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Digital Capability-Based University Autonomy Governance in Vietnam

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ABSTRACT: This paper examines the relationship between university autonomy and digital capability in the governance of Vietnamese higher education institutions. It applies content analysis, synthesis, and comparison to verifiable legal documents, policy reports, and academic studies. The findings indicate that digital transformation improves autonomy only when it is connected with accountability, data governance, and organizational capability. The paper therefore proposes a Digital Capability-Based University Autonomy Model with three pillars: digital leadership; data systems and technological platforms; and organizational culture with staff digital capability. The model provides a reference for institutional self-assessment and policy planning, while its practical validity requires further empirical testing.

KEYWORDS: University autonomy, university governance, digital transformation, digital capability, data-driven governance.

1. INTRODUCTION

University autonomy grants higher education institutions discretion over organisational, academic, personnel and financial matters, while increasing their accountability obligations. The 2018 amendment to the Law on Higher Education and Decree No. 99/2019/ND-CP shaped an earlier phase of this process; the Law on Higher Education No. 125/2025/QH15, effective from January 1, 2026, now provides the principal statutory framework (Government of Vietnam, 2019; National Assembly of Vietnam, 2018, 2025). Nevertheless, decision-making authority becomes effective only when institutions can formulate plans, control resources and demonstrate outcomes through reliable information. Digital transformation supports these requirements through integrated data, electronic workflows and decision-support tools. National policies also emphasise data, digital platforms and human capabilities (Prime Minister of Vietnam, 2020, 2022). However, disconnected software, fragmented data and inadequate governance mechanisms can undermine investment effectiveness. Much of the literature still treats university autonomy and digital transformation as separate issues, without adequately explaining how digital capability supports the exercise of institutional autonomy in Vietnam. This paper therefore analyses their relationship and proposes a digital capability-based university autonomy model to support institutional self-assessment and policymaking.

2. RESEARCH CONTENT

2.1. Theoretical foundations and research methodology

University autonomy refers to an institution's capacity to make decisions in core areas within the limits of the law and subject to accountability obligations. The European University Association's assessment framework distinguishes four dimensions of autonomy: organisational, financial, staffing and academic (Estermann et al., 2011). This approach is consistent with the autonomy provisions of Vietnamese legislation. However, autonomy encompasses more than formally delegated powers; it also depends on an institution's capacity to set objectives, allocate resources, manage risks and take responsibility for outcomes.

University governance comprises the actors, rules and processes that guide institutional operations. Under an autonomy-based model, governance must distinguish strategic direction, oversight and executive management. Accountability connects decision-making authority with obligations to disclose, report and explain. The World Bank's report on Vietnamese higher education stresses the need to improve governance, financing, quality and system responsiveness (World Bank, 2020). Autonomy must therefore operate within an institutional structure with clearly defined objectives, indicators and monitoring data.

Digital transformation in higher education is not synonymous with digitising documents or purchasing additional software. It entails changes in strategy, processes, operating models and human capabilities enabled by technology and data. Castro Benavides et al. (2020) show that digital transformation affects multiple dimensions of higher education institutions, from administration and teaching to stakeholder engagement. The Jisc framework likewise places leadership, digital capabilities, secure infrastructure, stakeholder participation and cross-unit coordination at the centre of transformation (McGill, 2023).

This study adopts a qualitative approach based on secondary-data analysis. Sources include Vietnamese legal documents, reports issued by international organisations and academic studies with accessible full texts or verifiable links. The analysis focuses on the period from the 2018 amendment through the 2025 Law on Higher Education and subsequent digital transformation policies; selected pre-2018 foundational sources establish the conceptual framework for autonomy. Materials were coded into three thematic categories: the scope and barriers of autonomy; the

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implications of digital transformation for governance; and conditions relating to leadership, data and people. Synthesis and comparison were then used to develop the proposed model. No surveys or interviews were conducted; consequently, the conclusions are analytical and directional rather than empirically validated findings.

The analytical procedure comprised four successive operations. First, the selected sources were read to distinguish legally assigned powers from the organisational capabilities required to exercise those powers. Second, statements concerning governance arrangements, digital infrastructures and human capacity were assigned to the three predefined themes. Third, the resulting categories were compared across legal, policy and academic sources to identify convergence and potential tensions. Finally, the categories were related to the four autonomy dimensions to derive the three pillars of the proposed model. This is a qualitative, interpretive synthesis; it does not constitute a systematic review with an exhaustive search protocol or a statistical assessment of institutions.

Two safeguards guide the interpretation. Legal provisions are treated as normative requirements rather than evidence that institutions implement them uniformly. Similarly, claims about anticipated benefits of digital platforms are distinguished from measured improvements in governance performance. The study consequently develops analytical propositions and potential indicators for later testing, without assigning numerical scores to Vietnamese universities or making causal claims from secondary evidence.

2.2. Current state of autonomous university governance in Vietnam

Vietnam's higher education legislation has progressively linked institutional autonomy with accountability. The 2018 amendment and Decree No. 99/2019/ND-CP are examined as the historical framework under which earlier governance arrangements developed (Government of Vietnam, 2019; National Assembly of Vietnam, 2018). The Law on Higher Education No. 125/2025/QH15, adopted on December 10, 2025 and effective from January 1, 2026, replaced the former Law on Higher Education, subject to its transitional provisions (National Assembly of Vietnam, 2025). The present analysis therefore distinguishes changes in the legal allocation of authority from organisational capabilities that remain important across governance regimes. The framework offers institutions scope to formulate strategies, organise education and manage resources, but effective autonomy still depends on their circumstances and accountability arrangements.

In organisational governance, responsibilities for institutional direction, executive decisions and oversight must be interpreted under the applicable legal framework. In particular, the 2025 Law introduced a transition under which university councils of public universities and public higher education institutions ceased operation from January 1, 2026 and transferred relevant records to directors or rectors (National Assembly of Vietnam, 2025, Art. 46). It would therefore be inaccurate to describe these councils as the current supervisory body for all public institutions. Irrespective of the institutional structure, ambiguity in delegated authority, responsibility for decisions and reporting lines can weaken governance. Data dashboards can support the relevant leadership and oversight actors only when access rights, update responsibilities and review procedures are clearly specified.

In academic governance, autonomy allows institutions to adjust curricula, modes of delivery and quality assurance activities in line with their missions. The challenge is to balance flexibility with learning outcomes, teaching resources and public quality disclosure requirements. Learning data, student feedback and employment outcomes can support programme review. Where data are inconsistent or collected only for reporting purposes, academic decisions continue to rely heavily on localised experience.

In staffing, discretion over recruitment, deployment and performance evaluation helps institutions respond more quickly to professional requirements. However, personnel policies are effective only when job descriptions, evaluation criteria and information on workloads and performance are available. Digital transformation can support personnel records, capability development and workforce planning. A potential risk is reducing performance assessment to mechanical monitoring or substituting quantitative indicators for professional judgement.

A useful distinction is between formal autonomy, exercised autonomy and accountable autonomy. Formal autonomy concerns powers conferred by law; exercised autonomy concerns the ability to make and implement decisions in practice; accountable autonomy concerns whether those decisions can be justified, reviewed and corrected. Digital capabilities are most directly relevant to the latter two dimensions. For example, the existence of a financial management system does not establish financial sustainability; its governance value depends on the reliability of cost information, how decisions are recorded and whether decision-makers use that evidence in budget review.

This distinction also prevents digital readiness from becoming a proxy for university quality. An institution may have sophisticated systems but weak academic deliberation, while a resource-constrained institution may maintain sound controls with simpler tools. Analysis should therefore consider proportionality: the complexity of data systems and assurance procedures should correspond to the scale, mission, risk exposure and resources of each university.

In financial governance, autonomy increases responsibility for balancing revenues, controlling expenditure and ensuring long-term sustainability. The World Bank (2020) considers improvements in governance and financing essential to better higher education performance in Vietnam. Integrated financial information systems enable institutions to monitor budgets, activity-based costs and plan implementation. Nevertheless, reliance on tuition fees, limited revenue diversification and regulations governing public assets continue to place pressure on many universities. Transparent financial data are therefore both an accountability requirement and a basis for prioritising investment.

These four dimensions are interrelated. Organisational autonomy without reliable data weakens oversight; academic autonomy without analytical capabilities makes effectiveness difficult to demonstrate; staffing autonomy without evaluation systems risks inconsistent decisions; and financial autonomy without transparency erodes trust. Digital capability does not replace the institutional framework of autonomy, but it enables autonomous powers to be exercised on an evidence-informed and verifiable basis.

2.3. Impacts of digital transformation on autonomous university governance

The first effect of digital transformation is process standardisation. When admissions, teaching, human resources, finance and research processes are documented within a shared business architecture, institutions can reduce duplicated work, assign responsibilities and maintain decision trails. This differs fundamentally from converting paper forms into electronic files: digitisation changes the medium of information, whereas digital transformation requires redesigning coordination and control mechanisms.

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The second effect is the integration of governance data. Departmental data silos often produce multiple versions of the same indicator. A unified data architecture connects information on students, staff, finance, research and facilities. The Organisation for Economic Co-operation and Development (OECD, 2021) highlights the increasing use of data and intelligent technologies in the administration of education systems and organisations. For autonomous universities, integrated data support the assessment of options, performance monitoring and the justification of decisions.

The third effect concerns the changing role of leadership. Administrators need not process every dataset themselves, but they must understand the origins, limitations and risks of performance indicators. Digital leadership entails setting priorities, managing change, allocating investment and establishing principles for data use. The Jisc framework emphasises effective leadership, secure infrastructure, appropriate investment and digitally competent staff as requirements for successful transformation (McGill, 2023).

Digital transformation can also increase transparency and traceability. Reports may be generated from source data rather than assembled manually, and significant decisions may be linked to indicators, accountable officials and approval dates. This supports oversight by the relevant institutional leadership, competent regulatory agencies and other authorised stakeholders. Transparency, however, does not mean releasing all information. Institutions must classify data, protect personal information and define legitimate purposes of use.

Technological benefits are accompanied by organisational risks. Gkrimpizi et al. (2023) classify barriers to digital transformation into environmental, strategic, organisational, technological, human and cultural groups. In institutional governance, these barriers often interact: legacy systems are difficult to integrate, data lack common standards, employees may resist information sharing, departments invest independently and leaders lack prioritisation mechanisms. AI further increases the need to verify outputs, control bias and protect data. Digital capability should therefore be understood as an organisation-wide capacity, not merely the competence of an information technology department.

The international frameworks nevertheless differ in purpose and level of analysis. The EUA autonomy scorecard primarily describes the allocation of decision rights across national systems; it does not directly measure the quality of institutional digital governance. The Jisc framework addresses institutional transformation capability, while OECD discussions place intelligent technologies in a wider system context. Combining these perspectives is analytically useful only if decision rights, implementation capacity and observed outcomes remain distinct constructs. The proposed model adopts this separation rather than interpreting international policy descriptions as transferable evidence of effectiveness.

2.4. International experience and lessons for Vietnam

International experience demonstrates that no single autonomy model suits every higher education system. The European University Association framework is valuable because it distinguishes four dimensions of autonomy and examines them in relation to national legislation (Estermann et al., 2011). For Vietnam, the lesson is that autonomy should be evaluated in terms of both the authority granted and the capacity to exercise it. An institution may possess extensive formal powers yet achieve weak results if its governance capacity is inadequate.

From a digital transformation perspective, OECD (2021) emphasises the role of data, analytics and intelligent technologies in education management. Jisc's whole-institution framework connects strategy, people, operations, data and infrastructure (McGill, 2023). Both approaches underscore that digital transformation should serve organisational objectives rather than proceed as a collection of unrelated technology projects.

Three lessons are particularly applicable to Vietnam. First, autonomy should be accompanied by clear accountability indicators, while avoiding mechanical rankings. Second, data should be standardised and interoperable from institutional to system level, with defined rules on access and data quality. Third, digital leadership and staff capabilities must be developed alongside investments in platforms. This coordinated approach helps prevent technology from advancing ahead of processes or regulations from exceeding institutions' implementation capacities.

2.5. Digital capability-based university autonomy model

Drawing on this analysis, the study proposes a Digital Capability-Based University Autonomy Model. The model does not replace the four dimensions of autonomy established in legislation and international frameworks. Instead, it identifies the organisational capabilities required to exercise autonomy transparently, on an evidence-informed basis and with adaptability. Its three pillars are illustrated in Figure 1 and specified in Table 1.

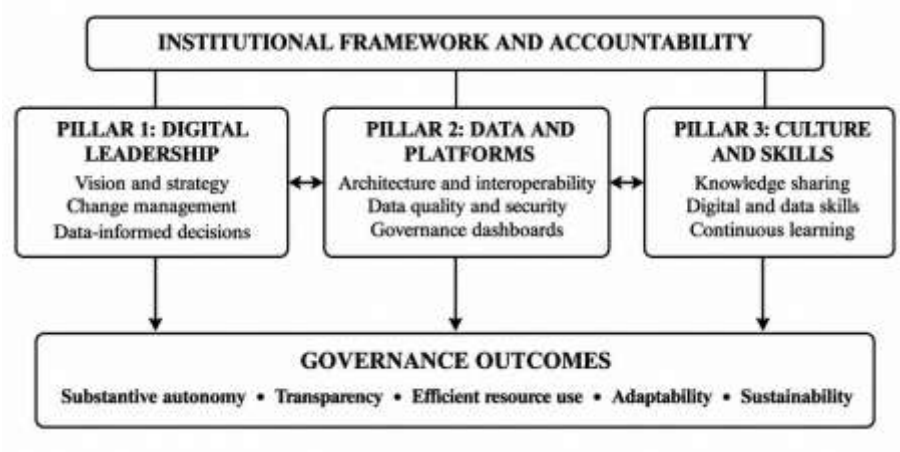

Figure 1. Digital capability-based university autonomy model
Source: Proposed by the author based on a synthesis of the reviewed literature.

Figure 1 illustrates the conceptual relationship among the three pillars of digital capability within the broader framework of institutional autonomy and accountability. Digital leadership establishes strategic priorities and decision-making responsibilities; data systems and technological platforms provide the information infrastructure needed to implement and monitor those priorities; and organizational culture and

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staff digital capability support the consistent, responsible use of data across institutional units. The links between the pillars are reciprocal rather than sequential, while their contribution to governance outcomes remains a proposition requiring empirical validation. To clarify the operational meaning of the framework, Table 1 specifies the principal components, observable governance practices, and expected outcomes associated with each pillar.

Table 1. Components of the digital capability-based university autonomy model

Pillar	Key components	Governance manifestations	Expected outcomes
Digital leadership capability	Vision, strategy, change management, resource allocation, and digital ethics	Investment priorities; data-informed decisions; risk management; alignment between objectives and accountability	Coherent strategic direction; evidence-based decisions; adaptability
Data systems and technological platforms	Data architecture, standardization, interoperability, quality, security, and dashboards	Integration of education, staffing, finance and research data; data provenance; role-based access	Transparency; reduced duplication; more efficient use of resources
Organizational culture and digital capability	Knowledge sharing, data skills, cross-unit cooperation, continuous learning, digital responsibility	Responsible data updates; critical use of indicators; verification of AI outputs; data protection	Sustainable implementation; increased trust; a learning organization

Source: Synthesized and proposed by the author.

For practical use, each pillar should be represented through observable governance practices rather than the number of purchased applications. Possible evidence for digital leadership includes a formally approved strategy, an identified executive sponsor, a documented portfolio of digital projects and periodic review of strategic indicators. Evidence for the data-and-platform pillar may include an institutional data dictionary, named data owners, documented interoperability rules, access-control records and quality checks. The culture-and-skills pillar may be reflected in role-based training, cross-unit data-sharing procedures, staff participation in improvement and documented processes for correcting erroneous information. These are proposed assessment items, not a validated measurement scale.

A practical self-assessment can use an ordinal developmental rubric for each practice: not established, documented but inconsistently applied, routinely implemented, and independently reviewed for improvement. Supporting evidence should be examined before a rating is assigned, while divergent stakeholder assessments should be recorded rather than averaged mechanically. Such a rubric is intended for diagnostic discussion; converting it into an institutional ranking would require tests of reliability, construct validity and comparability across institution types.

The first pillar is digital leadership capability, encompassing vision, strategy, change management, resource allocation and data-informed decision-making. Digital leadership extends beyond technical knowledge. More important is the capacity to define governance problems, select appropriate investments and take responsibility for technological impacts. Under institutional autonomy, digital leadership connects strategic objectives with oversight and accountability mechanisms.

The second pillar comprises data systems and technological platforms. These require a coherent architecture, data inventories, quality standards, access controls and security mechanisms. Platforms for academic administration, staffing, finance and research should exchange information rather than create separate repositories. Governance dashboards are valuable only when indicators are defined consistently, data provenance is clear and users recognise the limitations of the figures.

Implementation may be organised as a sequenced governance programme. In an initial diagnostic phase, an institution maps its existing decision rights, reporting obligations, data sources and operational bottlenecks. The second phase prioritises a small number of high-value governance processes, such as programme review, teaching-workload planning or budget monitoring, and defines owners and measurable service expectations. The third phase connects and cleans the relevant datasets, redesigns approval processes and trains the staff involved. The final phase evaluates accuracy, timeliness, stakeholder burden and decision usefulness before extending the approach to other functions. Expansion should depend on review evidence rather than on completion of a technology procurement schedule.

Potential assessment indicators must be linked to specific decisions and interpreted with care. For data governance, candidate indicators include the proportion of critical datasets with assigned ownership, completeness of mandatory fields and frequency of reconciliation errors. For process governance, useful measures may include time required to prepare a programme-review evidence package, the proportion of approvals with a traceable decision record and the rate of corrected reporting discrepancies. For people and culture, relevant evidence includes completion of role-specific training and documented cross-unit resolution of data-quality issues. None of these measures, on its own, proves better educational quality or stronger substantive autonomy.

Accountability also requires protective controls. Access to student, staff and financial records should follow role-based permissions and clearly defined purposes; sensitive analytics should avoid unnecessary identification of individuals. Decisions supported by automated dashboards or AI-generated summaries need a responsible human reviewer and a process for challenging incorrect information. Governance bodies should examine not only whether an indicator is available but also how it was produced, whose interests it may omit and what action its interpretation can legitimately support.

For future empirical validation, the proposed three-pillar structure could be assessed through a multi-institution study combining documentary audits, interviews and surveys of governance actors. Indicators should first undergo expert review and cognitive pretesting, followed by evaluation of inter-rater agreement and internal consistency where reflective scales are appropriate. Researchers could then test whether pillar-level measures are associated with decision traceability, reporting quality and perceived responsiveness while controlling for institution size, mission, funding arrangements and initial digital maturity. A longitudinal design would be preferable to a one-time comparison when examining changes associated with implementation.

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The absence of primary data limits the strength of inference in the present paper. The model is not shown to improve autonomy outcomes, and the relative weight of its three pillars remains unknown. There is also a risk that a framework developed mainly from publicly accessible policy and research documents underrepresents informal coordination practices, regional resource differences and disciplinary variation. These limitations reinforce the need to treat the model as a structured, falsifiable proposition for institutional dialogue rather than a verified prescription.

The third pillar comprises organisational culture and staff digital capability. Barriers to sharing data often stem less from technological limitations than from information ownership, fear of accountability or skills deficits. Universities should foster continuous learning, encourage interdepartmental collaboration and link digital capabilities to job roles. Digital ethics, personal data protection and the ability to verify AI-assisted outputs must become integral parts of professional development.

The three pillars influence one another. Leadership guides architecture and data standards; data systems provide evidence for leaders; and organisational culture determines whether data are updated and used. Without any one pillar, the model becomes unbalanced. Technology investment without leadership and a collaborative culture produces underused systems. Skills development without interoperable data fails to transform decisions. Equally, strategic leadership without implementation capacity struggles to translate objectives into outcomes.

The expected outcomes are substantive autonomy, transparency, efficient resource use and greater adaptability. These are proposed relationships, not empirically tested causal effects. The model can serve as a reference for institutions to assess strengths, gaps and priorities. Application should be adapted to each university's mission, scale, resources and level of digital maturity.

2.6. Discussion and policy implications

The proposed model is consistent with prior research in treating digital transformation as a whole-institution process. Castro Benavides et al. (2020) highlight its multidimensional nature in higher education; McGill (2023) underscores leadership, infrastructure, people and coordination; and Gkrimpizi et al. (2023) identify simultaneous strategic, technological, organisational and cultural barriers. This paper's additional contribution is to connect these factors directly to the exercise of institutional autonomy in Vietnam.

For public authorities, policy should gradually move from fragmented reporting requirements towards common data standards and indicators. Minimum datasets covering education, staffing, finance, research and graduate employment should be defined, together with responsibilities for quality, security and sharing. Autonomy assessment frameworks should reflect both institutional outcomes and digital governance capability without imposing additional administrative burdens. Support mechanisms should prioritise universities with limited infrastructure and human resources so as not to widen the digital divide.

For higher education institutions, the initial step should be to review strategy, processes and data rather than select software. Each university should appoint responsible data stewards, establish data inventories, allocate access rights and introduce procedures for handling discrepancies. Digital projects require business owners, outcome indicators and user capability-development plans. The legally competent institutional decision-makers and oversight bodies should receive concise, verifiable performance dashboards rather than lengthy reports that are difficult to cross-check.

This study is limited by its reliance on secondary sources and the absence of a survey of universities' digital maturity. The three-pillar model remains conceptual. Future research should develop measurement scales, consult experts and pilot the model across different categories of institutions. Validation should assess governance outcomes, transformation costs and impacts on students, staff and other stakeholders.

3. CONCLUSION AND RECOMMENDATIONS

The analysis indicates that university autonomy and digital transformation are complementary but distinct. Autonomy creates space for higher education institutions to select strategies and deploy resources. Digital transformation provides data, processes and tools that can make decisions faster, more transparent and more verifiable. Such benefits arise only when technology operates within a governance structure with clearly assigned responsibilities.

The paper proposes a Digital Capability-Based University Autonomy Model comprising three pillars: digital leadership capability; data systems and technological platforms; and organisational culture and staff digital capability. Leadership establishes objectives and manages change. Data systems provide evidence for decisions and accountability. Organisational culture ensures that information is shared, updated and used responsibly. Coordinated operation across the three pillars may help institutions move from procedural to substantive autonomy.

For policymakers, priorities include completing higher education data standards, reducing duplicate reporting and developing autonomy assessment mechanisms linked to governance capacity. Policies must simultaneously protect data, promote interoperability and support institutions facing resource constraints. Higher education institutions should review processes before investing in technology, assign data governance responsibilities, develop concise dashboards for legally competent leadership and oversight bodies and strengthen job-specific digital skills.

Because the study uses secondary sources, the proposed model has not undergone empirical testing. Subsequent work should formulate indicators for each pillar, obtain expert input and conduct pilots at institutions differing in size, mission and autonomy levels. Such validation would help refine the model and identify conditions for its use within Vietnam's higher education system.

REFERENCES

1) Castro Benavides, L. M., Tamayo Arias, J. A., Arango Serna, M. D., Branch Bedoya, J. W., & Burgos, D. (2020). Digital transformation in higher education institutions: A systematic literature review. Sensors, 20(11), 3291. https://doi.org/10.3390/s20113291
2) Government of Vietnam. (2019). Decree No. 99/2019/ND-CP dated December 30, 2019, detailing and guiding the implementation of provisions of the amended Law on Higher Education. https://vanban.chinhphu.vn/?docid=198740&pageid=27160
3) Estermann, T., Nokkala, T., & Steinel, M. (2011). University autonomy in Europe II: The scorecard. European University Association. https://www.eua.eu/downloads/publications/university%20autonomy%20in%20europe%20ii%20-%20the%20scorecard.pdf
4) Gkrimpizi, T., Peristeras, V., & Magnisalis, I. (2023). Classification of barriers to digital transformation in higher education institutions: Systematic literature review. Education Sciences, 13(7), 746. https://doi.org/10.3390/educsci13070746

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5) McGill, L. (2023). Framework for digital transformation in higher education. Jisc. https://repository.jisc.ac.uk/9056/1/framework-for-digital-transformation-in-higher-education.pdf
6) Organisation for Economic Co-operation and Development. (2021). OECD digital education outlook 2021: Pushing the frontiers with artificial intelligence, blockchain and robots. OECD Publishing. https://doi.org/10.1787/589b283f-en
7) National Assembly of Vietnam. (2018). Law No. 34/2018/QH14 dated November 19, 2018, amending and supplementing a number of articles of the Law on Higher Education. https://vanban.chinhphu.vn/?docid=206102&pageid=27160
8) Prime Minister of Vietnam. (2020). Decision No. 749/QD-TTg dated June 3, 2020, approving the National Digital Transformation Program to 2025, with orientations toward 2030. https://vanban.chinhphu.vn/default.aspx?docid=200163&pageid=27160
9) Prime Minister of Vietnam. (2022). Decision No. 131/QD-TTg dated January 25, 2022, approving the project to strengthen information technology applications and digital transformation in education and training for 2022–2025, with orientations toward 2030. https://vanban.chinhphu.vn/default.aspx?docid=205236&pageid=27160
10) World Bank. (2020). Improving the performance of higher education in Vietnam: Strategic priorities and policy options. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/347431588175259657

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