

Strategic Capability and Portfolio Governance in Higher Education Digital Transformation: A Systematic Literature Review.

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Abstract

Digital Transformation (DT) has become a new strategic necessity of higher educational institutions (HEIs); However, many efforts remain fragmented, poorly correlated, and disproportionate with respect to institutional strategy. Whereas prevailing scholarship discusses the concept of digitalization in the context of education, the integration between the theoretical analysis of strategic capability and the praxis of project portfolio governance remains limited. This study aims to address this gap by conducting a systematic literature review of 16 peer-reviewed articles identified in Scopus and analyzed using a PRISMA-oriented protocol. Thematic synthesis identified five general terms, namely, strategic capability gaps; portfolio-based governance mechanisms; alignment and decision-making challenges; the complexity of external partnerships; and portfolio change outcomes. Empirical research shows that DT in HEIs is often sought out at the project level without coherent portfolio management, resulting in capability fragmentation and limiting value capture. In addition, the ever-increasing dependence on outside partners accentuates the complexity of governance and creates the necessity to structure the orchestration of capability. The conceptual framework of strategic capability and portfolio management developed in this review introduces a model of governance that is highly customized to supervise the administration of digital transformation in multifaceted institutional matrices. In turn, the paper adds to the body of literature on agile management, explaining how the alignment of capabilities and the coordination of portfolios at the strategic level can promote institutional responsiveness, strategic coherence, and long-term sustainability.

Keywords: Digital Transformation, Higher Education, Strategic Capabilities, Project Portfolio Management, Governance Alignment

1 INTRODUCTION

Digital transformation (DT) has become a strategic need on the global level of higher education institutions (HEIs). Technological change, changing student demands, policy pressures, and increased competition are forcing universities to invest more in digital infrastructures, analytics systems, online educational systems, and smart campus projects. As applied in the higher education field, DT goes beyond the pedagogical innovations, including institutional governance, administrative practices, ecosystems of research, and positioning themselves strategically in digitally mediated contexts.

In spite of this strategic focus, there is empirical evidence that, despite the efforts undertaken by the digital transformation initiatives in universities, they often tend to remain fragmented, local, and uneven in their results. Faculty or department-based initiation does not always have a coherent institutional coordination of digital projects, which leads to unnecessary duplication and inadequately coordinated investments, and minimal long-term value generation. Despite numerous universities stating the ambitious nature of their digital strategies, the translation of strategic intent to strategic action is inconsistent, hence creating a long-standing gap between the digital ambition and institutional strength that raises vital questions in relation to how HEIs administer and handle the digital transformation.

Current literature addressing the topic of digital transformation in higher education has been dominated by the technological adoption, innovation in pedagogy, or development of digital competence or the smart university concept. Although these strands contain some excellent lessons, they often view digital initiatives as standalone projects and not part of an overall strategic portfolio. Furthermore, the studies on project and portfolio management have rarely been directly linked to the digital transformation in the context of higher learning, which creates gaps in terms of integrating (1) strategic capability views, (2) portfolio governance systems, and (3) the process of digital transformation in the context of higher education.

This intellectual fragmentation depicts a greater divide of conceptualization: DT in HEIs continues to be viewed through either the technological or pedagogical perspective, though little has been researched on the governance tools at the strategic and portfolio levels that enable institutional change to be sustainable. In particular, the function of Project Portfolio Management (PPM) as a strategic power to help streamline digital projects to the institutional goals has not been methodically economized in the higher educational setting.

This gap has been filled by the current study, which focuses on Scopus-indexed research in a systematic literature review (SLR) that explores the concept of digital transformation,

governance, and portfolio-level coordination in higher education. The aim is to define the common strategic capability gaps that occur in HEIs and measure what portfolio-level mechanisms can do in filling the gaps. The synthesis of evidence on a variety of institutional backgrounds should help the study to reconceptualize PPM as a strategic capability that allows coherent and sustainable digital transformation.

The review is guided by the following research questions:

RQ1: What strategic capability gaps are discovered, highlighted, and outlined in the literature on digital transformation in HE?

RQ1: What strategic capability gaps are identified and emphasized in the literature on digital transformation in HE?

RQ2: What are the existing studies on the issue of portfolio-level governance mechanisms or implications?

RQ3: How might Project Portfolio Management be conceptualised as a strategic digital transformation management capability in higher education?

This research contributes to the literature in three major ways. First, it enhances knowledge of digital transformation in higher education by orienting the debate toward digital initiatives, distinct from strategic capability structures that facilitate long-term institutional change. Secondly, it assembles a fractured academic literature by integrating the understanding of digital transformation, strategic capability theory, and project portfolio management areas that have remained largely independent to each other in the domain of research of higher education. Thirdly, it constructs a unified conceptual framework that re-conceptualises Project Portfolio Management as an active institutional potential of aligning digital projects with strategic intent. Thus, the research goes beyond the descriptive narratives of digital adoption and provides a conceptually-driven discussion on how higher education institutions can legitimately coordinate the convoluted transformation processes in a reasoned and sustained way.

2 CONCEPTUAL BACKGROUND

2.1 DIGITAL TRANSFORMATION IN HIGHER EDUCATION

Digital transformation (DT) goes beyond acquisition of technology and includes a thorough organizational metamorphosis, which involves re-establishing strategic orientation, re-tuning governance frameworks, and transforming the processes of value creation (Vial, 2019; Matt, Hess, and Benlian, 2015). In contrast to incremental digitisation, which involves the automation

of processes, DT requires the systemic reconfiguration of institutional-altering constructions and functions to keep up with pervasive technological disruption.

In the academic environment of higher education institutions (HEIs), digital transformation imposes control on educational processes, research systems, administrative machineries, and systems of stakeholder interactions. However, it is observed that universities operate in complex governance milieus characterised by the mode of decentralised decisions, academic freedom, and hybrid modes of accountability. These structural characteristics often give rise to localized digital projects, which lack institutional integration at adequate levels (Bond et al., 2018). Consequently, digital change in HEIs is more likely to exist in the form of a web of independent projects instead of a strategic enterprise.

The institutional/digital divide that is there further increases the urgency to ask the question of transformation, not only through the perspective of the digital uptake, but also the interdependent nature of the organisational capability and governance that is critical to the question.

2.2 STRATEGIC CAPABILITY AND DYNAMIC CAPABILITY PERSPECTIVES

The strategic capability theory predicts the role of organizational routines, organizational competencies, and organizational governance systems in supporting a sustained performance and adaptive change (Teece, Pisano, and Shuen, 1997). In dynamic, uncertain environments, the firms must develop capabilities of higher orders that help most in not only distributing resources efficiently, but also continually reconfiguring the resources to adapt to the changing environment in a continuous manner.

The dynamic capability perspective also explains this process by means of the sensing of opportunities, the process of capturing opportunities through a coordinated action, and reconfiguring the organizational resources in an iterative manner (Teece, 2007). In any case where digital disruption is the feeling, adaptive capabilities should play a central role in maintaining strategic alignment and retaining competitive position.

In the context of the higher-education sector, however, the development of dynamic strategic capabilities is often hampered by the constraints of the fractured corporate governance structure and lack of inter-unit coordination. In spite of the fact that institutions can invest a lot of resources in digital technologies, the absence of integrative abilities can undermine the results of transformation. These facts suggest that it is institutional abilities that organize and synchronize technological resources that can facilitate successful digital transformation, and not the technologies themselves.

2.3 PROJECT PORTFOLIO MANAGEMENT AND STRATEGIC ALIGNMENT

Project Portfolio Management (PPM) is a systematic approach to the selection, prioritization, and management of projects which are directly oriented towards the strategic goals of an organisation (Cooper, Edgett, and Kleinschmidt, 1999). As compared to single-project management, where the main focus is on operational implementation, PPM can be said to be strategic in nature, in the sense that it aims at striking a balance between risk, resource facility, and value generation across a continuum of initiatives.

Strategic alignment- a system-wide correlation of choices made on the project selection and the larger organisational goals is a core role of PPM (Meskendahl, 2010). Portfolio governance mechanisms help organisations to become more visible, manage interdependencies, and reallocate strategic resources (Killen & Hunt, 2013). This, therefore, means that PPM is a strategic governance ability and not a basic tool of coordination.

Despite its applicability to corporate and non-corporate settings, very little work has been done to incorporate PPM into the digital transformation research in universities. Universities have often managed digital projects in decentralised forms that offer limited portfolio-level supervision. In this regard, the possibility of PPM to become an integrative strategic capability in the sphere of higher education has never been rigorously investigated.

Despite the progressive expectation of strategic renewal and organizational adaptation in the emerging literature on digital transformation, the dominant discourse on the issue is more inclined toward technological adoption and innovation outcomes than towards the governance mechanisms that scheme intricate transformation processes. At the same time, dynamic-capability theory can also provide a robust explanatory framework of the adaptation of organizations to environmental change, but it rarely defines the portfolio-level structures in which sensing, seizing, and reconfiguration are operationalized in the institutional settings, including higher education. Conversely, the project-portfolio-management literature provides systematic tools of strategic alignment and resource prioritization, but it has hardly come into focus explicitly in digital-transformation scholarship in HEIs. Such a fragmentation of theories highlights the need to have a capability-based synthesis to reconcile imperatives of digital transformation in connection to portfolio governance mechanisms. Filling this gap gives the basis for the systematic review below.

3 METHODOLOGY

3.1 SYSTEMATIC LITERATURE REVIEW APPROACH

The proposed research adopts a systematic literature review (SRL) methodology to identify, evaluate, and synthesize empirical and conceptual references related to digital transformation, strategic capability gaps, and portfolio management in the context of higher education institutions (HEIs). The rationale of selecting an SRL can be explained by its ability to support a crystal clear, replicable, and comprehensive analysis and investigation of scholarly research in the intersection of digital transformation and project portfolio management. The research is carried out based on the accepted principles of SRL, such as a purposeful search strategy, definite selection and exclusion parameters along with thematic synthesis, which guarantees the high levels of methodological rigor.

To access the most relevant and methodologically reliable literature, Scopus was selected as the main electronic warehouse due to its wide range of coverage of peer-reviewed journals and conference papers in the fields of management, education, information systems, and the technology domain. The search query was used to search the titles, abstracts, and keywords in Scopus. The process was narrowed down in consecutive rounds and included keywords in relation to digital transformation, as well as higher education and portfolio/project governance. The final search string used in Scopus was:

Table 1: Search String

Database	Search Equation
	("digital transform*" OR "digital strateg*" OR "organizational digitalization")
	AND
	("higher education" OR universit* OR college*)
Scopus	AND
	("project portfolio management" OR "project portfolio" OR "portfolio management" OR "strategic alignment" OR "project alignment" OR "program management")

3.2 PRISMA -STYLE STUDY SELECTION AND SCREENING.

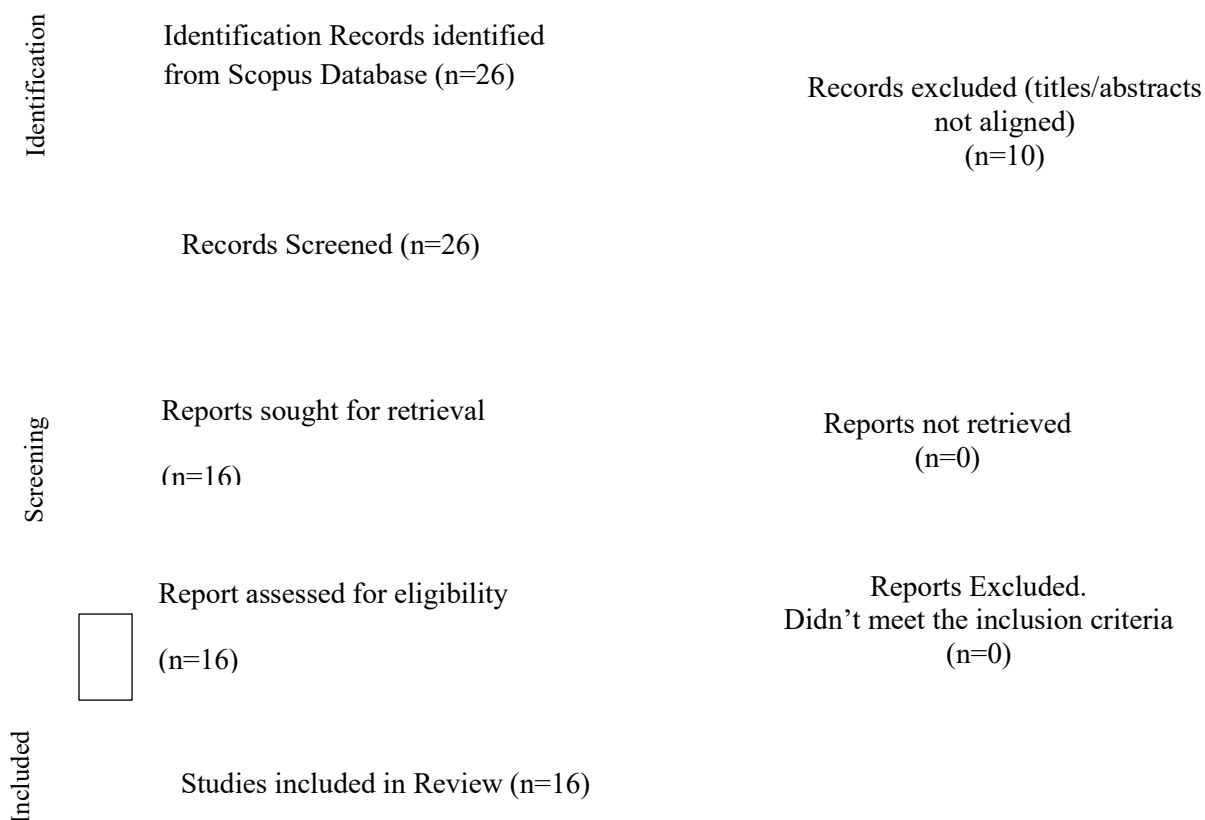
The initial search of the database provided 26 records. Most of the studies of interest are also written within the year 2020-2025, representing the recent pace of digital transformation in higher education, though there was no strict time constraint implemented. The records were imported into a reference-management system, in which copies in the system were

systematically discovered and eliminated. The rest of the studies were then screened through a two-stage screening process:

1. Title and abstract screening so as to eliminate those studies that were obviously out of the scope of the review (such as not involving higher education, digital transformation, or not discussing project and portfolio governance considerations).
2. Full-text screening to ensure that only the remaining studies fulfilled all the pre-specified criteria of inclusion.

The flow diagram (Figure1) illustrates the procedure of selection, indicating the number of records that were found, filtered, rejected, and included in the final review.

Figure 1: PRISMA Flow Diagram of the Study Selection Process



3.3 SAMPLE CHARACTERISTICS AND JUSTIFICATION

The 16 papers comprising the final sample and displayed in Figure 1 can be seen as the exemplification of emergent and vastly specific focusing of research in the field of the nexus of digital transformation, strategic capability, and portfolio governance in higher education. The relative number of studies is also consistent with systematic reviews being conducted with in specific niche and interdisciplinary sectors where strong inclusion requirements are

necessitated so as to maintain conceptual viability. In the given research, specific focus was made on the presence of the governance mechanisms, strategic alignment processes or Portfolio-level coordination which had been explicitly or implicitly discussed. As a result, all studies that did not focus on the implementation of technologies or even the outcomes of their activities were filtered out. This reduces to conceptual dilution although this can be possible by increasing the number of studies to be able to compare the dataset with other databases. Therefore, the chosen sample could be seen and regarded as adequate to conduct a comprehensive, profound, and broad qualitative synthesis to ground theoretical integration on its basis instead of statistical one.

3.4 INCLUSION, EXCLUSION CRITERIA, DATA EXTRACTION, THEMATIC SYNTHESIS.

Throughout the screening procedure, definite inclusion and exclusion criteria were used to attain conceptual relevance and methodological rigor. Primarily, the incorporated studies and research articles were peer-reviewed and indexed in Scopus, in English language, and had the topic of digital transformation in higher education institutions and where aspects of portfolio governance, project portfolio management (PPM), strategic alignment, or institutional capability gaps were addressed, explicitly or implicitly. On the other hand, the articles of scientific research that concentrated on a single technological application, teaching intervention that did not describe the aspect of institutional government, and non-higher education setting were not part of the analysis. A logical data-extraction template was adopted after the last filtering of 16 publications to tabulate the major data points of the study in a systematic form like the publication, aim and objective of the research, theoretical frameworks, research methods, institutional scale of digital transformation, mechanisms of portfolio or governance, perceived gaps of capabilities as well as research outcomes. Thematic synthesis was also applied to the resulting data, through the application of an iterative method of coding, where the initial descriptive codes were constructed by repeating patterns in the data across studies and they were then aggregated to form higher-level themes that described similar patterns in concepts. Using this method of synthesis, five general themes appeared, which were the basis of the finding. Such themes are subsequently outlined in Section 4 and they justify formulation of the integrated conceptual framework.

4 THEMATIC SYNTHESIS OF THE LITERATURE

Table 2: Overview of included studies

Study	Methodology	Context	Conceptual / Analytical Lens	Digital Transformation Focus	Governance / Portfolio Dimension	High-Order Theme(s)
Oliveira et al.	Design Science (case-based)	European HEI	Design Science Research; Data Governance	Data-centric digital ecosystem development	Portfolio-level governance integration (implicit coordination mechanisms)	Theme 1; Theme 3; Theme 5
Sequeira et al.	Systematic Review + Framework Design	Multiple HEIs	Governance & Business Intelligence	Analytics-enabled digital transformation	Strategic alignment through governance frameworks	Theme 1; Theme 3; Theme 5
Jiménez-Hidalgo et al.	Qualitative Case Study	Public HEI	DigCompEdu : Digital Capability Framework	Faculty digital competence transformation	Strategic capability development mechanisms	Theme 1; Theme 3
Sun et al.	Mixed Methods	Chinese Universities	Strategic HRM Framework	Digital HR integration	Governance structures enabling capability orchestration	Theme 1; Theme 3
AI Adoption Framework Study	Conceptual Framework	Multi-HEI context	Enterprise Architecture	AI integration strategy	Implicit portfolio prioritization logic	Theme 1; Theme 2; Theme 3

Study	Methodology	Context	Conceptual / Analytical Lens	Digital Transformation Focus	Governance / Portfolio Dimension	High-Order Theme(s)
Digital Governance Maturity Study	Quantitative Survey	Public HEIs	Governance Maturity Models	Institutional digital maturity	Governance capability gaps	Theme 1; Theme 5
Enterprise Architecture in HE	Case Study	European HE	Enterprise Architecture	IT modernization & system integration	Portfolio coordination across digital initiatives	Theme 2; Theme 3
Digital Strategy Implementation Study	Survey	National HE system	Strategic Alignment Theory	Strategy-execution alignment	Decision-making fragmentation	Theme 3
OPM Engagement Study	Qualitative Interviews	International HE	Outsourced Program Management (OPM)	Externalized digital delivery models	Vendor dependence & governance complexity	Theme 4
Public-Private DT Partnerships Study	Case Analysis	National HE Reform	Institutional Governance Theory	Sector-wide digital ecosystems	Multi-level governance complexity	Theme 4
Digital Capability Orchestration Study	Mixed Methods	University Consortium	Dynamic Capability Perspective	Capability integration	Resource allocation & strategic coordination	Theme 1; Theme 3
Portfolio Performance Monitoring Study	Quantitative	Public HE Sector	Portfolio Management Theory	Digital project evaluation	Portfolio performance measurement	Theme 2; Theme 5

Study	Methodology	Context	Conceptual / Analytical Lens	Digital Transformation Focus	Governance / Portfolio Dimension	High-Order Theme(s)
Digital Transformation Roadmapping Study	Case Study	Private HEI	Strategic Planning Framework	Digital roadmap development	Portfolio sequencing and prioritization	Theme 2
Institutional Agility Study	Survey	Research University	Organizational Agility Theory	Digital responsiveness	Strategic governance flexibility	Theme 5
Governance Integration Challenges Study	Case Study	Multi-campus HE	Institutional Theory	Platform adoption	Cross-unit governance misalignment	Theme 3
Longitudinal Digital Maturity Study	Longitudinal Analysis	Public University	Digital Maturity Models	Sustainable DT capability building	Value realization & long-term portfolio governance	Theme 5

A detailed overview of the sixteen studies comprising the systematic review of the research is provided above. The table presents methodological strategies, contextual milieus, conceptual foundations, areas of interest in digital transformation, governance and portfolio areas, and thematic clusters. The presented systematic synopsis forms an empirical basis of the thematic synthesis outlined in Sections 4.1-4.5 and ensures the transparency of the correlation between individual studies and the determined high-order themes.

4.1 STRATEGIC CAPABILITY GAPS IN HIGHER EDUCATION DIGITAL TRANSFORMATION

In the literature reviewed, the gaps in strategic capability become the most structural and regular impediment to the effective digital transformation in higher education institutions (HEIs). Instead of technological shortages per se, the studies regularly focus on institutional

shortcomings in governance, skills, coordination, and strategic decision-making as the main reasons as to why transformation fails.

One of the recurring gaps between institutional strategy and digital initiatives is identified across numerous studies. Some of the authors observe that the implementation of digital transformation initiatives in HEIs often remains a single project, e.g., the development of learning analytics, business intelligence systems, or the expansion of online programs, which is not integrated into a broader strategic capability framework (Hashim et al., 2022; Oliveira et al., 2025; Sequeira et al., 2025). This disaggregation makes the institution less able to convert digital investments into long-term strategic value, which supports what can be defined as a strategy-implementation capability gap.

The other notable gap in capabilities relates to governance and the maturity of decision-making processes. Also, in the academic literature of data-centric ecosystems and institutional-level analytics-driven change, there is recurrent evidence that formal systems of prioritisation, monitoring, and appraisal of digital initiatives at the institutional level are not uniformly present in higher education institutions (HEIs) (Oliveira et al., 2025; Sequeira et al., 2025). Lack of well-integrated governance arrangements will result in decision-making processes that are limited to a response instead of a decisive effort that can ensure digital transformation efforts are coherent over time. This leadership gap is also supported by the lack of executive intervention and a lack of accountability systems, especially in major state universities.

The gaps in human and organisational capabilities have also been cited as major barriers in the literature. Some of the studies highlight a lack of digital literacy, change-management skills, and institute readiness in academic and administrative personnel (Jiménez-Hidalgo et al., 2025; Sun et al., 2025). The lack of formal capacity-building systems leads to disparate application of digital practices, which makes the change in the organisation problematic. Therefore, the digital transformation in HEIs is experienced as a burden of competency building as well as a burden of technology implementation.

Moreover, the capabilities, which are at the portfolio level, are significantly underdeveloped in the context of higher education. Although others directly refer to project portfolio management (PPM) or hybrid portfolios (Pérez et al., 2021; Mitrofanova et al., 2021), most of them portray a latent lack of systematic thoughtfulness of portfolios, focusing on disjointed project implementation that lacks any strategic focus. This represents a significant knowledge gap, since HEIs are not in a good position to compromise competing digital projects, effectively allocate resources, and determine cumulative institutional influence.

Lastly, the analyzed literature shows the capability gaps in the management of external partnerships as a part of the digital transformation strategies. Research on Online Program Management (OPM) relationships indicates that there are tensions in the area concerning governance, quality assurance, and strategic alignment, which indicate that the HEIs do not have the capacity necessary to incorporate external digital initiatives in their institutional portfolios (Fernandez-Concha et al., 2025; Wijeratne and Ogilvie, 2024). Such gaps that are connected with partnership also contribute to the further fragmentation and loss of institutional control over the trajectories of digital transformation.

Combined, the synthesis means that all digital transformation in education challenges are inherently based on the ability to lack strategic capabilities, and not technological failures. But there is not quite a unanimity in the conceptualization and treatment of these lacunae in the literature. Although some authors support a centralized system of governance and systematic strategic coordination, others implicitly embody a process of uncoordinated management practices and institution fragmentation that implies the open confrontation between the institutional and strategic fusion. Besides, the domination of qualitative case studies and contextually-oriented analyses makes it difficult to generalize and restricts the formation of standardized frameworks of capabilities. Although many studies mention the concept of strategic alignment and governance, a small number of studies operationalize the two concepts using known portfolio management and ability-based frameworks, meaning that the relationship between theory and practice is unclear in terms of its provision in the context of higher education. Therefore, in the absence of premeditated and formalized systems to develop governance, coordination and portfolio-wide capacity, HEIs are limited in their possibilities to translate digital efforts into institutional transformation which is sustainable. This observation presents a critical basis on which the role of project portfolio management as a strategic capacity-building mechanism is discussed in the next theme.

4.2 PROJECT PORTFOLIO MANAGEMENT AS A STRATEGIC GOVERNANCE MECHANISM IN HIGHER EDUCATION DIGITAL TRANSFORMATION

The reviewed literature suggests that project portfolio management (PPM); explicitly or implicitly, is becoming a key strategic governance tool in dealing with the disjointedness of digital transformation projects of institutional higher education (HEI) initiatives. Unlike conventional project management, which considers delivering single initiatives, packaged as a system to meet the strategic needs of institutions, PPM allows aggregation of multiple digital initiatives into a system.

A number of studies directly focus on highlighting the importance of PPM to enhancing strategic alignment and governance within HE settings. A governance-based model of strategic IT projects portfolio management at public universities by Perez et al. (2021) shows how the use of portfolio decision-making on a larger scale increases the level of involvement of senior leadership and the ability to identify strategic projects of importance. Likewise, similar to Mitrofanova et al. (2021), the university is described as a portfolio of interdependent transformation projects, whereby hybrid portfolio management strategies boost the institutional control over time, cost, quality, and risk in digital transformation processes. These articles include both direct experimental and theoretical support that PPM is a process of building a capability, but not an administrative instrument.

Along with explicitly defined PPM frameworks, the reviewed literature remains largely based on implicit portfolio logic underlying digital transformation governance frameworks. The importance of having institution-wide coordination, prioritization, and monitoring of digital initiatives, although the PPM terminology is not utilized in the studies, can be deemed as focusing on data-centric ecosystems, business intelligence systems, and AI-enabled governance models (Oliveira et al., 2025; Sequeira et al., 2025). Such types of governance are portfolio-type functions due to their encouragement of mutual deliberation of initiatives, resource distribution and organizational cohesion within institutes. This means that the PPM principles are further operationalized in the names such as digital governance, innovation programs, or strategic analytics ecosystem in HEIs.

The example of the program-level governance models would also indicate that portfolio thinking can be applicable in the case of HE digital transformation, too. Whitemore (2025) presents the DIVO programme as an illustration of a lean and agile digital innovation projects coordination in a university, which is in fact a coordination layer between strategy and implementation. These program endeavors through regulating experimentation, scaling and learning of institutions amongst numerous other initiatives is responsive to the coordination void in Theme 1, and serves to cement the strategic significance of the portfolio-oriented governance.

Adoption of PPM in HEIs has weaknesses but the lack of literature in this respect is also noted in the literature. Although an agreement on the concept of portfolios is recognized, the existing systems do not implement any formal structures, professional portfolio offices, or consistent assessment criteria to aid in consistent decision-making (Hashim et al., 2022; Azizova and Hakimova, 2023). Lopsided governance systems result from this incomplete, or partial

incorporation, where distinct project execution coexist alongside portfolio system. Consequently, the opportunities of PPM to systematically fill the gaps in strategic capabilities are not sufficiently utilized.

Besides, a few studies emphasize human as well as organizational aspects of PPM capability. According to Azizova and Hakimova (2023), there is a great discrepancy and a lack of the required competencies to be effective in managing project and program portfolios, in spite of the curricula of higher education. This skills deficiency limits the capacity of the HEIs to institutionalize the portfolio practices and solidifies reliance on ad hoc governance structures. The results indicate that even PPM is a strategic capability that cannot be assumed but has to be developed intentionally.

Combined, the synthesis implies that portfolio project management (PPM) falls between the institutional strategy and the digital transformation side effects. However in the literature, the introduction of it in higher education has been presented in a biased and quite conflicting image. Although studies have indicated that formalized portfolio structures and centralized governance, others are able to capture the persistence of informal, decentralized coordination structures suggesting that there is a conflict between formalized portfolio management and institutional reflexivity. Moreover, much of the available evidence has also been discovered to be founded on conceptual models or single-case studies that limit empirical confirmation of efficiency of PPM in a different type of higher education. Despite the fact that the strategic significance of PPM has gained a better recognition, the lack of operational model and quantifiable measures to predict the maturity and impact of the portfolio is an inadequate bridge between theory and practice. Thus, being a capability-forming mechanism, though the concept of PPM has a large potential, its role in the digital transformation of the field of higher education would not be sufficiently theorized and involved within an institution. This constitutes a crucial ground through analysis of alignment and decision-making concerns that patients continue to be constrained in regards to attaining the effectiveness of portfolios as suggested in the next theme.

4.3 STRATEGIC ALIGNMENT AND DECISION-MAKING CHALLENGES IN PORTFOLIO-DRIVEN DIGITAL TRANSFORMATION

Even though project portfolio management (PPM) has become a common practice in the higher education (HEI) context and the topic of the portfolio-based system of governance, the literature in question still demonstrates several unresolved problems concerning the area of strategic alignment and decision-making that impede the success of the digital transformation initiatives.

These impediments have not been limited to the operational problems, but also to concrete institutional disputes between academic governing bodies, managerial decision-making processes, and the strategic pressures of the digital difference.

Lack of integration between institutional strategy and decision making at project level is one of the frequent issues that are recurrent in the literature. Other scholars see that the nature of the digital projects in HEIs is also justified and often driven by short-term nature of operation or technology needs rather than long-term strategic results (Pérez et al., 2021; Hashim et al., 2022). Therefore, the portfolio decisions would become feasible and short-term rather than strategic, which would justify the self-isolation of digital programs outlined in Theme 1. This theoretical drift gets in the way of portfolios serving as strategic capabilities development machines.

There is also a lot of complexity in decision-making in the environment of multi-stakeholder governance, as noted in the literature. HEIs are collegial and decentralized systems where the power is shared across the academic units, administrative departments, and external partners. The literature that examines the analytics ecosystem and digital governance models tends to stress that those decisions that are made at the portfolio level are often negotiated instead of being centrally planned and, therefore, compromising strategic coherence (Oliveira et al., 2025; Sequeira et al., 2025). Although participatory governance is a characteristic attribute of higher learning, it makes it difficult to prioritize, allocate resources, and assess performance at the portfolio level.

The next important issue can be related to the need to have no standardized criteria and metrics to estimate the portfolio. A number of studies also suggest that HEIs do not have an official system to determine the strategic value, risk, and interdependencies of digital initiatives as a whole (Mitrofanova et al., 2021; Whittimore, 2025). Without common evaluation systems, decision-making will be informal, relying upon personal leader preference or external coercions, and will fail to institutionalize the portfolio practices. This constraint strengthens short-termism and is a burden on inter-project learning.

Organizational culture and professional identity tensions are additional issues that are raised when making decisions. Research studies on the development of digital competence and change in strategic direction emphasize the resistance of academic personnel to systems of managerial control, which are experienced as an involvement in academic autonomy (Jiménez-Hidalgo et al., 2025; Sun et al., 2025). These cultural forces limit the usage of the portfolio governance models that involve transparency, performance measurement, and prioritization among the academic spheres. As such, alignment initiatives usually are symbolic, but not transformative.

It is also noted that capacity limitations at the top management level are a concern that has been discussed in the literature. Scholarly portfolio-based decision-making requires leaders who are not only digitally literate but also have strategic and portfolio management skills. Nevertheless, according to some studies, the distribution of such competencies in HEIs is unequal, and leaders cannot analyze portfolio information and make evidence-based strategic decisions (Azizova and Hakimova, 2023; Hashim et al., 2022). This is a gap in leadership competence that contributes to misalignment and deteriorates the feedback between performance and strategic realignment in the portfolio.

Taken together, these findings are indicating that alignment and decision-making issues are an essential bottleneck of the conversion of portfolio governance mechanisms into a successful digital transformation delivery. Nevertheless, the literature provides a very fragmented and at times contradictory view of the way of how alignment must be attained in the situation of higher education. When some give greater weight to centralized strategic control and formal evaluation processes, others show the degree of persistence of mostly negotiation processes, decision-making in a decentralized form is being revealed as an inherent tension exists between managerial rationality and academic governance traditions. Moreover, even the current research is based on the qualitative and context-dependent case studies, which do not allow generalizing the results and developing the standardized models of decision-making processes in various institutions. Although alignment has been widely discussed as one of the key success factors, limited literature is presented to provide specific operational frameworks or quantifiable measures to evaluate the effectiveness of alignment in a portfolio setting. This suggests a big theoretical disparity between the theoretical relevance of alignment and its in application in HEIs. As a result, although PPM offers a structural resource to enhance better decision-making, PPM depends on the merging of institutional, as well as cultural, and methodological dilemmas, which are not finalized. This synthesis brings out the importance of researching into how outside alliances and governance systems complicate alignment processes in HE digital change, which is discussed in the next theme.

4.4 EXTERNAL PARTNERSHIPS AND GOVERNANCE COMPLEXITY IN HIGHER EDUCATION DIGITAL TRANSFORMATION

As indicated in the reviewed literature, the digital transformation in higher education institutions (HEIs) is progressively being initiated through external collaboration, especially with the Online Program Management (OPM) providers, vendors of technology, and analytics/platform service companies. Although these kinds of partnerships provide entry to

technical skills, scale, and access to funds, they also create an additional level of governance intricacy that intensifies current strategic ability and coordination issues.

A number of studies state that the external partnerships essentially change the nature of governance in the digital transformation due to two strategic logics that are academic and commercial, and need to be harmonized in the institutional decision process. In their text-mining interpretation of the OPM mission statement, combined in a large-scale analysis (Fernandez-Concha et al., 2025), they report that numerous external providers set their strategic priorities differently; they focus on the development, productivity, and market growth, leaving governance and quality assurance implementation underdeveloped. This deviation generates a strategic opaqueness, whereby the HEIs struggle to determine correspondence between institutional goals and partner-led digital programs.

Similar research also proves that HEIs are often not able to align external initiatives to their internal governance and portfolio constructions. Wijeratne and Ogilvie (2024) demonstrate that the incompatibility of the strategy of working between HEIs and OPM providers can lead to tensions, erosion in the functioning, lack of responsibility, and academic quality conflicts. The former hurdles are not just contractual questions but structural, which can be attributed to the lack of portfolio-wide mechanisms of organizing internal and external digital activities as a single strategic agenda.

Asymmetric power relations and information dependencies contribute to the complexity of governance that external relations bring to the company. According to Graham and Levine (2024), although OPM providers may help to speed up the digital transformation of the institution, the HEIs lose internal capability building by being too dependent on external expertise. This perceived dependency obstructs institutional learning and impairs the strategic flexibility needed to reorganize portfolios because of shifting priorities. Consequently, the external collaboration, on the one hand, can, without intending it, reinforce the very gap in capacities on which digital transformation is meant to operate.

From a portfolio management viewpoint, literature indicates that rarely are external partnerships dealt with as part and parcel of the institutional project portfolio. As an alternative, they are frequently controlled based on individual contracts or unit-level contracts, which are not linked to larger portfolio assessment and prioritization procedures (Salama & Hinton, 2023). This fragmentation at the portfolio level is facilitated by this separation of institutional visibility regarding cumulative risk, cost, and strategy effects. Lack of portfolio-wide management also

limits the leadership capacity to balance home-based projects resourced with ones being purchased externally.

Incorporately, a number of studies indicate that the governance issue related to external partnerships is not necessarily harmful; it is a sign of the lack of development of strategic and portfolio competencies within the HEI. Partnerships have the potential to improve institutional agility and the capacity to be innovative once the institutions set clear governance structures, criteria of alignment, and performance measurements (Fernández-Concha et al., 2025; Salama and Hinton, 2023). The examined literature, however, indicates that these conditions are rather an exception than a rule.

In general, this thematic synthesis suggests that other collaborations tend to amplify the preexisting issues on governance and alignment in higher education digital transformation, where there are no portfolio-based governance structures. But the literature gives a more subtle and in some cases conflicting picture of such partnerships. Whereas others stress that they may help to improve institutional agility and the capacity to be innovative, others note risks associated with dependence, loss of control, and strategy misalignment, and show a tension between facilitation of externality and a reduction in internal capabilities. In addition, a significant portion of the available literature relies on qualitative case studies or interpretation, which do not allow obtaining a consistent comparison between the partnership models and an evaluation of their long-term effectiveness in various institutional settings. Although more efforts have been put on governance issues there is a lack of studies that conceptualize external collaboration as part of formal portfolio management which represents a gap in the literature when it comes to comprehending how internally and externally stimulated initiatives could be consolidated to a single strategic portfolio. Therefore, although external partnerships are key to modern-day digital transformation initiatives, their rule making is underdeveloped and irregularly theorizing in the literature. Such results clarify the significance of the analysis of the results related to portfolio-based digital transformation, which is considered in the next theme.

4.5 OUTCOMES OF PORTFOLIO-ORIENTED DIGITAL TRANSFORMATION IN HIGHER EDUCATION

Reviewed literature suggests that digitalization of higher education institutions (HEI) projects regulated through the prism of a portfolio approach will have a higher chance to produce long-term strategic and organizational returns. As opposed to individual digital initiatives, priority and value succession, allowing an institution to cease seeking a one-time technological payoff, to advance to developing long-term capability generation.

Improved strategic alignment is one of the most commonly reported consequences of the portfolio-based model of governance. The existing research on strategic IT portfolios and hybrid portfolio models highlights that portfolio visibility enhances the exposure of digital initiatives and boosts their alignment with the institutional goals (Pérez et al., 2021; Mitrofanova et al., 2021). Portfolio mechanisms help senior management to make well-informed prioritization decisions and minimize the likelihood of resource and dilution of effort between competing projects, since these mechanisms make senior managers consider the costs and benefits of projects collectively as opposed to individually.

Other core results of digital transformation technology using the portfolio include quality decision-making and organizational learning that the literature also points to. Data-oriented governance models and analytics ecosystems deliver concerted information about performance, risk, and interdependencies to the decision-maker so that they can make evidence-based strategic decisions (Oliveira et al., 2025; Sequeira et al., 2025). Such systems improve the learning of institutions by establishing feedback systems through which the HEIs can modify portfolios to meet the needs of the arising challenges and opportunities, and hence, amplify their adaptive capacity.

Another important finding revealed in several studies is institutional agility and innovation capability. Examples of structured portfolio governance include program-based and agile portfolio models, such as the example of the DIVO programme, where it is possible to have coexisting value chain integration, strategic control, and experimentation (Whittemore, 2025). The balance of quick technological development projects and more foreseeable operation projects helps the institutions of higher learning to address the new technological trend and maintain the institution's stability at the same time.

The portfolio-based digital transformation is equally linked with increased transparency and accountability. Some studies have found that governance structures that include portfolio management enhance the level of reporting transparency, clarity of roles and responsibilities, and the accountability mechanisms of the institutional units (Pérez et al., 2021; Oliveira et al., 2025). These conclusions are especially relevant in the context of public higher education institutions, where the legitimacy of the institution is primarily dependent on transparency and proper management of the resources.

However, it has been observed in the literature that optimum performance depends on the maturity of portfolio governance capabilities. The digital transformation is expected to bring benefits that are moderated in the setting with weak, informal, and symbolic portfolio

mechanisms at work (Hashim et al., 2022; Azizova and Hakimova, 2023). Such a situation might result in digital efforts that will be isolated, making the entire transformation initiative hard to assess. This observation supports the previous statement that portfolio governance is a strategic capacity that should be developed.

In general, the synthesis holds that, in the case of portfolio-driven digital transformation, the HEIs are in a position to turn digital efforts into strategic resources, which promotes alignment, agility, and institutional learning. The evidence in the literature, however, gives relatively poor and at times optimistic picture of these results. Even as various studies have recorded positive effects that are accredited to portfolio governance, there are other studies that have documented that such effects are extremely relative to the contextual conditions such as institutional size, governance maturity, leadership capacity and others; hence show the variability of impacts that have been recorded in various higher learning institutions. In addition, the extensive evidence is based on the qualitative case studies and conceptual models, which limits the possibility to test the long-term effect of portfolio-oriented approaches on the performance of institutions empirically. Although extensive literature has been found to recognize the importance of portfolio governance, limited research has been conducted to offer standardized measures or longitudinal analysis to ascertain the success of portfolio governance, which creates a discrepancy between the results of benefits reported and those that are documented and evaluated in a well-organized manner. This means that even though portfolio-based digital transformation has a tremendous potential, its results are not well-achieved and theorized in literature. The former realizations lead to the discussion part, where the implications of the findings is depicted into a conceptual framework of addressing strategic capability gaps by PPM.

5 DISCUSSION

This part of the discussion further elaborates the discoveries of the systematic literature review through synthesizing the five derived themes, analyzing the research questions, and the general literature on digital transformation, strategic capabilities, and project portfolio management (PPM) in the institution of higher education sector. Although the review of Section 4 presented an organized thematic synthesis of the reviewed studies, the current section goes beyond description towards theoretical interpretation and incorporation. The discussion interprets and examines how the above themes explain the existence of strategic capability gaps in higher education institutions (HEIs), what part PPM played in eliminating such gaps, and under what circumstances the initiatives of digital transformation trigger a value chain of strategic value

creation. Incorporating empirical evidence provided in the literature under review and connected with the accepted theoretical approaches, this section explains the value of the review and preconditions the offered conceptual framework.

5.1 FROM FRAGMENTED DIGITAL INITIATIVES TO STRATEGIC CAPABILITY DEVELOPMENT

The results of the conducted systematic review show that digital transformation of higher education institutions (HEIs) is often presented with fragmented effort but not with strategy-based change. In the literature discussed, digital technologies are usually brought on a case-by-case basis as a discrete project, i.e., business intelligence systems, learning analytics, or initiatives around online programs, not as part of a coordinated institutional change approach (Oliveira et al., 2025; Sequeira et al., 2025). This disintegration curtails the strategic value of the digital investments in the long-term and their contribution to building organizational capabilities.

Some reports underline that the lack of institution-wide governing and alignment mechanisms is the major cause of this disintegration. Using the case of Oliveira et al. (2025), explain that the absence of a data-centric governance ecosystem will still result in reactive and siloed decision-making even in the cases of deployment of advanced analytics tools. On the same note, as demonstrated by Sequeira et al. (2025), broken information systems and poor strategic integration negatively affect the potential of business intelligence ecosystems in supporting institutional change. These results indicate that digital transformation in the HEIs cannot be perceived as a technological issue but as a strategic and organizational issue instead.

The literature also suggests that evidence of capability gaps, especially in strategic alignment, governance, and human capital, exists in diverse settings of higher education. The literature devoted to human resource management and the development of professional competences underlines the role of a lack of digital and managerial skills in blocking the process of transformation (Sun et al., 2025; Jiménez-Hidalgo et al., 2025). An example given by Jiménez-Hidalgo et al. (2025) is the failure of fragmented professional development programs to generate a sustainable digital teaching competence without institutionalizing them in an institutional strategy that is backed by leadership and an aligned system of governance.

Notably, a number of studies indirectly or directly indicate towards portfolio-level coordination as the solution to these problems. Evidence on strategic IT alignment and intelligent university development reveals that the association of the digital initiatives within an integrated portfolio, not isolated projects, enables the HEIs to coordinate resources, focus on the initiatives, and

establish long-term capabilities (Pérez et al., 2021; Mitrofanova et al., 2021). These researchers offer empirical evidence to consider project portfolio management (PPM) as an operating tool, but as a strategic ability that is facilitating a digital change at scale.

All in all, the analyzed literature indicates that the main problem of HEIs is not the move towards digital technologies, but the research says that no mechanisms exist that can convert digital initiatives into enduring organizational competencies. This overview underscores the fact that there is a need to move towards portfolio-based strategic management instead of project-driven digitalization, which preconditions the discussion of PPM as an instrument of essential digitalization in higher education.

Nevertheless, the literature is sparse in the field of explaining how institutions can make a successful shift between disjointed digital efforts and integrated capability-building efforts. Although research which identifies fragmentation as a fundamental issue is very high, less research focuses on practical ways of reorganizing governance and decision-making on a portfolio level. Besides, there is a lack of explicitness in the literature that the cultural and institutional dynamics of higher education were sufficiently taken into consideration to ensure that the alignment and coordination can be granted by governance mechanisms improvement alone. This is a sign of an acute lack of alignment between identifying that the problem of fragmentation is systemic and designing solutions on a scale that is scalable and context-mapped. By this, the shift between the process of project-based digitalization towards strategic capability development is under-theorized, especially regarding the manner in which the mechanisms of portfolios can be institutionalized within the intricate academic context.

5.2 PROJECT PORTFOLIO MANAGEMENT AS A STRATEGIC CAPABILITY IN HIGHER EDUCATION DIGITAL TRANSFORMATION

Although a lot of the literature regarding digital transformation in higher education is focused on technologies, platforms, and solitary innovational projects, the aggregation of the readings has shown that the key distinction between disjointed change in digital and the long-term institutional transformation is strategic ability at portfolio levels. Project Portfolio Management (PPM), whether explicitly described or otherwise implemented, is evident in the literature that is surveyed as not a functional coordination process but as a strategic resource that has allowed universities to align their digital pursuits with institutional goals, precious resources, and adapt to changes in digital pressure.

Numerous studies are used to demonstrate how higher education institutions usually handle digital projects or programs as discrete ones that result in duplication, misalignment, and

unequal releases of value. Indeed, as shown by Perez et al. (2021), in the absence of portfolio-level governance, IT and digital projects in a public university have a higher likelihood of being viewed as technical projects instead of strategic projects, and the engagement of senior leadership and strategy-level impact is low. Likewise, Mitchell et al. (2021) demonstrate that digital transformation into intelligent universities demands consideration of the institution as a collection of transformation projects, which have dependencies, and are interconnected in a way to use of hybrid portfolio management schemes, and not the stand-alone control of projects. In terms of capabilities, the results imply that PPP is the higher-order capability of organizations, and the integration of the governance structures, decision-making practices, and strategic learning takes place. This interpretation is supported by studies on the subject of governance and analytics ecosystems. As Oliveira et al. (2025) and Sequeira et al. (2025) indicate, data-centric governance and business intelligence ecosystems can help institutional leaders to allow them to manage various digital initiatives in parallel, prioritize investment priorities, and continuously check with strategic objectives. Although mechanisms of such studies are not referred to as PPM, they are used to retrieve the principal ideas of portfolio visibility, prioritization and core portfolio fit, thereby creating more powerful instruments of supplementing the strategic abilities of institutions.

Reasoning behind the portfolio model is also extended and the framework here is anchored on innovation. Whittemore (2025) presents the DIVO programme as the decentralized and agile form of governance which can be applied to orchestrate the collaboration of a huge amount of digital innovation projects in a university. This programme then is a form of portfolio structure that balances experimentation and institutional control where the PPM based styles are regarded to enhance organizational agility, though, at the cost of, strategic coherence. This aligns with more broad strategic change rationalizations by Hashim et al. (2022), who attempted to group digital transformation in higher education as an institutional tactic and not an initiative that led to an ad hoc manner.

Taken together, the reviewed studies may point to the fact that PPM cannot be regarded as a technological tool of project management, but more as a dynamic strategic resource that allows higher education institutions to experience the digital opportunities, seize them by making coordinated investment decisions, and reallocate organizational resources over time. In this regard, PPM will fill the long-standing gap in the literature between digital ambitions and execution capabilities, allowing universities to transcend their uncoordinated innovation to a precise, institution-wide transformation.

Notably, this synthesis further demonstrates the foundational strategic importance of PPM within institutions of higher education in the reduced formal maturity models and in its institutionalization, viz., governance systems, leadership involvement, data-based decision support, and cross-unit coordination. In the absence of such embedding, digital transformation initiatives are prone to misalignment, unable to deliver results effectively, and have limited impact.

Even with the increasing awareness about the concept of PPM as a strategic capability, the literature is still divided in its conceptualization and implementation in the higher education contexts. PPM principles are often followed implicitly in most scenarios via governance and coordination processes and thus remain unannounced and unstructured as an institutional capacity. This brings about confusion to the operationalization and assessment of PPM in various environments. Besides, the literature is seldom addressed rigorously using existing theoretical frameworks of dynamic capabilities or strategic management, making it more difficult to incorporate PPM in the larger organizational theory. This indicates that not only is the role of PPM in digital transformation in the higher education under-implemented, but theorized as well. This leads to the necessity of reconceptualizing PPM as a focal point of how higher learning institutions can make the leap between digital strategy and its implementation by the end of its conventional conception as a project organization instrument pool to its current role as a driving partner of strategic capability building.

5.3 ADDRESSING STRATEGIC CAPABILITY GAPS THROUGH PORTFOLIO-LEVEL ALIGNMENT

The analysis of the literature reviewed demonstrates that the difficulties experienced by institutions of higher learning in the process of digital transformation are not technological, but are more strategic and organizational. In all the studies contained in the article, the problem of digital initiatives failing is often because of the continuous presence of a strategic capacity gap, which has been characterized as flawed governance mechanisms, incoherent support of the digital initiatives with institutional strategy, poor allocation of resources, and lack of organizational learning processes. The phenomenon of the portfolio-level alignment, which can be made possible through the practices of Project Portfolio Management (PPM), can be identified as one of the primary mechanisms of closing in on these gaps.

One of the most frequent problems found in the literature is the mismatch between the institutional strategy and the implementation of the digital projects. Pérez et al. (2021) reveal that without portfolio governing, digital and IT projects are likely to take a life of their own,

leading to a lack of strategic coherence as well as low senior leadership involvement. Equally, as pointed out by Hashim et al. (2022), strategies related to digital transformation in the higher education sector usually exist at transformational levels, and not enough mechanisms are in place to ensure the strategic intent is translated into a coherent mode of implementation across the various organizational levels. A structural solution where project opportunities, prioritization, and evaluation are directly linked to the strategic goals was offered by the portfolio-level alignment.

The existence of gaps in governance capabilities is another vital obstacle to a successful digital transformation that emerged among the reviewed studies. Oliveira et al. (2025) and Sequeira et al. (2025) describe how the data-centric governance and analytics ecosystems can enhance institutional supervision because of the increased visibility of various digital initiatives. These mechanisms aid the portfolio-level decision-making as they empower institutions to track progress, determine interdependence, and redefine resources in response to new priorities. Even though they are not categorized explicitly as the PPM, such types of governance arrangements operationalize the all-essential portfolio functions that enhance institutional control and accountability.

Capability gaps that concern resource allocation and prioritization are also imminent. Mitrofanova et al. (2021) focus on the fact that change toward smart universities needs a balance between the conservative academic projects and the innovative digital initiatives in a single portfolio. Absent portfolio-level coordination, institutions find it hard to balance the risk, innovation, and stability in operations at the institutional level. Whittemore (2025) also shows that programme-based structures, which are agile like portfolios, like the DIVO programme, enable universities to explore digital thrilling possibilities without losing focus and capacity constraints.

The gaps are also in the level of human and organizational capabilities that are discussed in the literature, especially in leadership involvement, development of digital competencies, and cross-unit cooperation. Research addressing the teacher digital competence and institutional capacity building reveals that individual training or innovation projects are not adequate when they are not integrated into more macro-level systems of strategic coordination (Jiménez-Hidalgo et al., 2025). The alignment of portfolios makes it easier to combine human capability development projects with technological and process-based projects, which enhance a comprehensive approach to digital transformation.

Collectively, these results imply that portfolio-level alignment is an intermediating process in institutional strategy and operational implementation in digital transformation in higher education. PPM-oriented solutions close the strategic capability gaps observed in the studied literature by organizing various digital projects, aligning investments with strategic priorities, and supporting constant learning and evolution. The given synthesis provides essential information about the necessity to treat digital transformation in higher education not as a set of autonomous projects, but as a portfolio of interconnected initiatives, which are managed by strategically entrenched portfolio functionality.

Nevertheless, there is still a gap in the literature that reported how effectiveness of institutionalizing portfolio-level alignment can be achieved in the context of higher education peculiarities linked with governance structure. Although PPM is always portrayed as a solution to gaps in the strategic capabilities, not so many studies provide a critical analysis of those situations in which portfolio mechanisms succeed or fail to be effective in reality. Particularly, the conflicts between centralized control of the portfolio and decentralized academic freedom are commonly admitted but not theorized enough. In addition, the available literature is inclined to believe that the alignment process can be carried out by means of structural mechanisms without taking into consideration the influence of cultural resistance, political factors, and institutional force. This shows a huge discrepancy in the theoretical potential of portfolio-level alignment and its implementation in higher education settings. Subsequently, more conceptual and empirical efforts are required to know how it is possible to fit PPM within the unique organizational logics of universities.

5.4 AN INTEGRATED CONCEPTUAL FRAMEWORK FOR MANAGING STRATEGIC CAPABILITY GAPS THROUGH PROJECT PORTFOLIO MANAGEMENT IN HIGHER EDUCATION

Sections 5.1-5.3 propose an integrated conceptual framework for how institutions of higher learning(HEIs) can overcome strategic capability gaps in digital transformation using project portfolio management (PPM). Instead of thinking about digital transformation as a set of discrete technological projects, the conceptualisation maps change as a portfolio-level, capability-based process, and is entrenched in institutional strategy and governance systems.

When it comes to the framework overview, the suggested framework is designed on the basis of three layers that are linked to each other, including strategic inputs, portfolio-level enabling mechanisms, and capability-driven outcomes. This framework summarises the predominant trends in the studies reviewed and summarises the cases in which institutions channel the digital ambition into sustainable change.

5.4.1 Strategic Inputs: Digital Pressures and Institutional Intent

At the input level, the changes in the conditions and the directions of the digital transformation are encouraged by external and internal pressures on HEIs. These are technological change, changing student expectations, policy requirements, competition, and resource limitations (Hashim et al., 2022; Salama and Hinton, 2023). As a reaction, the institutions define strategic intent as digital strategies, modernization agendas, and innovation roadmaps.

Nevertheless, in the literature, it is always evident that strategic intent is not enough. The organizations fail to integrate, align, and create value disproportionately without tools to operationalize strategy between multiple tasks and units (Pérez et al., 2021). Such a disconnection between the intention and action is the beginning of the framework.

5.4.2 Portfolio-Level Enabling Mechanisms: PPM as a Strategic Capability

The main element of the framework is the Project Portfolio Management, which is defined as a strategic ability and not a technical operation. Four mechanisms at the portfolio level are identified in the synthesis as those through which PPM manages strategic gaps of capability:

a. Strategic Alignment and Prioritization

Portfolio structures allow the institution to pick and focus on digital initiatives on a basis of strategic relevance, as opposed to a local or short-term basis. It allows aligning investment decisions with institutional objectives and increasing the involvement of the senior leadership (Pérez et al., 2021; Mitrofanova et al., 2021).

b. Governance and Oversight

Governance approaches at the portfolio level, usually facilitated by analytics and decision-support software, can increase transparency, accountability, and coordination among digital efforts (Oliveira et al., 2025; Sequeira et al., 2025). Such processes minimize duplication and enhance institutional control of the transformation processes.

c. Resource Allocation and Balancing.

PPM provides HEIs with a means to strike an innovation-stability balance through balancing trade-offs in various digital undertakings. Programme models and Agile portfolios provide an opportunity to experiment and stay aligned with institutional capacity and risk tolerance (Whittemore, 2025).

d. Organizational Learning and Capability Integration.

Portfolio level coordination assists in inter-project learning and in assisting to integrate human, technological, and process-related capabilities. It can be observed especially clearly in the

works concerned with the development of digital competence and cross-unit cooperation (Jiménez-Hidalgo et al., 2025).

The combination of such mechanisms makes PPM a dynamic capability that enables institutions to have a feel of digital opportunities, exploit them in a coordinated action, and reconfigure resources as time goes by.

5.4.3 Capability-Driven Outcomes: From Fragmentation to Coherent Digital Transformation

The framework focuses more on outputs at the output level based on capability development, as opposed to measuring individual project success. The literature that has been reviewed shows that in the case of the successful integration of portfolio-level mechanisms, HEIs have better chances to meet Collinear and strategically focused digital transformation journey, Improved governance maturity and an active involvement of leadership, Better institutional agility and flexibility, and lastly Sustainable digital, managerial and organizational capabilities. On the other hand, a lack of portfolio-level capabilities supports fragmentation, under-utilization of digital investments, and the existing gap in capabilities.

The key role played by the framework is in estimating digital transformation in higher education as a portfolio-directed capability-building procedure. Using the information provided by the digital transformation, governance, and project portfolio literature, the framework allows to develop a theoretically based and practically relevant model that can be used to understand how HEIs can bridge the digital gap between strategy and implementation.

Notably, the framework also addresses a critical gap in the literature reviewed: the absence of integrative frameworks which relate institutional strategy, portfolio governance, and development of capabilities in higher education digital transformation. It can thus serve as a starting point for future empirical studies and give working principles to leaders of universities that want to manage the complicated digital change.

Although the suggested framework presents an integrative capacity, it also reveals the existing gap in the literature in presenting the intricate picture of digital transformation in higher education. Current researches are inclined to focus more on the structure and process chart of portfolio governance, underestimating the role of socio-political and cultural dynamics, according to which the process of introducing such mechanisms in practice occurs. Moreover, the framework is rather conceptual owing to the insufficient access to longitudinal and comparative empirical research of portfolio-level transformation among institutions. In this regard, its generalizability has to be empirically confirmed in more higher education settings.

However, the framework transforms the theoretical discussion to the next level as it locates Project Portfolio Management as a vibrant strategic skill that is deeply institutionalized and provides a comprehensive and more strategically situated interpretation of the digital transformation of higher education.

6 CONCLUSION AND FUTURE RESEARCH DIRECTIONS

The systematic literature review aimed to investigate how institutions of higher learning (HEIs) respond to gaps in strategic capabilities in response to the digital transformation process and to identify how Project Portfolio Management (PPM) could be useful in mitigating the issue. The review consolidates disconnected pieces of digital transformation, governance, and portfolio management literature by conducting a systematic review of 16 Scopus-indexed studies that provide a coherent insight into how universities can transition to an integrated and coherent transformation of digital activities.

The results indicate that the digital transformation within higher education is often hampered by disintegration, ineffective strategic alignment, and a lack of governance capacity. Online projects are usually introduced as individual projects, and often, they are based on the local requirements and not the national interests. It is shown in this review that this fragmentation is rather a strategic capability issue, based on the lack of mechanisms of portfolio-level coordination.

Integrating the evidence provided in multiple institutional settings, the review makes a step forward in addition to the argument that PPM may be conceptualized as a strategic and dynamic ability in the higher education context. PPM helps an institution to focus its digital investment on strategic goals, to balance innovation and stability, as well as, to combine technological, human, and organizational strengths rather than being a simple tool to coordinate a project. This position falls within the proposed conceptual framework in which PPM is the key mechanism that can provide the digital aspiration and implementation capability.

There are three contributions of this review. To begin with, it gathers the scattered literature on digital transformation in higher education in a unified yet thematically consistent framework concerning the lack of capabilities and portfolio-based governance. Second, it restates PPM as a capability-forming mechanism and not an operational practice, thus expanding its provision in the higher education management research. Third, it suggests a combined conceptual framework providing explanatory effects and being practical to comprehend digital change in HEIs.

This review has a number of limitations even though it has made some contributions. This review relies on a comparatively small sample of sixteen studies, which is indicative of the infancy and high specialists of the research in this field, which is digital transformation, strategic capability, and portfolio governance in higher education. Although the inclusion criteria were rigorous to guarantee relevance in the concepts, they might have omitted related studies discussing the digital transformation from other perspectives or databases. Moreover, the review employs qualitative and contextual research, which restricts and limits generalization and highlights the need for further empirical evidence. Furthermore, these limitations need to be taken into consideration when interpreting the results and the suggested conceptual framework.

Future research direction

Irrespective of these contributions, there are also some avenues of future research that have been identified in the review. First, it is necessary to conduct empirical research investigating PPM practices in higher education digital transformation, specifically longitudinal research that would help to determine changes in the portfolio level capabilities over time. Second, further research is required into how portfolio governance is related to the process of developing human capabilities, such as leadership, digital competence, and organizational learning. Third, the cross-institutional and cross-national comparative research would supplement our knowledge on how brokering, cultural, and structural determinants influence the portfolio-based transformation strategies. Finally, the proposed conceptual model would be reinforced by some practical verification, which would increase the applicability of this framework and make it more theoretically sound.

Managerial Implications for Higher Education Leaders

As per the applied focus of IJAME, this review offers several practical implications to the leaders of universities, senior administrators, and decision-makers who have to orient their institutions to the digital transformation. First, the institutional leaders are persuaded to stop focusing on the projects as the central way of becoming digital and adopt a portfolio view.

Digital transformation should be thought of as a portfolio that can be strategically maintained to let it be more prioritized, less redundant, and so results are more in line with institutional strategy and not a single achievement. The results also highlight the need to institutionalize the concept of portfolio governance, i.e., building clear decision-making capability, involving senior leadership, and installing the data-based decision-making solutions to make the digital initiatives more visible. The way to do this is to build an open decision-making authority, senior

management participation, and use data-driven systems to encourage transparency in digital processes.

The methods of governance are supposed to promote learning and adaptation and have control. Moreover, leaders should realize the fact that digital transformation is a process in which integrated building of capacity is necessary. Besides the technological project, the portfolio management needs the covered initiatives in relation to the organizational transformation, digital competencies, and human resource development. These activities integrated in a single portfolio are known to promote the long-term protracted performance and institutional stability. Finally, the institutions of higher learning also view PPM as an emerging and growing strategic competence integrated into the institutional governance and decision making processes instead of a managerial administrative act of intervention. An on-going portfolio evaluation, organizational education, and the re-allocation of resources in reaction to the changing institutional and technology needs is necessary to sustain a successful digital change. Through the institutionalization of portfolio-based reasoning, higher education leaders can move and swing, between fragmented digital initiatives to coordinated, robust, and linked change processes.

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