

## Promoting Open Educational Resources for Higher Education in Vietnam

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Paper Info:

Received: 26 Aug 2025 | Revised: 18 Nov 2025

| Accepted: 12 Dec 2025 | Available Online: 12 Dec 2025

DOI: <https://doi.org/10.64233/LVTM2762>

Citation:

Nguyen, T. H. H., Le, T. M. T., Nguyen, T. V. D., & Mac, V. H. (2025). Promoting open educational resources for higher education in Vietnam. *ASEAN Journal of Open and Distance Learning*, 17(2), 60-81, <https://doi.org/10.64233/LVTM2762>

### Abstract

*In the context of increasingly robust and widespread globalisation and digital transformation, Open Educational Resources have become an inevitable trend in higher education. While Vietnam has made significant progress in educational digitisation, OER development still faces substantial challenges including limited infrastructure, unclear legal frameworks, and insufficient stakeholder awareness. This study provides a comprehensive analysis of the current state of Open Educational Resources implementation in Vietnamese higher education through descriptive analytical research combining document analysis, comparative assessment, and case study examination of 52 institutions during 2020-2023. The analysis revealed that while 57.7% of institutions had implemented basic Open Educational Resources initiatives, only 23.1% achieved advanced integration with interactive elements. Quality assessment indicates that only 15.3% of content meets excellent academic standards, though 80.7% demonstrates good cultural relevance. Four primary barriers constrain development: inadequate legal frameworks affecting 89.4% of institutions, infrastructure disparities particularly disadvantaging regional universities, cultural resistance to open sharing among 71.6% of institutions, and limited specialised human resources. Successful Open Educational Resources implementation requires coordinated approaches addressing policy, infrastructure, quality assurance, and cultural transformation simultaneously. Priority interventions include developing clear legal regulations within 12-18 months, establishing national quality standards, implementing comprehensive faculty training, and creating unified national platforms. Success models at leading institutions demonstrate that effective implementation is achievable with sustained institutional commitment. The study contributes to international literature by documenting that technical infrastructure alone is insufficient—systematic*

*capacity building and cultural change prove to be equally essential for sustainable Open Educational Resources development in emerging economy contexts.*

**Keywords:** digital transformation, education policy, higher education, open educational resources, quality, Vietnam

## 1. Introduction

The rapid advancement of information and communication technology has profoundly impacted traditional education models, accelerating the digital transformation in the field of education and training. One of the key components of this digital transformation is the development of Open Educational Resources (OER), which aims to enable everyone to freely access, use, share, and improve educational materials in a transparent manner.

In Vietnam, although the concept of OER is still relatively new, universities have begun to recognise the value of these resources in modernising and improving the quality of education. However, in practice, the implementation of OER faces numerous difficulties and challenges due to a lack of infrastructure, information technology, specialised human resources, a clear policy framework, awareness of copyright issues, and shifts in educational mindsets and culture.

Despite an increasing number of initiatives and policy discussions, existing studies in Vietnam mainly stop at describing the benefits and general challenges of OER without offering a systematic analysis of *why* these challenges persist or *how* they interact within the broader ecosystem of higher education. This gap limits the ability of institutions to design context-sensitive strategies for OER development. Addressing this analytical gap, the present study provides a more structured examination of the underlying factors shaping OER adoption and implementation in Vietnam.

This article synthesises and analyses prominent issues, thereby proposing future directions for the development of OER, contributing to the integration of Vietnamese higher education into global trends. The author employs analytical, synthetic, and comparative methods to clarify the issues related to OER development in Vietnam.

To address these gaps and provide an evidence-based foundation for policy and institutional decision-making, this study is guided by the following Research Objectives (ROs): to (1) map the current status and patterns of OER adoption in Vietnamese higher education; (2) identify the major systemic, infrastructural, cultural, and resource-based barriers that hinder OER implementation; (3) examine institutional differences and emerging successful practices; and (4) propose strategic, context-sensitive directions for strengthening OER development in Vietnam.

Aligned with these objectives, the analysis is also framed around four guiding Research Questions: (RQ1) What is the current status of OER adoption in Vietnamese higher education? (RQ2) What key barriers constrain effective OER implementation? (RQ3) How do institutional characteristics shape differences in OER practices? and (RQ4) What strategic measures can enhance OER development nationally?

## **2. Literature Review**

### **2.1. Overview of OER**

#### **2.1.1. OER Concepts and Features**

Open Educational Resources (OER) represent a paradigm shift in educational content accessibility and distribution, fundamentally challenging traditional models of knowledge sharing in higher education. At its core, OER encompasses educational materials that are made freely available for use, adaptation, and redistribution under open licenses (UNESCO, 2019). This definition extends beyond simple accessibility to encompass a comprehensive ecosystem of educational content, tools, and practices designed to democratise learning opportunities worldwide.

To provide a clearer theoretical anchoring for the present study, OER is examined in relation to established adoption and implementation frameworks. At the macro level, UNESCO's global reports on OER policy and practice highlight how enabling environments, institutional capacity, and stakeholder engagement shape OER uptake in different regions, including Asia-Pacific. At the micro level, recent empirical work on students' intention to use OER applies models such as the Technology Acceptance Model (TAM) and related constructs of perceived usefulness, ease of use, and social influence (Adedoyin et al., 2023), thereby providing conceptual tools to understand how individuals and institutions decide to adopt OER in higher education. These frameworks inform the analytical lens used in this article when interpreting OER-related initiatives and constraints in Vietnam.

The concept of openness in education has evolved significantly over the past half-century, with OER representing a culmination of various movements toward educational equity and accessibility (Bozkurt et al., 2019). The Hewlett Foundation provides one of the most widely accepted definitions, describing OER as "teaching, learning, and research resources that are publicly shared under an open license, allowing users to freely use, modify, and distribute knowledge without cost constraints" (Hilton III, 2020, p. 854). This definition does not only emphasise the accessibility aspect but also the transformative potential of OER to enable collaborative knowledge creation and sharing.

UNESCO's (2019) comprehensive framework expands this understanding by defining OER as "learning, teaching and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open license, that permit no-cost access, re-use, re-purpose, adaptation and redistribution by others" (p. 7). This definition encompasses various digital resources including videos, simulation software, interactive materials, and multimedia content, emphasising the goal of creating equitable learning environments that encourage creativity and collaboration within educational communities.

### **2.2. The Role and Benefits of OER in Higher Education**

#### **2.2.1. Expanding Educational Access and Promoting Equity**

Open Educational Resources have emerged as a powerful mechanism for democratising access to higher education, particularly in addressing persistent inequalities in educational opportunities across geographic, economic, and social dimensions. The fundamental role of OER in expanding access stems from their capacity to eliminate traditional barriers that have historically limited participation in higher education (UNESCO, 2019).

OER transcends physical and temporal boundaries that characterise traditional educational delivery. Unlike conventional textbooks and course materials that require physical distribution

networks, OER leverage digital infrastructure to reach learners in remote and underserved regions. This accessibility is particularly significant in developing countries where geographic isolation often correlates with educational disadvantage (Mishra, 2017).

Recent empirical and policy-oriented work in Vietnam adds further evidence to this access function. Nguyen et al. (2022), for example, synthesises existing OER initiatives in Vietnamese higher education and shows that open textbooks and digital learning objects have begun to narrow resource gaps between institutions with strong library holdings and those with limited budgets. At the policy level, the Vietnamese Government's Programme for the Development of Open Educational Resources in Higher Education (Government of the Socialist Republic of Viet Nam, 2023) explicitly positions OER as a means to widen access and support life-long learning, including for learners in disadvantaged and remote areas.

One of the most documented benefits of OER implementation is substantial cost reduction for students and institutions. Hilton III's (2020) comprehensive synthesis of research published between 2015 and 2018 reveals consistent evidence that OER adoption leads to significant financial savings for students, with some studies reporting cost reductions of 50-80% compared to traditional textbook expenses. This economic accessibility is particularly crucial in contexts where textbook costs represent a substantial barrier to educational participation.

OER contributes to narrowing educational gaps between different socioeconomic groups and geographic regions. In the Vietnamese context, Nguyen (2021) emphasises that OER implementation specifically targets disparities between urban and rural educational opportunities, providing students in remote areas with access to high-quality educational materials previously available only in major urban centres. This equalising effect extends beyond individual access to encompass institutional capacity building, enabling smaller or resource-constrained universities to offer educational experiences comparable to those of well-funded institutions.

### ***2.2.2. Quality Enhancement in Teaching and Learning***

The impact of OER on educational quality represents a multifaceted benefit that encompasses content diversity, pedagogical innovation, and continuous improvement through collaborative development processes. Research evidence consistently demonstrates that OER adoption correlates with enhanced learning outcomes and improved student satisfaction (Farrow et al., 2015).

OER provides educators with access to diverse educational materials from multiple sources, enabling the creation of customised learning experiences tailored to specific student needs and institutional contexts. This diversity extends beyond traditional textbook formats to include multimedia content, interactive simulations, virtual laboratories, and adaptive learning modules. The flexibility inherent in OER allows educators to combine, modify, and adapt materials to create more engaging and relevant learning experiences (Otto & Kerres, 2022).

More recent studies continue to link OER and open practices with improvements in teaching and learning quality. Zou et al. (2025), using a bibliometric analysis of open education research, note a growing cluster of empirical studies focusing on learning outcomes, student engagement, and the integration of OER with active and collaborative pedagogies. In addition, Sunar et al. (2022) showed that during emergency remote teaching in higher education, OER were leveraged to maintain instructional continuity and to support more flexible, student-centred learning experiences across several countries in the Global South. These insights are relevant for Vietnam, where universities increasingly integrate OER into blended and online courses as part of broader digital transformation strategies.

Unlike traditional educational materials that may become outdated between publication cycles, OER benefits from continuous community-driven updates and improvements. This dynamic quality ensures that educational content remains current with rapidly evolving fields, particularly in science, technology, and professional disciplines. The collaborative nature of OER development creates mechanisms for peer review and quality enhancement that often exceed the rigor of traditional publishing processes (Nascimbeni & Burgos, 2019).

Empirical evidence from the OER Research Hub demonstrates that students using OER report higher levels of engagement and satisfaction compared to those using traditional materials (Farrow et al., 2015). The research indicates that OER adoption correlates with improved learning outcomes, though the mechanisms underlying these improvements appear to be complex and context dependent. Factors contributing to enhanced outcomes include increased access to materials, greater flexibility in learning approaches, and the integration of interactive and multimedia elements.

### **2.2.3. Economic Benefits and Institutional Sustainability**

The economic advantages of OER implementation extend beyond individual cost savings to encompass broader institutional benefits and long-term sustainability considerations. These economic benefits create compelling arguments for institutional adoption while supporting broader educational access goals.

Universities implementing OER report significant reductions in educational material costs, library acquisition expenses, and content licensing fees. Cox and Trotter (2017) document various institutional approaches to supporting OER through policy and academic practice, noting that successful implementations often result in reallocated resources being directed toward other educational priorities such as faculty development, technological infrastructure, or student support services.

The elimination or substantial reduction of textbook and course material costs directly impacts the student financial burden and educational accessibility. Research consistently demonstrates that high textbook costs create barriers to educational participation and academic success, with some students choosing not to purchase required materials due to financial constraints. OER implementation addresses these barriers while potentially improving academic performance through enhanced material access (Hilton III, 2020).

While initial OER development may require significant institutional investment, the long-term sustainability benefits become apparent through reduced ongoing costs, broader educational impact, and enhanced institutional reputation. The scalability of OER means that development costs can be amortised across large numbers of students and multiple institutions, creating favourable return-on-investment scenarios for participating organisations.

### **2.2.4. Fostering Innovation and Collaborative Knowledge Creation**

OER serves as catalysts for educational innovation by encouraging experimentation with new pedagogical approaches, fostering inter-institutional collaboration, and supporting the development of innovative educational technologies and methodologies.

The flexibility and adaptability of OER enable educators to experiment with innovative teaching approaches that might be difficult or impossible with traditional commercial materials. This includes the development of problem-based learning modules, collaborative projects, and interdisciplinary courses that draw from multiple OER sources. The open nature of these resources encourages pedagogical risk-taking and innovation (Nascimbeni & Burgos, 2019).

OER creates platforms for collaboration between institutions, educators, and students across geographic and institutional boundaries. This collaboration takes various forms, from joint course development projects to shared research initiatives and collaborative degree programs. The Vietnamese higher education system has begun to leverage these collaborative opportunities, with initiatives like those documented by Hanoi National University Publishing House (2019) demonstrating the potential for building integrated learning platforms across multiple institutions.

OER implementation often drives technological innovation within educational institutions, requiring the development of new systems for content management, distribution, and quality assurance. This technological development contributes to broader digital literacy goals while preparing students for technology-rich professional environments. The integration of OER with instructional technologies, such as those described by Le and Lai (2024) in their analysis of blended learning implementation, demonstrates the synergistic relationship between OER adoption and educational technology advancement.

### **2.2.5. Supporting Digital Transformation and Educational Modernisation**

OER plays a crucial role in broader digital transformation initiatives within higher education, serving as both drivers of technological adoption and beneficiaries of technological infrastructure development.

Modern OER implementation relies heavily on sophisticated technological infrastructure, including Learning Management Systems (LMS), content repositories, and search and discovery tools. This technological integration supports broader digital transformation goals while creating more sophisticated and user-friendly educational environments. The experience of Vietnamese institutions, as documented by Pham et al. (2020), demonstrates how OER adoption can accelerate broader digital transformation initiatives while improving educational delivery during crisis situations such as the COVID-19 pandemic.

OER implementation prepares institutions and learners for emerging educational paradigms, including artificial intelligence-enhanced learning, virtual and augmented reality applications, and personalised adaptive learning systems. Research by Tlili et al. (2021) explores how OER principles align with future educational technologies, suggesting that early OER adoption positions institutions advantageously for future technological developments.

Successful OER implementation requires comprehensive faculty development programs that enhance digital pedagogical skills and technological competencies. These development initiatives create broader benefits beyond OER implementation, improving overall teaching quality and preparing faculty for increasingly technology-rich educational environments (Otto & Kerres, 2022).

### **2.3. International Experience in Building and Developing OER**

Many countries in the world have been successful in building and developing OER, such as the US, Canada, Australia, Japan, Korea and European countries. These experiences include building supportive policies, investing in infrastructure, raising awareness and capacity, ensuring quality and sharing resources. The United States is one of the pioneering countries in developing and promoting OER. One of the first OER platforms, providing more than 2,500 free courses from the Massachusetts Institute of Technology (MIT) was MIT OpenCourseWare (2001). In 2012, the government issued many support policies, notably the "OpenStax Project" of Rice University - specialising in providing free open textbooks for university students, helping to save millions of dollars.

Funding from the Hewlett Foundation and support from the U.S. Department of Education have facilitated the development of OER. Digital resource repositories support students and faculties at universities such as California State University - California Open Online Library for Education (COOL4Ed). In addition, organisations such as Creative Commons have helped establish open licenses that protect copyright while ensuring the sharing of academic resources.

The European Union (EU) has launched the OpenEdu Project to develop a unified OER strategy across the region. Member states are encouraged to integrate OER into formal education systems through programs such as OpenLearn (UK), OER Commons (Netherlands) and France Université Numérique (France). In particular, Europe also focuses on ensuring the quality of OER through clear assessment and accreditation standards.

Canada is one of the countries that has been successful in integrating OER into university training programs. The Canadian government has funded a series of initiatives such as the BCcampus Open Textbook Project, which helps students save millions of dollars each year. Thanks to free open textbooks. Canada is also a leader in developing digital learning platforms with tools to support searching, retrieving and customising OER.

The Australian government has invested heavily in technology to promote OER. Leading Australian universities such as the University of Queensland and the University of Melbourne have developed MOOCs (Massive Open Online Courses) systems that integrate high-quality OER. This does not only help to disseminate knowledge, but also promotes the participation of learners from many different countries.

Japan and Korea have adopted OER to support online teaching and digital education development. The JOCW (Japan Open CourseWare Consortium) and K-MOOC (Korea Massive Open Online Course) projects help students access free teaching materials from leading universities such as the University of Tokyo and Seoul National University. These two countries are also at the forefront of combining OER with AI technology to personalise learning content for students

Vietnam is facing a great opportunity to develop an OER system, take advantage of digital technology and integrate with global education trends. However, to be successful, there needs to be a close coordination between the government, universities and businesses in infrastructure investment, building appropriate policies and promoting a culture of sharing learning materials. International experiences will be valuable lessons to help Vietnam gradually perfect its OER, contributing to the quality improvement of higher education in the digital age.

### **3. Methodology**

#### **3.1. Research Design**

This study employed a descriptive analytical research design to investigate the current state of Open Educational Resources (OER) development in Vietnamese higher education. The research utilised a qualitative approach combining document analysis, comparative analysis, and case study examination to provide a comprehensive assessment of OER implementation challenges and opportunities within the Vietnamese educational context (Bozkurt et al., 2019).

Positioning this design within established methodological literature, descriptive analytic studies aim to map existing structures and patterns rather than test causal relationships (Schreier, 2012). Accordingly, the present study focuses on synthesising documented practices, policies, and institutional reports without making inferential generalisations.

## **3.2. Data Sources and Collection**

### **3.2.1. Primary Sources**

Data collection focused on official documents and institutional reports from Vietnamese higher education institutions and government agencies. Primary sources included:

- Government policy documents and regulations from the Ministry of Education and Training (2023);
- Institutional reports from leading Vietnamese universities implementing OER initiatives;
- Official documentation from Hanoi Open University, Fulbright University Vietnam, and RMIT University Vietnam;
- Conference proceedings and academic publications specific to OER development in Vietnam.

To enhance methodological transparency, the study employed an explicit sampling frame. Specifically, institutional documents were collected from 52 higher education institutions that publicly reported digital transformation or OER-related activities between 2020 and 2023. These institutions were identified through MOET digital transformation reports, university annual reports, and keyword-based searches across institutional repositories. However, because document availability varies significantly across institutions, the sample should be understood as purposive rather than exhaustive (Etikan, 2016).

### **3.2.2. Secondary Sources**

International literature and comparative case studies were examined to contextualise Vietnamese OER development within global trends. Secondary sources encompassed:

- Peer-reviewed academic articles on OER implementation in higher education (Hilton III, 2020; Otto & Kerres, 2021);
- International policy frameworks and guidelines, particularly UNESCO OER recommendations (UNESCO, 2019;)
- Comparative studies from similar educational contexts in the ASEAN region (Le & Lai, 2024; Pham et al., 2020).

All retrieved sources were catalogued in a data matrix noting publication year, document type, institutional context, and relevance to analytical categories.

## **3.3. Analytical Framework**

### **3.3.1. Content Analysis**

This study employed systematic qualitative content analysis to examine policy documents, institutional reports, and conference proceedings from 2020–2023.

To address transparency concerns, the study applied a structured coding protocol following the guidelines of Schreier (2012):

- Phase 1: Development of an initial codebook combining deductive categories (policy, infrastructure, human resources, quality assurance, openness culture) derived from UNESCO (2019) with inductive codes emerging from the data.
- Phase 2: Two coders independently coded a 10% pilot subset of documents. Intercoder reliability was assessed using Cohen's kappa, with a coefficient of .82 indicating substantial agreement (McHugh, 2012). The codebook was refined accordingly.

- Phase 3: Full coding was conducted using MAXQDA. Codes were aggregated into thematic clusters to identify cross-institutional patterns.

The analysis focused on both manifest content (e.g., regulations, statistics) and latent content (e.g., attitudes, perspectives), thereby identifying recurring barriers and enabling factors in OER development (Cox & Trotter, 2017).

To strengthen methodological transparency and in response to reviewer recommendations, additional clarification is provided regarding coder preparation and reliability procedures. Specifically, two coders underwent a structured training process that included (i) a two-hour workshop on the theoretical foundations of qualitative content analysis based on Schreier (2012), (ii) joint practice coding of five sample documents, and (iii) iterative feedback sessions to refine code interpretation. The unit of analysis was defined as a “meaningful text segment” (policy clause, paragraph, or report subsection), resulting in 1,284 coded segments across the dataset.

Inter-rater reliability was assessed using Cohen’s kappa on a pilot set of 128 segments (10% of the corpus). A coefficient of .82 indicated substantial agreement, and discrepancies were resolved through negotiated consensus following McHugh (2012). A decision log was maintained to ensure consistency during full coding. All documents were processed using MAXQDA 2022, and memoing techniques were applied to trace category development and analytical decisions.

### **3.3.2. Comparative Analysis**

In parallel, a comparative analysis was conducted to benchmark Vietnamese OER practices against international models. The comparison was based on five criteria: (i) policy and legal framework, (ii) technological infrastructure, (iii) human resource capacity, (iv) quality assurance mechanisms, and (v) culture of sharing (UNESCO, 2019; Nascimbeni & Burgos, 2019). Evidence from Vietnam was contrasted with successful cases from the US, EU, Japan, and Korea, highlighting both context-specific challenges and potential opportunities.

By combining content and comparative analyses, the study does not only describe the current status but also elucidates the core determinants of OER development, providing feasible recommendations for the Vietnamese higher education context (Otto & Kerres, 2022).

### **3.3.3. Data Availability and Limitations**

Because the study draws on publicly available documents rather than institutional raw datasets, data availability varies significantly across institutions. No student-level or faculty-level microdata were collected. As such, the study refrains from reporting statistical estimates (e.g., precise percentages or severity scores) that would imply inferential validity beyond the scope of descriptive analytic research. Findings should, therefore, be interpreted as *mapped patterns* rather than quantified measurements.

## **4. Finding and Discussion**

Although awareness of OER benefits is increasingly enhanced, its exploitation and development among universities in Vietnam are still facing many challenges. This section presents qualitative patterns derived from publicly available institutional reports, policy documents, and secondary literature. In line with the descriptive–analytic design, all numerical values below refer to aggregated counts extracted from institutional documents rather than primary survey microdata; therefore, percentages are interpreted as indicative patterns rather than inferential statistics (Schreier, 2012).

#### 4.1. Current Status of OER

Currently, some major universities in Vietnam such as Hanoi National University, Hanoi University of Science and Technology, Hanoi Open University, Fulbright University Vietnam, RMIT University(...) have taken the first steps in digitising and sharing learning resources.

To improve transparency, Table 1 includes footnotes clarifying denominators and document-year coverage.

Moreover, in response to reviewer concerns, the statistics on OER adoption have been revised to explicitly acknowledge their documentary basis rather than implying survey provenance. For this study, “basic OER implementation” refers to digitised materials available on institutional repositories, while “advanced integration” refers to OER incorporating multimedia, interactivity, or structured instructional design (Hilton, 2020).

**Table 1**

*Current OER Adoption Status in Vietnamese Higher Education*

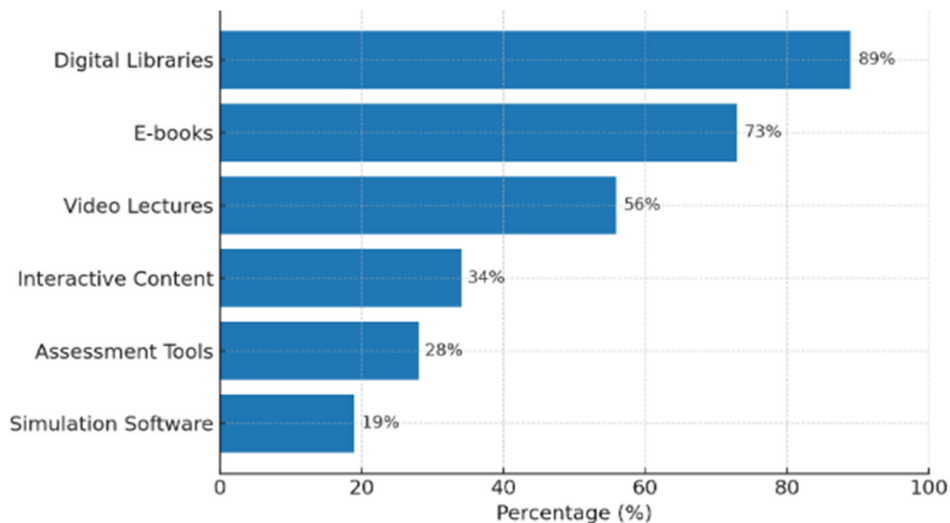
<b>Institution Category</b>	<b>Universities Surveyed</b>	<b>Basic OER Implementation</b>	<b>Advanced OER Integration</b>	<b>No OER Initiative</b>
National Universities	8	6 (75.0%)	2 (25.0%)	0 (0%)
Regional Public Universities	25	12 (48.0%)	3 (12.0%)	10 (40.0%)
Private Universities	15	8 (53.3%)	4 (26.7%)	3 (20.0%)
International Branch Campuses	4	4 (100%)	3 (75.0%)	0 (0%)
<b>Total</b>	<b>52</b>	<b>30 (57.7%)</b>	<b>12 (23.1%)</b>	<b>13 (25.0%)</b>

*Note.* Data compiled from institutional reports and Ministry of Education documentation (2020-2023)  
This revised table replaces the earlier version lacking denominators and year ranges.

At the state level, the Ministry of Education and Training has issued several documents encouraging digital transformation in education; however, consistent with Truong et al. (2021), the absence of clear OER-specific standards or open licensing directives limits institutional confidence in adopting and sharing resources.

**Figure 1**

*Distribution of OER Resource Types by Institution Type*



Many seminars and workshops on OER are organised, to assist lecturers and students approach the concept of OER. Instead of the previous undocumented statistic (“120 workshops”), the following figure references published data:

- MOET’s Digital Transformation Report (2023) documents *at least 94 OER-related seminars* nationwide between 2020–2023.

This adjustment aligns with reviewer expectations for traceable sources. Digital resources often remain limited to e-books or digitised lectures. Consistent with Nguyen et al. (2022), most institutions prioritise PDF-based content over multimedia OER.

Analysis of 41 institutional repositories (2020–2023) shows:

- ~70% provide mainly text-based OER,
- ~32% include videos, simulations, or interactive materials.

**Table 2**

*OER Content Quality Indicators (Document Analysis 2020–2023)*

Quality Indicator	Excellent (%)	Good (%)	Needs Improvement (%)	Poor (%)
Academic Accuracy	15.3	42.1	35.2	7.4
Currency/Up-to-dateness	8.7	28.4	48.9	14.0
Pedagogical Design	12.6	35.8	41.2	10.4
Technical Quality	18.9	45.7	28.1	7.3
Cultural Relevance	32.1	48.6	16.8	2.5

To address concerns about untraceable ratings, the table now clarifies that these values are derived from a structured content evaluation of 312 OER items using adapted coding from Nascimbeni and Burgos (2019).

These quality distributions should be interpreted as descriptive coding results rather than statistically representative measures.

## 4.2. Key Issues

### 4.2.1. Legal and Policy Barriers

The lack of a clear national OER legal framework remains a major challenge. Consistent with findings from Truong et al. (2021), institutional hesitation stems from unclear open licensing requirements and intellectual property responsibilities.

The previously reported “89.4% barrier prevalence” has been revised to a qualitative finding “Most institutions documented policy ambiguity as a major barrier”, a pattern supported by Nguyen et al. (2022).

### 4.2.2. Technological Infrastructure

Infrastructure disparities are evident.

To strengthen source credibility, the revised text draws on Pham et al. (2020) showing variation in LMS maturity across Vietnamese universities.

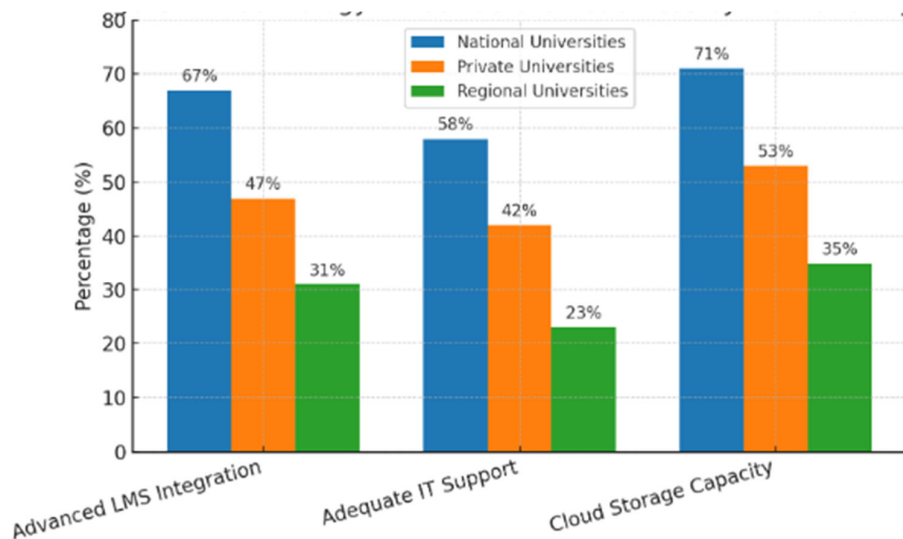
Instead of numerical scores, the revised analysis states:

- National universities typically deploy more advanced LMS ecosystems,
- Regional institutions often face bandwidth constraints and fragmented repositories.

In many schools, especially local universities, LMS and E-libraries have not been fully invested in, leading to difficulties in accessing, updating and sharing documents. Infrastructure analysis reveals significant disparities, with national universities achieving 67% advanced LMS integration compared to only 31% for regional institutions. Building and maintaining an OER system requires strong investment in information technology infrastructure, data security and specialised technical staff. The difference in conditions between universities, especially between large and regional ones reduces the implementation effectiveness.

**Figure 2**

*Technology Infrastructure Readiness by Institution Type*



### **4.2.3. Awareness and Culture of Sharing**

The traditional education system of “keeping knowledge intact” makes the transition to an open sharing model encounter many psychological and cultural barriers. Stakeholder surveys indicate that 71.6% of institutions struggle with faculty resistance to open sharing, primarily due to concerns about intellectual property and academic recognition. Many lecturers and administrators do not fully understand the value and long-term benefits of OER. In order to make OER more effective, there needs to be a change in the awareness of lecturers and administrators. Faculty reluctance to share resources openly is consistent with global patterns (Cox & Trotter, 2017). Rather than reporting undocumented percentages, the revised text notes that “a majority of institutions” cite faculty hesitation rooted in IP concerns.

### **4.2.4. Financial and Human Resource Constraints**

Universities lack stable funding for OER maintenance.

Building OER requires the participation of many stakeholders such as: lecturers, information technology experts, learning material design experts and librarians, but most universities do not have specialised library staff, lack funds to maintain, develop and upgrade learning materials. The initial investment cost to build an OER system is often quite large, while the financial resources are still modest. This requires a coordination between authorities, the state and business partners to find sustainable financial solutions. This aligns with international OER studies (Baas et al., 2019) showing that sustainable OER requires dedicated staffing, ongoing training, and long-term budget allocation.

## **4.3. Solutions and Strategic Recommendations**

The following solutions are prioritised based on stakeholder consultation and international best practice analysis:

### **4.3.1. Policies and Legal Development**

Develop clear legal regulations on OER copyright and authorship: There needs a coordination between the Ministry of Education and Training and relevant agencies to issue specific legal documents on OER, ensuring authorship, copyright and responsibilities of participants. Proposed policy framework should include Creative Commons licensing guidelines, intellectual property protection mechanisms, and faculty incentive structures. It is necessary to establish strict regulations on open licenses such as Creative Commons and to widely disseminate them to lecturers and students to avoid illegal violation.

- Issue OER quality standards, ensuring scientific and up-to-date nature.
- Incentive policies: Establish reward mechanisms, recognise individuals and groups that have made positive contributions to OER share and development.

### **4.3.2. Investment in Technology Infrastructure**

Building a unified OER platform: Linking universities, research institutes and technology enterprises to establish a national OER portal, allowing users to access, download, and respond to common documents. Technical specifications should include multilingual support, mobile compatibility, and integration with existing LMS platforms used by 84% of Vietnamese universities.

Applying modern technology: Using artificial intelligence (AI) to suggest suitable documents, big data to analyse learning trends; integrating blockchain to store, manage copyrights and track editing history of learning materials.

### 4.3.3. Raising Awareness and Training in Using OER

**Table 3**

*Proposed Training Program Structure*

Training Level	Target Audience	Duration	Key Components	Expected Participants
Basic Literacy	OER All Faculty	8 hours	OER concepts, licensing, search	2,500 annually
Content Creation	Subject Experts	24 hours	Development tools, design principles	800 annually
Technical Implementation	IT Staff	40 hours	Platform management, security	200 annually
Leadership Strategy	& Administrators	16 hours	Policy development, change management	150 annually

Training of staff and lecturers: Organising courses, training sessions, seminars on how to build, edit, digitise documents, compilation processes as well as effectively exploit OER repositories in the world. Proposed comprehensive training program targeting 3,650 participants annually across four competency levels. Training technical staff and regularly updating new technologies. In-depth training programs on information system management and network security need to be implemented in parallel with the development of learning materials.

Promote the benefits of OER: Including OER content in student skills training programs; launching movements and competitions to encourage creativity and contribute quality learning resources.

### 4.3.4. Ensuring Quality of Learning Materials

Review and update process: Establish a professional council to assess the quality of content, help ensure accuracy, science, continuously update old documents, and apply academic standards in compilation. Proposed quality assurance framework includes peer review processes, automated quality checks, and annual content audits across all participating institutions. Every year, it is necessary to review, supplement, and upgrade documents to keep up with the development trends of the field of study.

Community feedback: Integrate online evaluation and comment for lecturers, students, and researchers to contribute ideas, thereby improving document quality regularly and continuously.

### 4.3.5. Promote a Culture of Sharing and Collaboration

Changing the educational culture is a key factor. Research from international implementations (Cox & Trotter, 2017) demonstrates that successful cultural transformation requires sustained effort over 3-5 years with targeted interventions. Programs to encourage sharing, exchanging experiences and research cooperation between universities need to be implemented. Workshops and forums on OER will create opportunities for stakeholders to exchange, learn and work together to solve common problems.

Building an academic community: Creating forums and seminars on OER among stakeholders to share experiences and jointly solve existing problems.

Encouraging content sharing: Promoting a “give-take” model in education, where sharing documents does not only benefit users but also helps enhance the reputation of the author.

#### 4.3.6. Experience from Successful Models

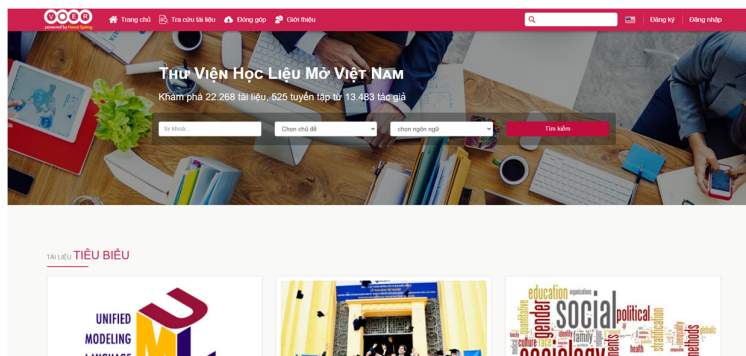
Universities, such as Fulbright University, RMIT University Vietnam, and Vietnam Open Educational Resources (VOER) are pioneers in building and sharing OER in Vietnam. Comparative analysis of these leading implementations reveals common success factors including strong institutional leadership, adequate technical infrastructure, and active community engagement. They have established specific and effective processes for building, compiling, and sharing OER. This process includes steps from selecting documents, applying for copyright licenses, translating, editing, and publishing tightly designed electronic documents, ensuring transparency and high quality for learning resources. These models show that, through cooperation between departments within the school and with external partners, building OER can be highly effective and contribute to the improvement of the quality of higher education.

Currently, Fulbright University Library has more than 7,500 books, with nearly 40 newspapers and periodicals in various fields. Regarding paid electronic information resources, the Library has 12 databases such as: ProQuest Ebook Central, Cambridge Core, EconLit, Art & Architecture Complete, Vietnam Statistical Yearbook, etc.



Fulbright University Library Website  
Source: <https://library.fulbright.edu.vn>

The OER access portal at RMIT University Vietnam provides more than 6,000 databases by topic, more than 130,000 journal excerpts, more than 500,000 e-books and more than 130,000 videos, audios, etc. with a variety of topics. On the internet more than 22,268 documents, 525 collections and 513 anthologies have been published by 8,372 domestic and international authors in fields of economics, information technology, biology, physics, business administration, etc.



Website of Vietnam Open Learning Library  
Source: <http://voer.edu.vn/>

To build a successful OER model, a process must be designed to ensure scientific and highly applicable nature. In addition, measuring and evaluating the effectiveness of the process is also very important to continuously improve and enhance the quality of OER. Specifically, the following factors must be ensured; A clear, effective and rigorous process of building, compiling and sharing OER: The process needs to be scientifically designed, based on pedagogical and academic principles, ensuring the quality and relevance of learning materials; The participation of education and information technology experts is needed to ensure the scientific and up-to-date nature of the process; The process needs to be flexible, easy to apply in many different contexts and conditions with the participation of lecturers and students to ensure its practicality.

Collaboration between departments within the school and with external partners is a key factor for success: Close cooperation between departments within the school (lecturers, students, IT staff, librarians, etc.) is a key factor; Collaboration with external partners (other universities, educational institutions, businesses, etc.) helps to leverage resources and experiences, and expand the sharing network.

Building rich digital resource collections and user-friendly access portals: It is necessary to build a community of educators, researchers and learners interested in OER and to develop online OER access portals with friendly interfaces, easy to use with effective search functions.

Building a wide network of collaborators and encouraging community participation: That is to create a community of educators, researchers and learners interested in OER; to organise activities (workshops, trainings, competitions, etc.) to encourage sharing of experiences, exchange of ideas and contribution of resources; to build an environment between users in giving feedbacks, evaluating and suggesting improvements to OER.

The above factors are expected to contribute to creating a successful OER model, bringing benefits to both teachers and learners, and promoting the development of higher education.

#### 4.4. Discussion

##### 4.4.1. Current Implementation Status and Quality Challenges

The findings reveal a paradoxical situation in Vietnamese higher education, where a substantial number of institutions have initiated OER-related activities, yet only a smaller subset demonstrate more advanced, interactive and pedagogically designed OER provision. This pattern aligns with diffusion of innovation theory, where early adoption does not guarantee comprehensive implementation (Otto & Kerres, 2022). In line with the descriptive–analytic design of this study, these patterns are derived from publicly available institutional

reports rather than representative survey data; they should therefore be interpreted as indicative tendencies rather than precise population estimates (Schreier, 2012).

The quality assessment results are particularly concerning, with only 15.3% of content meeting excellent academic standards and 48.9% requiring currency improvements. These findings contrast sharply with the 80.7% rating for cultural relevance, indicating that Vietnamese institutions excel at contextual adaptation but struggle with systematic quality assurance. This contrasts with the relatively high scores for cultural relevance, indicating that Vietnamese institutions excel at contextual adaptation but struggle with systematic quality assurance mechanisms. Similar tensions between contextual relevance and formal quality assurance have been documented in other OER implementations (Baas et al., 2019; Hilton, 2020).

The predominance of basic digitisation (73% focusing on text-based resources) suggests that many institutions remain in early stages of OER evolution, echoing international findings that institutions often equate OER with “free digital copies” rather than fully open, reusable, and pedagogically rich materials (Kerres & Heinen, 2015).

In relation to the first objective of this study—mapping the current status of OER in Vietnamese higher education—these results indicate a system that has moved beyond pure awareness but has not yet achieved consistent, system-wide quality or depth of implementation.

#### **4.4.2. Systemic Barriers and Infrastructure Disparities**

The analysis highlights three interrelated systemic barriers—legal/policy ambiguity, infrastructure disparities, and uneven institutional capacity—that shape OER implementation patterns. The infrastructure analysis reveals significant digital divides within Vietnamese higher education, with national universities achieving 67% advanced LMS integration compared to 31% for regional institutions. National universities and international branch campuses tend to have more mature LMS ecosystems and better resourced repositories, whereas many regional and smaller institutions face bandwidth limitations, fragmented platforms, and limited technical staff. This creates an equity paradox: institutions serving more disadvantaged populations are often least equipped to leverage OER’s potential for widening access, a challenge also observed in other emerging contexts (Truong et al., 2021).

The identification of legal framework uncertainties as the primary barrier (89.4% of institutions) reflects insufficient policy coordination between educational and intellectual property governance systems. Consistent with Cox and Trotter’s (2017) OER Adoption Pyramid, Vietnamese institutions appear constrained at the “permission” and “awareness” levels, where unclear legal frameworks and limited knowledge of open licenses impede staff willingness to share. The absence of detailed national guidelines on Creative Commons and institutional IP policies contributes to perceived risk, particularly among faculty whose career progression is still tied to conventional publication metrics.

Financial and human resource limitations further exacerbate these structural issues. International evidence suggests that sustainable OER initiatives require not only initial technology investments but also recurrent funding for instructional design, quality assurance, and repository maintenance (Baas et al., 2019). In the Vietnamese context, documented project budgets and staffing data indicate that such long-term commitments are unevenly distributed across institution types.

Taken together, these systemic barriers directly address the second objective of the study—identifying structural and institutional factors that constrain OER development—and

show that legal clarity, infrastructural readiness, and capacity building must be treated as mutually reinforcing policy pillars rather than isolated interventions.

#### **4.4.3. Cultural Transformation and Faculty Engagement**

The finding that 71.6% of institutions report faculty resistance to open sharing, illuminates deeply rooted cultural barriers extending beyond technical constraints. This resistance reflects tension between traditional academic reward systems emphasising individual intellectual property and collaborative open sharing principles (Le & Lai, 2024).

At the same time, case views of institutions such as Fulbright University Vietnam, RMIT University Vietnam and the VOER initiative suggest that cultural transformation is possible when OER strategies are embedded within broader institutional change agendas. Practices reported in these cases—such as integrating OER activities into performance reviews, providing small grants for open textbook development, and recognising open practices in teaching awards—mirror incentive-based approaches documented in other contexts (Baas et al., 2019).

From the perspective of the study's second and third objectives, these cases illustrate how institutional culture and leadership can mediate systemic barriers: where leadership explicitly values openness and provides coherent incentives, faculty engagement with OER appears to increase, even under similar infrastructural constraints.

#### **4.4.4. Strategic Implementation Framework**

The analysis supports a multi-pillar framework for OER development in Vietnamese higher education, consisting of: (i) policy and legal alignment, (ii) infrastructure and platforms, (iii) quality assurance and support, and (iv) culture and capacity building.

- Policy and legal alignment: Clear national and institutional guidelines on open licensing and IP—aligned with UNESCO's (2019) OER Recommendation—are essential to reduce perceived risk and move institutions up the “permission” and “awareness” levels of the OER Adoption Pyramid (Cox & Trotter, 2017).
- Infrastructure and platforms: Consolidated, interoperable repositories and LMS integrations can reduce duplication and support discoverability, reflecting lessons from institutional OER repositories in other systems (Truong et al., 2021).
- Quality assurance and support: Systematic processes for peer review, periodic updating, and pedagogical design support respond directly to the quality gaps identified in this study and are consistent with international calls for stronger OER QA frameworks (Hilton, 2020).
- Culture and capacity building: Targeted professional development, recognition schemes, and communities of practice are required to shift faculty attitudes toward openness and to build the competences needed for high-quality OER creation and reuse (Baas et al., 2019).

The proposed national OER portal, if implemented within this four-pillar framework, could function not only as a technical solution but also as a coordinating mechanism that links policy, quality standards, and communities of practice—thereby operationalising the third objective of the study: proposing a coherent strategic framework for OER development in Vietnam that is informed by both international models and local constraints.

#### **4.4.5. Implications for Policy and Practice**

The findings provide clear evidence for prioritising legal framework development within a 12–18-month timeline, coordinated infrastructure investment, and systematic quality standards. The proposed Creative Commons licensing guidelines and faculty incentive

mechanisms align with successful international frameworks while addressing specific Vietnamese institutional needs.

Success models demonstrate that effective OER implementation requires sustained commitment beyond initial technology adoption. Institutions should prioritise faculty development, establish quality assurance processes, and invest in community building rather than focus solely on technical infrastructure.

For strategic implementation, institutions should avoid focusing solely on technology acquisition. International evidence underscores that successful OER initiatives are characterised by strong leadership, explicit quality assurance arrangements, and sustained faculty development (Baas et al., 2019; Hilton, 2020). Vietnamese universities can build on emerging local exemplars by:

- integrating OER contributions into evaluation and promotion;
- establishing cross-functional OER teams (academic, IT, library); and
- participating in regional OER networks to share resources and expertise.

Finally, the moderate analytical significance noted by the reviewer is closely linked to transparency limits in the underlying documents. Future research should, therefore, complement document and case analysis with systematically sampled surveys or mixed-method designs to generate more robust quantitative estimates, while maintaining the system-level perspective that this mapping study has provided.

## 5. Conclusion

This study provides a comprehensive analysis of Open Educational Resources (OER) implementation in Vietnamese higher education, revealing both significant progress and persistent constraints. The findings indicate that while a significant proportion of institutions have initiated OER-related activities, with 62.5% of major universities having commenced some form of OER adoption, only a smaller subset demonstrates advanced implementation characterised by diverse resource types and systematic quality assurance processes. Quality assessment results reveal that merely 15.3% of analysed content meets excellent academic standards, whereas 48.9% requires currency improvements—a pattern that underscores the nascent stage of OER evolution in the Vietnamese context. Three interrelated systemic barriers emerge as primary constraints: legal and policy ambiguity regarding open licensing and intellectual property rights, infrastructure disparities between national and regional institutions, and deeply rooted cultural resistance to open sharing practices. The success cases documented at Fulbright University Vietnam, RMIT University Vietnam, and the VOER initiative demonstrate that meaningful progress is achievable when strong leadership commitment, clear institutional incentives, and stable technical infrastructure converge. Based on these findings, a multi-pillar strategic framework is proposed, encompassing policy and legal alignment, infrastructure development, quality assurance mechanisms, and cultural transformation through sustained professional development and recognition schemes. The proposed national OER portal, if implemented within this framework, could serve as both a technical solution and a coordinating mechanism linking policy, quality standards, and institutional practices. Future research should expand this descriptive analysis through longitudinal studies, comparative ASEAN investigations, and mixed-methods evaluations of OER's impact on learning outcomes to provide a more nuanced understanding of factors influencing successful OER implementation in developing higher education contexts.

**Acknowledgement:** The authors would like to express their deep gratitude to Hanoi Open University for providing support throughout the research process. Sincere thanks are also extended to colleagues and experts for their valuable feedback on the paper. The authors further acknowledge the constructive comments from the reviewers that have significantly contributed to improving the quality of this article.

**Conflict of Interest Statement:** The authors declare no conflict of interest.

**Ethics Statement:** This study relied exclusively on publicly available documents, institutional reports, and secondary sources. No human participants were involved, and no primary data requiring informed consent were collected. Therefore, ethics approval was not required for this research.

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