the corresponding author upon reasonable request.

Authors' Contributions

Orkhan Vatankah: Conceptualization, methodology, systematic literature review, data collection, data coding, formal analysis, theoretical framework development, visualization, writing—original draft

preparation, writing—review and editing.

Asiman Ilyasov: Conceptualization, validation, interpretation of findings, supervision, writing—review and editing.

All authors read and approved of the final manuscript.

References

1. Acs, Z. J., Braunerhjelm, P., Audretsch, D. B., & Carlsson, B. (2009). The knowledge spillover theory of entrepreneurship. *Small Business Economics*, *32*(1), 15–30.
2. Audretsch, D. B., & Keilbach, M. (2007). The theory of knowledge spillover entrepreneurship. *Journal of Management Studies*, *44*(7), 1242–1254.
3. Baglieri, D., Baldi, F., & Tucci, C. L. (2018). University technology transfer office business models: One size does not fit all. *Technovation*, *76–77*, 51–63.
4. Bercovitz, J., Feldman, M., Feller, I., & Burton, R. (2001). Organizational structure as a determinant of academic patent and licensing behavior. *Journal of Technology Transfer*, *26*(1–2), 21–35.
5. Bodas Freitas, I. M., Geuna, A., & Rossi, F. (2013). Finding the right partners: Institutional and personal modes of governance of university–industry interactions. *Research Policy*, *42*(1), 50–62.
6. Bromley, P., & Powell, W. W. (2012). From smoke and mirrors to walking the talk: Decoupling in the contemporary world. *Academy of Management Annals*, *6*(1), 483–530.
7. Bray, M. J., & Lee, J. N. (2000). University revenues from technology transfer: Licensing fees vs. equity positions. *Journal of Business Venturing*, *15*(5), 385–392.
8. Cohen, W. M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, *35*(1), 128–152.
9. Crow, M. M., Whitman, K., & Anderson, D. M. (2020). Rethinking academic entrepreneurship: University governance and the emergence of the academic enterprise. *Public Administration Review*, *80*(3), 511–515.
10. Cunningham, J. A., Lehmann, E. E., Menter, M., & Seitz, N. (2019). The impact of university focused technology transfer policies on regional innovation and entrepreneurship. *Journal of Technology Transfer*, *44*(5), 1451–1475.
11. Clark, B. R. (1998). *Creating entrepreneurial universities: Organizational pathways of transformation*. Pergamon.
12. Czarnitzki, D., Doherr, T., Hussinger, K., Schliessler, P., & Toole, A. A. (2016). Knowledge creates markets: The influence of entrepreneurial support and patent rights on academic entrepreneurship. *European Economic Review*, *86*, 131–146.
13. Damsgaard, E. F., & Thursby, M. C. (2012). University entrepreneurship and professor privilege. *Industrial and Corporate Change*, *22*(1), 183–218.

14. della Malva, A., Lissoni, F., & Llerena, P. (2013). Institutional change and academic patenting: French universities and the Innovation Act of 1999. *Journal of Evolutionary Economics*, *23*(1), 211–239.
15. DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, *48*(2), 147–160.
16. Doty, D. H., & Glick, W. H. (1994). Typologies as a unique form of theory building: Toward improved understanding and modeling. *Academy of Management Review*, *19*(2), 230–251.
17. Etzkowitz, H. (2001). The second academic revolution and the rise of entrepreneurial science. *IEEE Technology and Society Magazine*, *20*(2), 18–29.
18. Etzkowitz, H. (2003). Research groups as 'quasi-firms': The invention of the entrepreneurial university. *Research Policy*, *32*(1), 109–121.
19. Etzkowitz, H., & Leydesdorff, L. (2000). The dynamics of innovation: From national systems and 'Mode 2' to a Triple Helix of university–industry–government relations. *Research Policy*, *29*(2), 109–123.
20. Feldman, M., Feller, I., Bercovitz, J., & Burton, R. (2002). Equity and the technology transfer strategies of American research universities. *Management Science*, *48*(1), 105–121.
21. Fini, R., Fu, K., Mathisen, M. T., Rasmussen, E., & Wright, M. (2017). Institutional determinants of university spin-off quantity and quality: A longitudinal, multilevel, cross-country study. *Small Business Economics*, *48*(2), 361–391.
22. Goldfarb, B., & Henrekson, M. (2003). Bottom-up versus top-down policies towards the commercialization of university intellectual property. *Research Policy*, *32*(4), 639–658.
23. Guerrero, M., & Urbano, D. (2012). The development of an entrepreneurial university. *Journal of Technology Transfer*, *37*(1), 43–74.
24. Ghorbani, A., & Blankesteijn, M. L. (2025). *Governance arrangements for academic entrepreneurship: Structures, processes, and mechanisms*. *Management Review Quarterly*.
25. Hülsbeck, M., Lehmann, E. E., & Starnecker, A. (2013). Performance of technology transfer offices in Germany. *Journal of Technology Transfer*, *38*(3), 199–215.
26. Jain, S., & George, G. (2007). Technology transfer offices as institutional entrepreneurs: The case of the Wisconsin Alumni Research Foundation and human embryonic stem cells. *Industrial and Corporate Change*, *16*(4), 535–567.
27. Kenney, M., & Patton, D. (2009). Reconsidering the Bayh-Dole Act and the current university invention ownership model. *Research Policy*, *38*(9), 1407–1422.
28. Lockett, A., & Wright, M. (2005). Resources, capabilities, risk capital and the creation of university spin-out companies. *Research Policy*, *34*(7), 1043–1057.
29. Meoli, M., Paleari, S., & Vismara, S. (2019). The governance of universities and the establishment of academic spin-offs. *Small Business Economics*, *52*(2), 485–504.
30. Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, *83*(2), 340–363.

31. Miller, K., McAdam, M., & McAdam, R. (2014). The changing university business model: A stakeholder perspective. *R&D Management*, *44*(3), 265–287.
32. Mowery, D. C., Nelson, R. R., Sampat, B. N., & Ziedonis, A. A. (2001). The growth of patenting and licensing by U.S. universities: An assessment of the effects of the Bayh-Dole Act of 1980. *Research Policy*, *30*(1), 99–119.
33. Muscio, A., Quaglione, D., & Ramaciotti, L. (2016). The effects of university rules on spinoff creation: The case of academia in Italy. *Research Policy*, *45*(7), 1386–1396.
34. Nsanzumuhire, S. U., & Groot, W. (2020). Context perspective on university–industry collaboration processes: A systematic review of literature. *Journal of Cleaner Production*, *258*, 120861.
35. Owen-Smith, J., & Powell, W. W. (2001). To patent or not: Faculty decisions and institutional success at technology transfer. *Journal of Technology Transfer*, *26*(1–2), 99–114.
36. Page, M. J., et al. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *Bmj*, *372*, n71.
37. Perkmann, M., Tartari, V., McKelvey, M., Autio, E., Bröström, A., D'Este, P., & Sobrero, M. (2013). Academic engagement and commercialisation: A review of the literature on university–industry relations. *Research Policy*, *42*(2), 423–442.
38. Rothaermel, F. T., Agung, S. D., & Jiang, L. (2007). University entrepreneurship: A taxonomy of literature. *Industrial and Corporate Change*, *16*(4), 691–791.
39. Schoen, A., van Pottelsberghe, B., & Henkel, J. (2014). Governance typology of universities' technology transfer processes. *Journal of Technology Transfer*, *39*(3), 435–453.
40. Secundo, G., De Beer, C., & Passiante, G. (2016). Measuring university technology transfer efficiency: A maturity level approach. *Measuring Business Excellence*, *20*(3), 42–54.
41. Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, *104*, 333–339.
42. Thursby, J. G., Jensen, R., & Thursby, M. C. (2001). Objectives, characteristics and outcomes of university licensing: A survey of major U.S. universities. *Journal of Technology Transfer*, *26*(1–2), 59–72.
43. Torraco, R. J. (2005). Writing integrative literature reviews: Guidelines and examples. *Human Resource Development Review*, *4*(3), 356–367.
44. von Proff, S., Buenstorf, G., & Hummel, M. (2012). University patenting in Germany before and after 2002: What role did the professors' privilege play? *Industry and Innovation*, *19*(1), 23–44.
45. Wright, M., Lockett, A., Clarysse, B., & Binks, M. (2006). University spin-out companies and venture capital. *Research Policy*, *35*(4), 481–501.
46. Yan, C., Sun, T., & Qian, M. (2026). Formalizing university technology transfer governance in the knowledge economy: A comparative analysis of institutional policy designs in the US, UK, Australia, and China. *Research in HE*, *67*(5), 44.

Figures

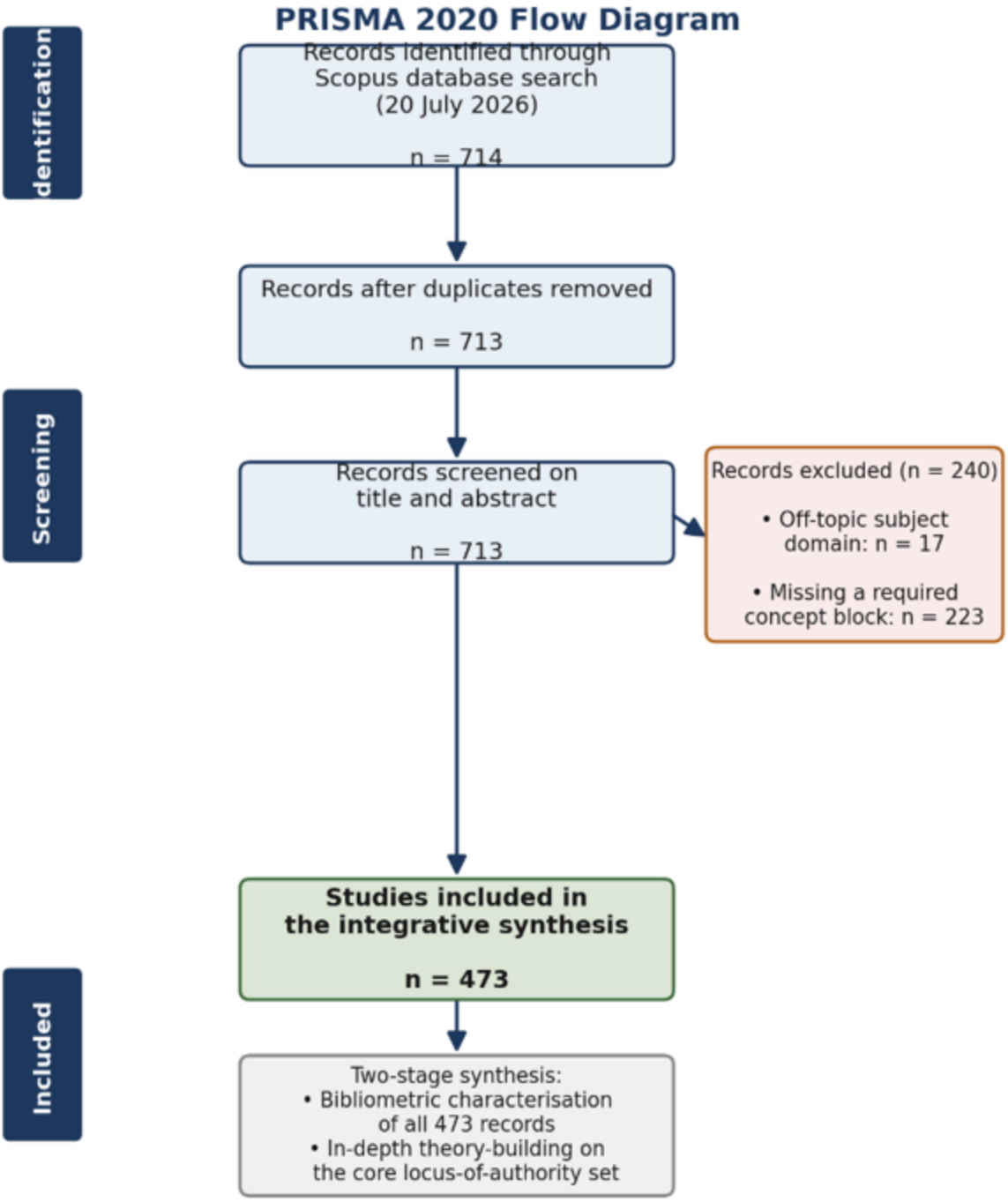


Figure 1

PRISMA 2020 flow diagram of the study identification and screening process.