LEADERSHIP, CAPABILITY DYNAMICS, AND KNOWLEDGE ARCHITECTURES IN ACADEMIC LIBRARIES

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Abstract:

Academic libraries are increasingly required to operate as innovation partners within higher-education ecosystems, although scholarship provides limited clarity on the leadership mechanisms that support this role. Existing work reinforces that entrepreneurial leadership fosters innovation-oriented behaviour in library settings, dynamic capabilities enable adaptation through sensing, seizing, and transforming processes, and the knowledge-based view strengthens organisational learning and intellectual capital. However, these perspectives are seldom interpreted as a unified system. This study examines the leadership challenge of cultivating innovation in academic libraries by integrating Entrepreneurial Leadership (EL), Dynamic Capabilities (DC), and the Knowledge-Based View (KBV). A bibliometric–conceptual analysis of 80 Scopus-indexed publications (2020–2024) was conducted to trace global and Malaysian research patterns, identify fragmentation, and interpret how leadership intent interacts with capability renewal and knowledge mobilisation in policy-driven higher-education environments. Quantitative mapping using VOSviewer was combined with interpretive analysis to construct an integrated EL–DC–KBV framework. The findings demonstrate that EL, DC, and KBV are individually well established but seldom analysed as an interconnected mechanism that explains how libraries reposition themselves as adaptive and knowledge-intensive organisations. The thematic synthesis identifies recurring constraints that slow innovation readiness, including administrative mindsets, fragmented tacit knowledge, weak external sensing, risk aversion, policy–practice gaps, constrained collaboration, and metrics that emphasise usage

more than learning and capability outcomes. Interpreting these conditions through the EL–DC–KBV triad provides actionable leadership and capability levers supported by knowledge-based performance indicators. The integrated framework aligns with Malaysia's Higher Education Blueprint, the MyDIGITAL Blueprint, the Twelfth Malaysia Plan, and the Malaysia MADANI agenda, and positions academic libraries as contributors to SDG 4, SDG 9, and SDG 17. This study advances theoretical integration and offers a contextually grounded basis for leadership-driven innovation in knowledge-intensive public institutions founded basis for leadership-driven innovation in Malaysian higher education.

Keywords:

Bibliometric, Entrepreneurial Leadership, Dynamic Capabilities, Knowledge-Based View, Leadership Challenge, Innovation, Academic Libraries

Introduction

Academic libraries in Malaysia operate in a rapidly shifting digital environment shaped by emerging technologies, evolving research practices, and rising expectations to contribute strategically to institutional goals. These pressures require leadership that can interpret uncertainty, drive innovation, and mobilize knowledge resources beyond administrative routines. Existing work highlights operational or service-focused concerns but provides limited explanation of how leadership behaviour enables capability development and innovation in higher-education settings (Sa'ari & Goulding, 2024).

Research in library and information science recognises the importance of digital transformation and knowledge practices, although findings remain fragmented across technology adoption, user services, and staff skills. This dispersal limits understanding of how leadership shapes adaptive routines or aligns library functions with institutional and national agendas. In Malaysia, policy frameworks such as the Higher Education Blueprint 2015–2025, the MyDIGITAL Blueprint, and the Twelfth Malaysia Plan emphasise innovation capacity and digital readiness, prompting libraries to strengthen research support, digital scholarship, and knowledge mobilisation (Ministry of Higher Education, 2021).

Entrepreneurial Leadership (EL) explains opportunity recognition, innovation-oriented decision-making, and calculated risk-taking (Renko et al., 2015). Dynamic Capabilities (DC) describe how organisations sense, seize, and reconfigure resources to maintain adaptability (Teece, 2018; Jadhav et al., 2023). The Knowledge-Based View (KBV) anchors performance in knowledge creation, learning, and the integration of knowledge assets (Kasemsap, 2016; Hussain & Li, 2022). Although widely applied in management and innovation studies, these perspectives have rarely been connected in an integrated manner within academic libraries.

Malaysian studies offer insights into digital initiatives and operational constraints but seldom examine leadership as the mechanism linking opportunity orientation, capability renewal, and knowledge outcomes. Contributions such as the Dynamic Capabilities of Academic Libraries (DCAL) model (Zainal et al., 2023) and regional work on managerial practices (Aslam, Huang, & Cui, 2020) represent early foundations, yet empirical integration of EL, DC, and KBV remains limited. This gap is significant because libraries function as knowledge-intensive units tasked with supporting digital scholarship, research data services, and institutional innovation agendas (Ashiq et al., 2019). Entrepreneurial leadership is associated with knowledge-oriented

routines and dynamic capability development that support innovation performance (Hussain & Li, 2022; Tariq, Wang, & Latif, 2024). Accordingly, this study conducts a bibliometric–conceptual analysis of 80 Scopus-indexed publications (2020–2024) to map global and Malaysian research on EL, DC, and KBV and construct an integrated framework tailored to academic libraries. The analysis clarifies how leadership intent interacts with adaptive capability and knowledge mobilisation in environments shaped by public-sector structures, digital pressures, and policy expectations.

Although EL, DC, and KBV are well established, scholarship has not fully explained how these constructs interact to sustain innovation in academic libraries, particularly in systems regulated by national policy and public-sector governance. Existing studies examine each construct separately, leaving limited clarity on how leadership intent is converted into adaptive capability and knowledge mobilisation. This study addresses this gap by analysing 80 Scopus-indexed publications published between 2020 and 2024 to interpret how EL, DC, and KBV operate as an integrated mechanism that supports innovation readiness in Malaysian academic libraries.

Evidence from library and management research reinforces the rationale for integrating EL, DC, and KBV. Entrepreneurial leadership supports opportunity recognition and innovation behaviour (Carpenter, 2012), while dynamic capability mechanisms underpin organisational adaptation to technological and institutional change (Jadhav et al., 2023). Knowledge assets and learning routines remain foundational in knowledge-intensive institutions (Chaudhary et al., 2023). Recent studies demonstrate that leadership achieves sustained impact only when connected to knowledge-oriented dynamic capabilities that mediate change and performance (Tariq et al., 2024). Positioning academic libraries within this integrated structure provides theoretical clarity and practical relevance for institutions operating at the intersection of digital transformation, public-sector governance, and national innovation priorities.

Malaysia's public universities operate within a centrally regulated, policy-driven governance structure that shapes leadership behaviour and institutional agility. Evidence indicates that corporatisation and AUKU-based controls create bureaucratic routines that slow decision-making and constrain capability development (Lee, 2018; Asimiran & Ismail, 2019). These conditions reinforce the need for an integrated EL–DC–KBV lens, as leadership intent must navigate policy constraints while adaptive routines and knowledge mobilisation remain tied to national agendas rather than market incentives.

The next section reviews literature on EL, DC, and KBV within higher-education and library contexts. The methodology outlines the bibliometric–conceptual procedures, followed by findings on thematic patterns and network structures. The discussion integrates these insights into a unified EL–DC–KBV framework, and the paper concludes with theoretical, institutional, and policy implications alongside directions for future research.

Literature Review

EL has emerged as a strategic, opportunity-oriented leadership paradigm that explains how leaders navigate uncertainty and mobilize resources for innovation. EL reframes organizational constraints as spaces for experimentation and learning, enabling leaders to create conditions that support agility, collaboration, and adaptive problem-solving (Carpenter, 2012; Pothier, 2019). Empirical work highlights those entrepreneurial leaders activate organizational learning by encouraging reflective practice, broadening opportunity recognition, and cultivating

constructive risk behaviour (Renko et al., 2015; Gupta, MacMillan, & Surie, 2004). In Malaysia's higher-education sector, this capability is increasingly important as libraries transition from service-oriented units to institutional innovation partners within digital transformation agendas (Sa'ari & Goulding, 2024).

EL provides a conceptual bridge to the KBV by positioning knowledge as both an asset and a mechanism of value creation. Entrepreneurial leaders convert dispersed expertise into collective capability, building environments where experimentation, knowledge exchange, and digital collaboration become normative organizational routines. This interaction clarifies how EL operationalizes KBV's foundational claim that knowledge is the primary source of competitive advantage into actionable practices that support innovation and institutional relevance (Kasemsap, 2016; Hussain & Li, 2022).

KBV conceptualizes knowledge as the core resource driving institutional resilience, innovation, and long-term performance. Within higher-education institutions (HEIs), KBV-oriented environments cultivate communities of practice, ICT-enabled collaboration, and continuous knowledge renewal that enable adaptability under digital disruption (Koloniari, Vraimaki, & Fassoulis, 2019; Gunjal, 2023). Integrated knowledge-management frameworks, such as GC@BU, demonstrate how embedding knowledge flows into decision systems strengthens institutional responsiveness (de Bem et al., 2016; Xiao, 2020). Empirical studies also confirm that leadership quality significantly amplifies KBV processes, strengthening creativity, cooperation, and knowledge mobilization (Jain, 2015; Hussain & Li, 2022). However, tacit knowledge networks in libraries often remain fragmented and disconnected from innovation initiatives, particularly where leadership mechanisms are weak (Shoid & Kassim, 2014).

DC extends this perspective by explaining how organizations renew capabilities under conditions of technological and institutional turbulence. DC captures the micro-foundations of adaptation sensing opportunities, seizing them through strategic action, and transforming resources into new value configurations (Teece, 2018; Jadhav & Shenoy, 2022). In library and academic settings, DC enables leaders to translate vision into operational agility, ensuring that services remain responsive amid rapid digital change (Baba & Abrizah, 2018). Evidence across sectors demonstrates that leadership intent achieves impact only when converted into capability routines that embed learning, innovation, and knowledge application (Nguyen, Han, & Pham, 2024; Farzaneh et al., 2023). Within knowledge-intensive environments, DC becomes the mechanism that connects EL's opportunity orientation with KBV's knowledge advantage, forming the operational pathway through which innovation occurs (Wong, 2021).

Despite their conceptual compatibility, EL, DC, and KBV remain under-integrated in academic-library research. Many studies treat these constructs as separate domains, producing parallel findings that do not explain how leadership cognition, capability renewal, and knowledge flows interact to shape innovation. KBV-based initiatives enhance collaboration and service adaptability (Koloniari et al., 2018; Gunjal, 2023), and leadership studies consistently link vision with knowledge-sharing behaviour (Ashiq et al., 2019; Davis & Macauley, 2011). However, empirical studies rarely trace the full pathway connecting leadership intent to adaptive capability and innovation outcomes. This limitation reflects a broader issue in higher-education scholarship: theoretical frameworks are frequently adapted

from corporate contexts without adequate consideration of governance, cultural mandates, and resource constraints in Malaysian public universities (Wong & Chan, 2018; Aslam, 2020).

Therefore, in summary, existing work can be differentiated into two domains. The first comprises empirical studies that examine specific relationships among EL, DC, and KBV, while the second includes conceptual and contextual analyses that explain how institutional culture, policy pressures, and resource dynamics shape their effectiveness. Synthesizing these findings positions EL as the strategic driver, DC as the enabling mechanism, and KBV as the resulting capability architecture needed for innovation in academic libraries. This triadic structure establishes the rationale for developing an integrated framework that links leadership intent, capability development, and knowledge mobilization as interconnected drivers of innovation in Malaysian academic libraries.

Table 1 synthesizes Tier 1 empirical studies that operationalize EL, DC, and the KBV across higher education and library environments. These studies establish the empirical foundation supporting the integrated EL–DC–KBV model. Tier 2 contributions extend contextual depth by examining how institutional culture, policy structures, and resource dynamics influence leadership–capability–knowledge interactions.

Table 1: Core Empirical Evidence on EL, DC, and KBV in Academic Libraries and Higher Education (2011–2025)

Construct	Author(s) & Year	Context	Key Dimensions	Key Findings
KBV	Sahibzada et al. (2020)	Chinese HEIs	Knowledge creation; utilization	KBV processes mediate leadership–performance links, positioning KBV as the mechanism connecting EL and DC.
	Koloniari et al. (2018)	Academic libraries	Creation; organization; dissemination	KBV strengthens collaborative culture and institutional innovation.
	Hussain & Li (2022)	Higher education	KM processes	Leadership reinforces KBV practices and supports entrepreneurial outcomes.
	Shoid & Kassim (2014)	Malaysian academic libraries	Staff competencies; ICT readiness; shared vision	Competencies, ICT readiness, and shared vision predict KBV performance in Malaysian libraries.
EL	Sa'ari & Goulding (2024)	Malaysian academic libraries	Strategic and systems thinking; opportunity recognition	Entrepreneurial competencies are essential for strategic repositioning in libraries.
	Carpenter (2012)	U.S. libraries	Visionary orientation; proactive behavior	EL drives structural change, partnerships, and innovation capacity.

Construct	Author(s) & Year	Context	Key Dimensions	Key Findings
DC	Renko et al. (2015)	Multi-sector incl. HE	Vision; innovation; risk-taking	Developed and validated the 8-item EL scale widely used in EL studies.
	Jadhav et al. (2023)	Academic libraries	Sensing; seizing; transforming	The DCAL model links dynamic capabilities to service quality and innovation.
	Baba & Abrizah (2018)	Malaysian academic libraries	Sensing; transforming	DC enhances service relevance and strategic positioning.
	Nguyen, Han & Pham (2024)	ICT-SMEs	Leadership–performance mediation	DC mediates the leadership–performance relationship.
	Farzaneh et al. (2023)	Multi-sector	Knowledge-based DC	DC improves innovation performance and reinforces the KBV–DC link.

Figure 1 synthesizes the core relationships established in the preceding literature, positioning EL, DC, and the KBV sequential mechanisms that explain how innovation emerges in academic libraries. This integrated structure consolidates theoretical and empirical insights into a coherent mechanism that explains how Malaysian academic libraries can strengthen capability renewal and knowledge mobilization to support innovation.
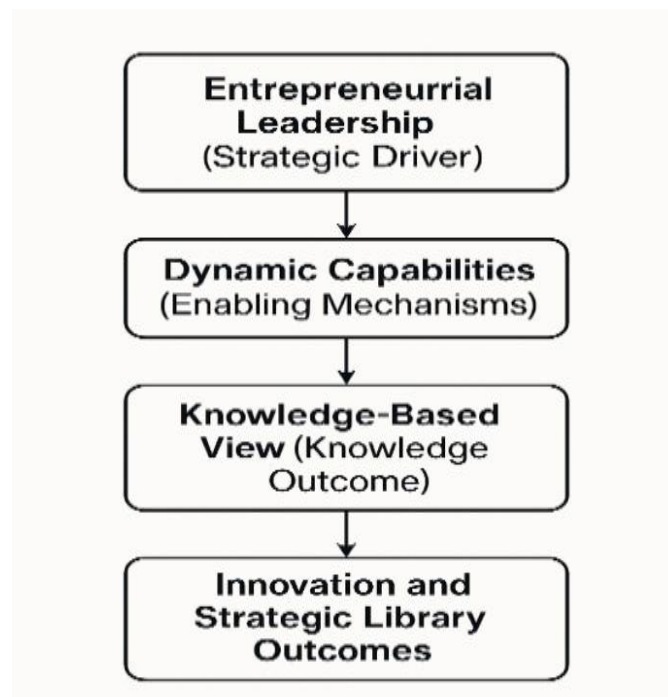

Figure 1: Integrated EL–DC–KBV Sequence Explaining the Leadership, Capability, and Knowledge Mechanisms Underpinning Innovation in Academic Libraries

Methodology

This study applied an integrative bibliometric–conceptual design that combines quantitative mapping with interpretive analysis to construct the EL–DC–KBV framework for academic libraries. Bibliometric mapping was used to identify research fronts, thematic clusters, and structural relationships that clarify how leadership, capability, and knowledge constructs have evolved (Chen et al., 2023; Muñoz-Leiva et al., 2012). Conceptual synthesis then interpreted these patterns through a coherent theoretical frame, enabling the analysis to move beyond descriptive indicators toward explanation and model development in library and information science (Ellegaard & Wallin, 2015).

Recent advances in integrative review methodology emphasise the value of combining quantitative mapping with structured conceptual frameworks such as ADO–TCM and TCCM, which organise antecedents, decisions, outcomes, context, and methods within a single analytical structure (Luthia et al., 2025; Khizar et al., 2024). This integration strengthens transparency, especially when linking behavioural constructs with methodological tendencies and outcome variables (Moresi et al., 2022). In this study, bibliometric patterns guided the identification of EL, DC, and KBV linkages, while interpretive reading consolidated these findings into a unified model for innovation in academic libraries.

The reliance on bibliometric evidence also aligns with current discussions on responsible metrics, where mapping is most meaningful when complemented by contextual judgement (Gustina et al., 2025; Torres-Salinas et al., 2024). Evidence from innovation and design-thinking research demonstrates how such mapping can support problem definition and framework development (Dadashi & Wende, 2024), a logic adopted here to refine the EL–DC–KBV configuration for Malaysian academic libraries.

Data were retrieved from Scopus on 12 August 2025. Scopus was selected for its extensive coverage of peer-reviewed journals and compatibility with bibliometric tools widely used in social sciences and management (Harzing & Alakangas, 2016; Herrera-Franco et al., 2020). The search strategy centred on entrepreneurial leadership in library settings as the anchor for tracing connections with dynamic capabilities and the knowledge-based view. The Boolean string targeted English-language journal articles, conference papers, and reviews from 2020 to 2024. During screening, studies involving DC or KBV were retained when these constructs appeared in conceptual framing or findings. Editorials and non-academic material were excluded. PRISMA principles were adapted to document identification, screening, and inclusion (Page et al., 2021). The final dataset contained 80 documents.

Analysis was conducted using VOSviewer, which generated co-authorship, keyword, and citation networks (van Eck & Waltman, 2010). Temporal patterns were examined to assess publication momentum, collaboration networks were interpreted to identify institutional clusters, and source-level citation structures helped identify influential journals anchoring the discourse. Keyword co-occurrence and overlay maps were then analysed to trace thematic concentrations and emerging intersections relevant to leadership, capability, and knowledge (Muñoz-Leiva et al., 2012). These outputs served as heuristic guides, indicating where EL, DC, and KBV converge and where theoretical gaps persist. Interpretive synthesis subsequently integrated these signals into a coherent EL–DC–KBV structure that links leadership intent, capability renewal, and knowledge-based outcomes as the foundation for innovation-oriented leadership in academic libraries

Findings From Bibliometric Mapping

Publications Trends

Between 2020 and 2024, publication activity on entrepreneurial leadership in library contexts fluctuated but remained substantively continuous. Output peaked in 2020 (20 documents), dipped across 2021–2023 (19, 12, and 9 documents), and returned to 20 documents in 2024 (Table 2). This pattern aligns with global observations of a temporary slowdown during the COVID-19 period, followed by recovery as universities and funders reoriented toward digital transformation and resilience.

Table 1: Annual Publication Output on Entrepreneurial Leadership and Libraries (2020–2024)

Year	Document Count
2020	20
2021	19
2022	12
2023	9
2024	20

For library and information studies, the contraction phase indicates that leadership and innovation agendas were temporarily overshadowed by operational continuity concerns. The rebound in 2024 signals that entrepreneurial leadership has regained prominence as a key lens for understanding how libraries address volatility, digital disruption, and new service models. The persistence of EL-related work before and after the pandemic evidences a transition from trend-based interest to a structurally embedded research focus, creating fertile ground for integrating DC and the KBV in later theoretical development.

Co-authorship Analysis (Authors)

The author network forms a compact cluster of ten fully connected researchers who co-authored a single influential paper in 2020, each with identical citation counts and total link strengths (Table 3; Figure 2). This configuration indicates a tightly coordinated research team that helped establish early conceptual vocabulary for entrepreneurial leadership and innovation in library settings.

Table 3: Citation Impact of Authors in Entrepreneurial Leadership and Library Research (2020–2024)

Author	Documents	Citations	Total Link Strength	Avg. Pub. Year
Agi K.	1	7	1	2020
Amadei B.	1	7	1	2020
Hughes J.	1	7	1	2020
Jordan R.	1	7	1	2020
Koechner D.	1	7	1	2020
Nelson M.	1	7	1	2020
Olson M.	1	7	1	2020

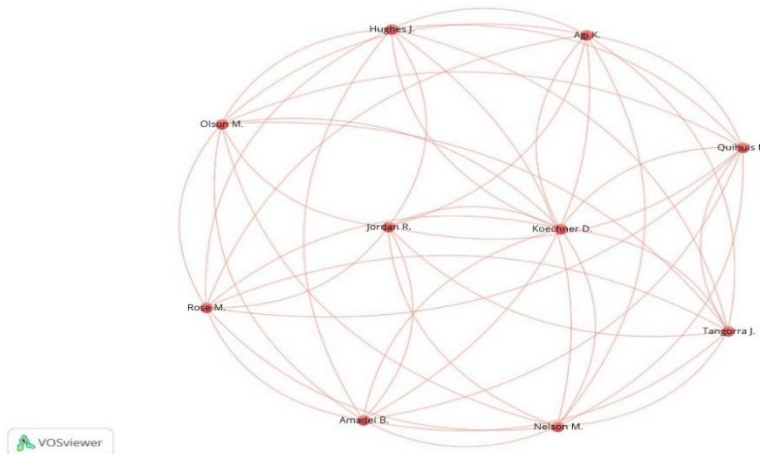| Author	Documents	Citations	Total Link Strength	Avg. Pub. Year
Quihuis M.	1	7	1	2020
Rose M.	1	7	1	2020
Tangorra J.	1	7	1	2020

Figure 2: Author Citation Network Visualization in Entrepreneurial Leadership and Library Research (2020–2024)

The concentration of influence within this small group accelerates consolidation around key constructs such as opportunity recognition, innovation management, and entrepreneurial librarianship. At the same time, the lack of peripheral or regionally diverse authors limits theoretical variation and contextual richness. For future work, expanding authorship beyond this core, especially to Asia and the Global South, would support a broader interpretation of EL, DC, and KBV in library environments that operate under different policy regimes, resource structures, and cultural expectations.

Co-authorship and Collaboration Patterns (Institutions)

At the institutional level, collaboration is highly centralised around the University of New Mexico, which functions as the main hub linking all other organisations in the network (Table 4; Figure 3). Institutions such as Drexel University, the Peace Innovation Lab at Stanford, and Sensorcomm Technologies Inc. are connected to this hub, indicating early cross-sector collaboration that bridges academia, non-profit organisations, and industry.

Table 2: Co-Authorship (Institutions) in Entrepreneurial Leadership and Library Research (2020–2024)

Institution	Country	Collaborating Institutions	Notable Links
University of New Mexico	USA	All are listed in this cluster	Strong central node
Alliance for Peacebuilding, Washington	USA	Multiple	
Peace Innovation Lab, Stanford	USA	Multiple	
University of Colorado, Boulder	USA	Multiple	

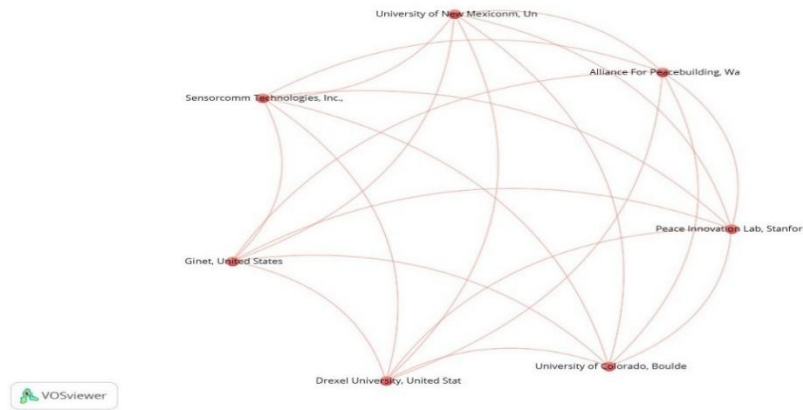| Institution	Country	Collaborating Institutions	Notable Links
Drexel University	USA	Multiple	
Ginet	USA	Multiple	
Sensorcomm Technologies, Inc.	USA	Multiple	

Figure 3: Co-Authorship Network Visualization (Institutions) (2020–2024)

This dense but narrow network structure reflects a cohesive research nucleus that shapes the emerging discourse on entrepreneurial leadership in libraries. However, the absence of participating institutions from Asia, Africa, and Latin America highlights a strong Western bias in the foundational knowledge base. For Malaysian and ASEAN contexts, this gap is strategic: it opens space for regionally grounded studies that connect EL, DC, and KBV to national digital-transformation agendas, public-sector governance, and locally embedded leadership cultures rather than relying only on Western institutional templates.

Source and Citation Network
Source-level analysis indicates that Systems and the Journal of Academic Librarianship are the most influential outlets in this corpus (Table 5; Figure 4). Systems contributes a single but highly cited paper (42 citations), reflecting the traction of work that bridges information-systems thinking with leadership and digital innovation. The Journal of Academic Librarianship anchors much of the discussion by publishing multiple high-impact studies that position libraries as strategic, innovation-intensive institutions rather than purely service units.

Other outlets, such as Journal of Business and Finance Librarianship, Heliyon, Portal, and Public Services Quarterly, play supporting roles, but the majority of citations remain clustered around a small set of journals. This concentration supports depth in the EL library conversation but maintains a relatively narrow theoretical and disciplinary scope. Journals in knowledge management, innovation studies, and higher-education policy appear underused, which confirms that DC and KBV perspectives are still not systematically integrated into EL research in library contexts.

Table 5: Top Cited Sources in Entrepreneurial Leadership & Library Research (2020–2024)

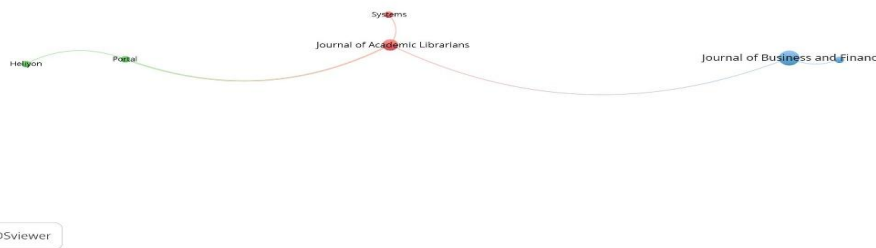| Source	Documents	Citations	Avg. Citations	Avg. Pub. Year
Systems	1	42	42.00	2024
Journal of Academic Librarianship	5	56	18.67	2022.33
Journal of Business and Finance Librarianship	2	18	9.00	2021.80
Heliyon	1	5	5.00	2023
Portal	1	4	4.00	2024
Public Services Quarterly	1	4	4.00	2020

Figure 4: Source Citation Network Visualization of Entrepreneurial Leadership and Library Research (2020–2024

Most Cited Analysis

The most cited publications between 2020 and 2024 revolve around a coherent set of themes that jointly re-position libraries within innovation and entrepreneurial ecosystems (Table 6). Gupta and Rubalcaba (2022) frame university libraries as open-innovation partners that connect academic research to global entrepreneurship, while Gupta et al. (2024) examine how entrepreneurial librarians utilise social networking sites to support startup operations and international collaboration. Both studies reconceptualise librarianship as an entrepreneurial interface that mediates knowledge flows, technology, and external partnerships.

Complementary contributions deepen this repositioning. Otike et al. (2022) apply business entrepreneurial theories, including competing values and disruptive innovation, to academic library strategies. Fink et al. (2020) address digital infrastructure ownership through software libraries in innovation clusters, pointing directly to capability-building and governance issues. Palmer (2022) and Barbakoff (2021) highlight the role of public libraries in resilience, equity, and community readiness, while Tajpour et al. (2020), Moradi and Noori (2020), and Moghaddas et al. (2020) connect libraries and universities to SME ecosystems, intrapreneurship, and regional innovation. All these highly cited works mark a shift from localised service improvement to systemic participation in entrepreneurial and knowledge ecosystems. However, the language of capability and knowledge resources is still implicit

rather than explicitly framed using DC or KBV, reinforcing the argument that the EL–library nexus is conceptually rich but theoretically under-integrated.

Table 6: Most Cited Sources in Entrepreneurial Leadership and Library Research (2020–2024)

Cited by	Authors	Title	Source Info
33	Gupta V., Rubalcaba L.	University libraries as open innovation partners: Harnessing hidden potential to foster global entrepreneurship	Journal of Academic Librarianship (2022), Vol. 48, No. 2
23	Gupta V., Rubalcaba L., Gupta C., Pereira L.	Social networking sites adoption among entrepreneurial librarians for globalizing startup business operations	Library Hi Tech (2024), Vol. 42, No. 3
20	Otike F., Barát Á.H., Kiszl P.	Innovation strategies in academic libraries using business entrepreneurial theories: Analysis of competing values framework and disruptive innovation theory	Journal of Academic Librarianship (2022), Vol. 48, No. 4
21	Fink L., Shao J., Lichtenstein Y., Haefliger S.	The ownership of digital infrastructure: Exploring the deployment of software libraries in a digital innovation cluster	Journal of Information Technology (2020), Vol. 35, No. 3
16	Palmer M.	Study of Future Public Library Trends & Best Practices	Public Library Quarterly (2022), Vol. 41, No. 1
16	Tajpour M., Kawamorita H., Demiryurek K.	Towards the third generation of universities with an entrepreneurial approach	International Journal of Technoentrepreneurship (2020), Vol. 4, No. 2
15	Moghaddas S.Z., Tajafari M., Nowkarizi M.	Organizational empowerment: A vital step toward intrapreneurship	Journal of Librarianship and Information Science (2020), Vol. 52, No. 2
13	Gupta V., Gupta C.	Transforming entrepreneurial research: Leveraging library research services and technology innovations for rapid information discovery	Online Information Review (2024), Vol. 48, No. 3
11	Qian X., Shi H., Ge C., Fan H., Zhao X., Liu Y.	Application research on service innovation and entrepreneurship education in university libraries and archives	International Journal of Computational Science and Engineering (2020), Vol. 22, No. 1
9	Barbakoff A.	Building a Future-Ready Workforce: The Role of Public Libraries in Creating Equitable, Resilient, and Entrepreneurial Communities	Public Library Quarterly (2021), Vol. 40, No. 2

| 9 | Moradi Y., Noori S. | Entrepreneurial cooperation model between university and SMEs: A case study in Iran | Sustainability (Switzerland) (2020), Vol. 12, No. 21 |

Keyword Co-occurrence Analysis

Keyword co-occurrence mapping confirms entrepreneurship as the central anchor of the field, with strong links to innovation, academic libraries, and digital libraries (Table 7; Figure 5). This configuration indicates that entrepreneurial leadership in libraries is primarily articulated through themes of technology-enabled transformation, service re-design, and institutional repositioning. The temporal overlay reveals three broad phases:

- *Early phase (2020–2021)*
  Focus on structural and foundational orientations through terms such as university libraries, entrepreneurial skills, strategy, and digital libraries. The emphasis rests on defining roles and identifying the basic conditions for entrepreneurial behaviour.
- *Middle phase (2022)*
  Attention shifts to performance and service innovation, with keywords such as service innovation, information services, and academic libraries. The inclusion of big data and innovation reflects growing interest in analytics and infrastructure as enablers of entrepreneurial practice.
- *Recent phase (2023–2024)*
  The vocabulary extends toward strategic management and decision-oriented inquiry, with terms such as decision making, systematic literature review, and business owners. Libraries begin to appear more explicitly as actors within start-up and entrepreneurial ecosystems.

Across all phases, explicit references to DC and KBV are absent, even though many topics clearly touch on capability development, knowledge utilisation, and organisational learning. This gap confirms that while entrepreneurship and innovation are thematically mature, the capability and knowledge mechanisms that sustain them remain analytically underspecified, which is exactly the space this paper seeks to address.

Table 7: Top Keywords (≥ 2 Occurrences) in Entrepreneurial Leadership and Library Research (2020–2024)

Keyword	Occurrences	Total Link Strength	Avg. Pub. Year	Avg. Citations
Entrepreneurship	15	20	2021.55	2.75
Innovation	5	6	2022.50	6.33
Academic Libraries	3	3	2022.33	10.00
Digital Libraries	5	6	2021.17	38.17
Service Innovation	2	2	2022.00	12.00
Library Services	2	2	2021.50	3.50
University Libraries	3	3	2020.33	10.00
Entrepreneurial Skills	5	5	2021.00	0.40
Decision Making	2	2	2024.00	7.00

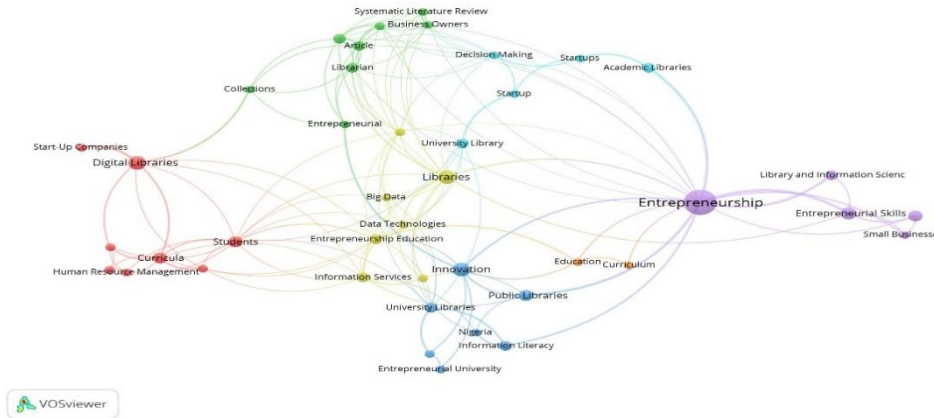| Keyword	Occurrences	Total Link Strength	Avg. Pub. Year	Avg. Citations
Library	2	2	2024.00	8.50

Figure 5: Keyword Co-Occurrence Network Visualization in Entrepreneurial Leadership and Library Research (2020–2024

Thematic–Analytical Synthesis of Leadership Challenges and Strategic Levers

The bibliometric and conceptual analysis was consolidated into a thematic–analytical synthesis that explains how specific leadership constraints shape innovation performance in academic libraries. The patterns reveal persistent barriers that restrict opportunity orientation, weaken capability renewal, and limit knowledge mobilisation. Key issues include administrative cultures that inhibit experimentation, fragmented tacit knowledge that reduces reuse, weak external sensing of emerging needs, procedural bottlenecks that slow decision-making, and ambiguity surrounding roles associated with innovation work. Additional constraints arise from misalignment between policy and institutional implementation, narrow cross-boundary collaboration, metrics that privilege operational usage over innovation outcomes, reliance on Western leadership templates that lack local validation, and short project cycles that prevent the institutionalisation of successful pilots. Mapping these issues to EL, DC, and KBV converts abstract theoretical constructs into practical leadership levers and measurable indicators of change. This synthesis demonstrates that innovation barriers in libraries are rarely isolated technical issues; they stem from how leadership intent is enacted, how capabilities are configured, and how knowledge is captured and reused. The insights form the operational bridge between the bibliometric findings and the construction of an integrated EL–DC–KBV framework tailored to capability building in academic libraries.

Table 8. Integrative Leadership Challenges and Strategic Levers for Innovation in Academic Libraries (Synthesized from Global and Malaysian Evidence)

Challenge	Underlying Mechanism (EL–DC–KBV)	Institutional Expression	Strategic Lever	Progress Indicator
Administrative mindset limiting	EL: weak opportunity	Compliance-driven routines	Short innovation cycles; opportunity scanning	Increased experimentation,

Challenge	Underlying Mechanism (EL–DC–KBV)	Institutional Expression	Strategic Lever	Progress Indicator
entrepreneurial intent	orientation; KBV: low learning routines			idea submissions
Fragmented tacit knowledge and weak reconfiguration	KBV: poor knowledge capture; DC: weak transforming capacity	Knowledge locked in silos	Communities of practice; after-action reviews	Documented and reused knowledge assets
Weak external sensing of trends and user shifts	DC: underdeveloped sensing	Reactive planning	Horizon scanning; user co-design	External signals converted into pilots
Risk aversion and procedural bottlenecks	EL: low risk appetite; DC: slow seizing	Long approvals	Quick-approval sandboxes; risk protocols	Faster approvals; sandbox projects
Ambiguous roles in innovation work	KBV: uneven competencies; DC: limited role adaptation	Ad-hoc responsibilities	Role redesign; innovation training	Staff with innovation roles/training
Policy–practice misalignment	EL: weak policy translation; KBV: limited policy interpretation	Policies referenced but not enacted	Align KPIs with national agendas	KPIs mapped to MyDIGITAL / HEB / 12MP
Limited cross-boundary collaboration	DC: weak partnership seizing; KBV: low knowledge exchange	Few interdisciplinary links	Industry–faculty–library partnerships	Active collaborations; co-created services
Traditional metrics overshadow innovation	KBV: limited evaluation of knowledge effects	Usage prioritised over impact	Innovation dashboards; learning indicators	Innovation metrics embedded in reporting
Overreliance on Western templates	EL/DC: weak contextualisation; KBV: undervalued local expertise	Imported models poorly fit governance norms	Local EL–DC validation; cultural adaptation	Locally validated leadership models
Short project cycles	DC: weak institutionalisation; KBV: weak embedding	Pilots discontinued	Post-pilot institutionalisation; codification	Pilots converted to standard services

This synthesis draws upon recurring leadership–capability–knowledge patterns identified in both the global bibliometric mapping (80 Scopus documents, 2020–2024) and Malaysian contextual studies (e.g., Carpenter 2012; Koloniari et al. 2018; Baba & Abrizah 2018; Sa'ari

& Goulding 2024; Zainal et al. 2023). Detailed citations are presented in the narrative sections of the paper.

Results and Discussion

The synthesis of conceptual and bibliometric evidence indicates that EL, DC, and KBV have developed as distinct domains in library and information science, with empirical studies continuing to treat them separately. Foundational work by Carpenter (2012), Renko et al. (2015), and Koloniari et al. (2018) shaped early thinking on leadership, opportunity recognition, and knowledge organisation. Bibliometric mapping across 2020–2024 confirms that these constructs remain analytically disconnected, limiting understanding of how leadership, capability, and knowledge mechanisms operate together.

Across the global dataset, leadership terms cluster separately from capability and knowledge constructs. This separation confirms patterns already noted in conceptual literature: leadership is often examined as strategic behaviour without specifying the adaptive routines that translate intent into organisational change (Sa'ari & Goulding, 2024), while DC is framed as organisational adaptability without anchoring it to leadership-driven direction setting (Jadhav et al., 2023). KBV appears primarily as an outcome category—knowledge creation, organisation, and utilisation rather than a dynamic process shaped by leadership or capability cycles (Koloniari et al., 2018; Hussain & Li, 2022). The bibliometric networks, therefore, visualise a field where EL, DC, and KBV coexist but seldom interact, resulting in parallel theoretical developments rather than an integrated understanding.

Within Malaysia, bibliometric patterns indicate growing research activity but with themes concentrated on digital transformation, service optimisation, and automation (Baba & Abrizah, 2018). These studies demonstrate technical progress but seldom position leadership as the driver of capability renewal. The lack of integrative EL–DC–KBV research reflects structural conditions in Malaysian academic libraries, where priorities are shaped by policy directives, resource rationalisation, and operational demands rather than entrepreneurial or opportunity-oriented leadership. Bibliometric evidence, therefore, places Malaysia as a contributor to system-level digital innovation while still developing leadership-driven capability models.

These trends indicate a field that is moving toward deeper theoretical consolidation. Scholarship is strong in entrepreneurship, innovation, and knowledge themes, but the pathways connecting these constructs remain underdeveloped. Integrating EL, DC, and KBV clarifies how leadership behaviour triggers capability adaptation and supports knowledge performance. EL sets strategic direction, DC operationalises adaptive routines, and KBV anchors learning and knowledge flows. This alignment positions libraries as adaptive, knowledge-intensive organisations capable of responding to digital and institutional volatility. The integrated interpretation also supports Malaysia's higher-education transformation agenda and national SDG commitments (Zainal et al., 2023; Rahim et al., 2022).

Conclusion

This study advances a unified interpretation of how EL, DC, and KBV collectively support innovation-oriented transformation in Malaysian academic libraries. Bibliometric mapping confirms that the three domains have evolved separately, while conceptual synthesis highlights the absence of mechanisms connecting leadership intent to capability renewal and knowledge outcomes. The EL–DC–KBV model proposed here addresses this gap by positioning EL as the

strategic catalyst, DC as the mediating capability process, and KBV as the knowledge-based performance dimension. The integration is consistent with Malaysia's policy direction under the MyDIGITAL Blueprint, the Higher Education Blueprint, the Twelfth Malaysia Plan, and the Malaysia MADANI agenda, which emphasise knowledge-intensive growth, organisational agility, and innovation readiness. Academic libraries, situated between knowledge creation and institutional governance, are strategically positioned to enact this triad. The study's objectives were achieved by establishing the empirical landscape, diagnosing theoretical fragmentation, and proposing a coherent analytical model that strengthens leadership theory and provides practical relevance for knowledge-intensive public institutions. While this study advances a coherent explanation of how EL, DC, and KBV operate as an interdependent system in academic libraries, several boundaries shape how far the findings can be generalised. The theoretical lens was intentionally focused on the EL–DC–KBV triad to preserve analytical clarity, which means complementary perspectives such as absorptive capacity, organisational learning, and innovation climate were not incorporated even though they could deepen understanding of how leadership interacts with capability renewal. The empirical interpretation is also anchored in Malaysian academic libraries, a context defined by policy-driven governance and public-service mandates, which may differ substantially from corporate knowledge centres or national libraries, where market incentives and competition shape innovation behaviour. Methodologically, reliance on Scopus-indexed bibliometric data privileges English-language and internationally visible research and may underrepresent regional or indigenous scholarship that carries different assumptions about leadership and knowledge work. These considerations point toward several directions for future inquiry, including longitudinal and mixed-method studies that capture how leadership intent translates into dynamic capability cycles, comparative analyses across Malaysian, ASEAN, and international settings to examine how governance and culture influence leadership–capability alignment, and policy-focused studies that evaluate how instruments such as MyDIGITAL, the Innovation Commercialisation Roadmap, and the National AI Roadmap influence leadership behaviour and capability investment. Advancing this agenda also requires developing locally validated instruments for entrepreneurial leadership and capability maturity, broadening bibliometric frontiers to include regional repositories and grey literature, and embedding EL–DC–KBV principles into postgraduate curricula and professional development to cultivate leadership agility and innovation stewardship within Malaysia's evolving knowledge ecosystem.

References
Andolšek, J., Černe, M., & Lamovšek, A. (2025). Mapping the milestones of modern times: Intellectual landscape of political economy through bibliometric analysis. *Journal of Economic Surveys*.

Ashiq, M., Iqbal, S., & Malik, M. I. (2019). Leadership styles and their impact on knowledge management practices in university libraries. *Library Management, 40*(6/7), 401–414.

Asimiran, S., & Ismail, I. A. (2019). Exploring critical success factors in the governance of Malaysian public universities. *International Journal of Innovation, Creativity and Change, 9*(12), 268–282.

Aslam, M. S., Huang, B., & Cui, L. (2020). Review of environmental management practices. *Journal of Environmental Management, 264*, Article 110445.

Baba, Z., & Abrizah, A. (2018). Transformation strategies in community engagement: Selected initiatives by Malaysian libraries. *IFLA Journal, 44*(2), 90–105.

Carpenter, M. T. H. (2012). Cheerleader, opportunity seeker, and master strategist: ARL directors as entrepreneurial leaders. *College and Research Libraries, 73*(1), 11–32.

Chaudhary, S., Dhir, A., Farronato, N., Nicotra, M., & Pironti, M. (2023). Nexus between entrepreneurial orientation and intellectual capital. *Journal of Intellectual Capital, 24*(1), 70–114.

Chen, H., Tsang, Y. P., & Wu, C. H. (2023). When text mining meets science mapping in the bibliometric analysis: A review and future opportunities. *International Journal of Engineering Business Management, 15*.

Dadashi, A., & Wende, G. (2024). Integrating bibliometrics with design thinking to enhance technological innovation. *IEEE ICTMOD*.

Davis, K., & Macauley, P. (2011). Taking library leadership into the future: Innovation, inspiration, and creativity. *Australian Academic & Research Libraries, 42*(4), 264–277.

de Bem, R. M., Coelho, C. C. D. S. R., & Dandolini, G. A. (2016). Knowledge management framework to the university libraries. *Library Management, 37*(4–5), 221–236.

Ellegaard, O., & Wallin, J. A. (2015). The bibliometric analysis of scholarly production: How great is the impact? *Scientometrics, 105*(3), 1809–1831.

Farzaneh, M., Sarwar, Z., & Khan, M. A. (2023). Advances in knowledge-based dynamic capabilities: Multi-sector evidence on innovation performance. *Journal of Innovation & Knowledge, 8*(3), 100234

Fink, L., Shao, J., Lichtenstein, Y., & Haefliger, S. (2020). The ownership of digital infrastructure: Exploring the deployment of software libraries in a digital innovation cluster. *Journal of Information Technology, 35*(3), 251–269.

Gunjal, B. (2023). The role of academic libraries in a pandemic era. In *Information services for a sustainable society: Current developments in an era of information disorder* (pp. 181–194). Berlin: De Gruyter Saur.

Gupta, V., & Gupta, C. (2024). Transforming entrepreneurial research: Leveraging library research services and technology innovations for rapid information discovery. *Online Information Review, 48*(3), 491–499.

Gupta, V., & Rubalcaba, L. (2022). University libraries as open innovation partners: Harnessing hidden potential to foster global entrepreneurship. *The Journal of Academic Librarianship, 48*(2), 102432.

Gupta, V., MacMillan, I. C., & Surie, G. (2004). Entrepreneurial leadership: Developing and measuring a cross-cultural construct. *Journal of Business Venturing, 19*(2), 241–260.

Gupta, V., Rubalcaba, L., Gupta, C., & Pereira, L. F. (2024). Social networking sites adoption among entrepreneurial librarians for globalizing startup business operations. *Library Hi Tech, 42*(3), 947–974.

Gustina, A., Putera, P. B., & Tikhonova, E. V. (2025). Bibliometric analysis as a catalyst for research quality and strategic science policy. *Science Editor and Publisher, 10*(1), 114–136.

Harzing, A.-W., & Alakangas, S. (2016). Google Scholar, Scopus and the Web of Science: A longitudinal and cross-disciplinary comparison. *Scientometrics, 106*(2), 787–804.

Herrera-Franco, G., Montalván-Burbano, N., Carrión-Mero, P., Apolo-Masache, B., & Jaya-Montalvo, M. (2020). Research trends in geotourism: A bibliometric analysis using the Scopus database. *Geosciences, 10*(10), 379.

Hussain, N., & Li, B. (2022). Entrepreneurial leadership and entrepreneurial success: The role of knowledge management processes and knowledge entrepreneurship. *Frontiers in Psychology, 13*, Article 829959.

Jadhav, D., & Shenoy, D. (2022). Building dynamic capabilities of an academic library: A research agenda. *Journal of Academic Librarianship, 48*(4), 102502.

Jadhav, D., Shenoy, D., & Mahanty, B. (2023). Measurement model for dynamic capabilities of an academic library (DCAL). *Library & Information Science Research, 45*(4), 101263.

Jain, P. (2015). *Knowledge management, leadership, and decision making: A case of academic libraries.* University of Botswana.

Kasemsap, K. (2016). Mastering knowledge management in academic libraries. In *Managing knowledge and scholarly assets in academic libraries* (pp. 27–55). Hershey, PA: IGI Global.

Khizar, H. M. U., Khurshid, R., & Al-Waqfi, M. (2024). Unraveling the two decades of knowledge-hiding scholarship: A systematic review, bibliometric analysis, and literature synthesis. *Journal of Innovation and Knowledge, 9*(4).

Kim, J. (2020). Academic library's leadership and stakeholder involvement in research data services. *Proceedings of the Association for Information Science and Technology, 57*(1), e304.

Kim, J. (2021). Determining research data services maturity: The role of library leadership and stakeholder involvement. *Library and Information Science Research, 43*(2), 101092.

Koloniari, M., Vraimaki, E., & Fassoulis, K. (2018). Fostering innovation in academic libraries through knowledge creation. *Journal of Academic Librarianship, 44*(6), 793–804.

Koloniari, M., Vraimaki, E., & Fassoulis, K. (2019). Factors affecting knowledge creation in academic libraries. *Journal of Librarianship and Information Science, 51*(1), 20–33.

Lee, M. N. N. (2018). *Corporatization of a public university: From collegial culture to bureaucratic and corporate culture*. In Higher Education in Asia (pp. 201–220). Springer.

Luthia, M., Bindra, S., & Padhi, A. (2025). Evolution of human resource accounting research: A bibliometric analysis and TCCM framework analysis of three decades (1995–2024). *Global Knowledge, Memory, and Communication*.

Ministry of Higher Education Malaysia. (2021). *Malaysia Education Blueprint 2015–2025 (Higher Education)*. Retrieved from https://www.mohe.gov.my/en/download/publications-journals-and-reports/pppm-2015-2025-pt?own_categories=0

Moghaddas, S. Z., Tajafari, M., & Nowkarizi, M. (2019). Organizational empowerment: A vital step toward intrapreneurship. *Journal of Librarianship and Information Science, 52*(2), 529–540.

Moradi, Y., & Noori, S. (2020). Entrepreneurial cooperation model between university and SMEs: A case study in Iran. *Sustainability, 12*(21), 9140.

Moresi, E. A. D., Pinho, I., & Costa, A. P. (2022). How to operate a literature review through qualitative and quantitative analysis integration? *Lecture Notes in Networks and Systems*.

Muñoz-Leiva, F., Viedma-del-Jesús, M. I., Sánchez-Fernández, J., & López-Herrera, A. G. (2012). An application of co-word analysis and bibliometric maps for detecting the most

highlighting themes in consumer behaviour research. *Quality & Quantity, 46*(4), 1077–1095.

Nguyen, H. T. N., Han, J. W., & Pham, H. C. (2024). Joint effect of entrepreneurship and dynamic capabilities on firm performance: An empirical investigation among ICT-SMEs. *Baltic Journal of Management, 18*(1), 85–102.

Nguyen-Viet, B., & Nguyen, Y. T. H. (2025). Green gamification in marketing: Bibliometric mapping, framework-based systematic review, and future research agenda. *Acta Psychologica, 261*.

Otike, F., Barát, Á. H., & Kiszl, P. (2022). Innovation strategies in academic libraries using business entrepreneurial theories: Analysis of competing values framework and disruptive innovation theory. *The Journal of Academic Librarianship, 48*(4), 102537.

Page, M. J., Moher, D., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., … McKenzie, J. E. (2021). PRISMA 2020 explanation and elaboration: Updated guidance and exemplars for reporting systematic reviews. *BMJ, 372*, n160.

Palmer, M. (2022). Study of future public library trends and best practices. *Public Library Quarterly, 41*(1), 83–107.

Pothier, W. G. (2019). Academic library staffing models in support of the entrepreneurship ecosystem: An examination of case studies. *Advances in Library Administration and Organization, 40*, 167–189.

Qian, X., Shi, H., Ge, C., Fan, H, Zhao, X., & Liu, Y. (2020). Application research on service innovation and entrepreneurship education in university libraries and archives. *International Journal of Computational Science and Engineering, 22*(1), 96–106.

Renko, M., El Tarabishy, A., Carsrud, A. L., & Brännback, M. (2015). Understanding and measuring entrepreneurial leadership style. *Journal of Small Business Management, 53*(1), 54–74.

Sa'ari, H., & Goulding, A. (2024). Unleashing the entrepreneurial competencies of academic librarians: Insights from strategic thinking. In *Studies in Systems, Decision and Control* (Vol. 440, pp. 547–559). Springer.

Shoid, M. S. M., & Kassim, N. A. (2014). Exploring the effect of organizational learning capabilities (OLC) on knowledge performance. *World Applied Sciences Journal, 29*(12), 1544–1549.

Solomon, D. (2015). A different view: An inquiry into visualization of bibliometric data. *ASEE Annual Conference & Exposition*.

Stover, M., Jefferson, C., & Santos, I. (2019). Innovation and creativity: A new facet of the traditional mission for university libraries. *Advances in Library Administration and Organization, 40*, 135–151.

Tariq, R., Wang, Y., & Latif, K. F. (2024). The impact of entrepreneurial leadership on project success: The mediating role of knowledge-oriented dynamic capabilities. *Journal of Enterprise Information Management, 37*(3), 1016–1043.

Teece, D. J. (2018). Managing the university: Why "organized anarchy" is unacceptable in the age of massive open online courses. *Strategic Organization.*

Torres-Salinas, D., Orduña-Malea, E., Delgado-Vázquez, Á., Gorraiz, J., & Arroyo-Machado, W. (2024). Foundations of narrative bibliometrics. *Journal of Informetrics, 18*(3), 101

van Eck, N. J., & Waltman, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics, 84*(2), 523–538

Wong, G. K. W. (2021). Taking leadership development into your own hands: A perspective for academic librarians. *Journal of Academic Librarianship, 47*(6), 102470.

Wong, G. K. W., & Chan, D. L. H. (2018). Adaptive leadership in academic libraries. *Library Management, 39*(1/2), 93–106.

Xiao, L. (2020). Innovative application of knowledge management in organizational restructuring of academic libraries: A case study of Peking University Library. *IFLA Journal, 46*(1), 15–24.

Zainal, H., Amanullah, S. W., Ibrahim, S., & Abdullah, H. (2023). Cultivating open science: A quantitative exploration of leadership practices in Malaysian academic libraries. *Malaysian Journal of Library and Information Science, 28*(2), 53–71.