

Research Article

IDENTIFICATION AND GOVERNANCE OF INTELLECTUAL ASSETS IN VIETNAMESE HIGHER EDUCATION INSTITUTIONS IN THE CONTEXT OF DIGITAL TRANSFORMATION

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Abstract

This article explores intellectual asset governance as a catalyst for developing innovation-driven universities in Vietnam. While higher education institutions are central to creating and managing intellectual assets-from scientific research to digital learning tools-their capacity to identify, protect, and commercialize these resources remains limited. The study proposes a comprehensive life-cycle governance framework that treats intellectual assets as strategic endogenous resources. By leveraging digital transformation-specifically AI, big data, and digital platforms-as strategic infrastructure, universities can enhance intellectual property protection, streamline digital provenance, and strengthen university-industry collaboration, thereby converting academic knowledge into tangible socio-economic value within the innovation ecosystem

Keywords: Intellectual asset governance; Innovation-driven higher education; Commercialization of research outcomes; Digital transformation in education

1. INTRODUCTION

In the context of the knowledge-based economy and the rapid advancement of the Fourth Industrial Revolution, digital transformation has been generating profound changes in socio-economic development models on a global scale. In Vietnam, knowledge, science and technology, and innovation have increasingly emerged as fundamental drivers of economic

growth, competitiveness enhancement, and sustainable development. From the perspective of contemporary educational philosophy, higher education institutions play a pivotal role in the knowledge economy as central agents in the creation, dissemination, and advancement of knowledge. Therefore, the identification, protection, and effective management of intellectual assets have become an indispensable requirement in the development strategies of modern universities (Uoc, Ai, & Binh, 2023).

Situated at the core of the knowledge ecosystem, higher education institutions not only fulfill the function of developing high-quality human resources but also serve as major hubs for research, innovation, and the creation of valuable intellectual assets. These assets encompass a wide range of outputs, including scientific publications, inventions, technological solutions, digital learning resources, and other innovative products. However, empirical evidence indicates that the processes of identifying, protecting, managing, and exploiting intellectual assets in many higher education institutions remain subject to significant limitations. Particularly, the digital environment, characterized by rapid dissemination, extensive replication capabilities, and widespread sharing mechanisms, has introduced emerging challenges in safeguarding intellectual property rights and effectively leveraging knowledge-based resources.

Issues related to intellectual property have been extensively examined from various perspectives, particularly in the context of international economic integration and the implementation of commitments under next-generation free trade agreements, such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the European Union–Vietnam Free Trade Agreement (EVFTA). However, existing studies have predominantly focused on general legal aspects of intellectual property or intellectual asset management practices within the business sector, while the development of intellectual asset governance mechanisms in higher education institutions - where knowledge is directly generated, disseminated, and transformed into innovative outcomes - has not yet received commensurate scholarly attention. The lack of systematic approaches in identifying, establishing ownership rights, protecting, and exploiting intellectual assets not only undermines the effectiveness of scientific research activities but also constrains the potential transformation of academic knowledge into socio-economic values. Against this theoretical and practical background, this study focuses on the topic: “Identification and Management of Intellectual Assets in Vietnamese Higher Education Institutions in the Context of Digital

Transformation”. Employing a qualitative research approach, combined with the systematic analysis of legal frameworks and empirical practices, this study aims to clarify key issues arising in the processes of identifying, protecting, and exploiting intellectual assets within higher education institutions. Based on these analyses, the study proposes several orientations and solutions to enhance intellectual asset governance capacity, maximize the value of knowledge resources, and strengthen the role of higher education institutions in advancing the knowledge-based economy.

2. RESEARCH METHODOLOGY

This study adopts a qualitative research approach integrating three complementary methods. First, desk research is conducted to synthesize relevant legal frameworks, international assessments (e.g., WIPO, 2024), and academic literature concerning intellectual asset governance, knowledge management, and digital transformation in higher education. Second, analytical and synthetic reasoning is applied to conceptualize university intellectual assets and construct a six-stage life-cycle governance framework: identification, evaluation, protection, management, exploitation, and commercialization. Third, empirical evidence from previous studies on digital technology transfer in Vietnamese higher education is examined to provide practical insights into governance bottlenecks and the development of university innovation ecosystems.

3. RESEARCH RESULTS

3.1. Identification and Value Establishment of Intellectual Assets in Higher Education Institutions

In the process of developing innovative and internationally integrated university models, the identification and value establishment of intellectual assets represent the fundamental initial step, playing a decisive role in the effective governance and exploitation of knowledge resources. From the perspective of modern management theory, any managerial activity can only achieve effectiveness and efficiency when its objects of governance are clearly identified, comprehensively defined, and systematically organized.

However, current practices in many Vietnamese higher education institutions reveal a notable paradox. Although universities possess abundant intellectual resources generated through teaching activities, scientific research, and innovation initiatives, the comprehensive identification of the nature, scope, and value of these assets remains considerably limited.

This situation has resulted in the underutilization of endogenous knowledge resources, thereby reducing the capacity to transform academic knowledge into scientific, economic, and social values.

Fundamentally, this issue can be examined through two major dimensions as follows:

In essence, intellectual assets within higher education institutions represent an integrated body of creative outputs generated through intellectual activities, research endeavors, and educational practices. These assets embody not only academic values but also substantial potential for creating economic benefits and contributing to broader social development. Within the university context, intellectual assets can be identified through four fundamental categories. The first category includes scientific assets, comprising research projects, scholarly publications, research outcomes, and specialized knowledge databases, which constitute the foundation for institutional academic reputation and research capacity. The second category refers to technological assets, including inventions, utility solutions, technical processes, software applications, and innovative products with potential for practical application and technology transfer. The third category consists of digital educational assets, which have been increasingly developed in the process of digital transformation, including electronic textbooks, digital lectures, open educational resources, and online learning platforms. The fourth category encompasses institutional brand assets and organizational knowledge, including academic reputation, management information systems, educational models, and distinctive values accumulated throughout the development process of higher education institutions. The establishment and evaluation of intellectual asset value should be conducted based on scientific and objective criteria, including scientific value reflected through novelty, knowledge contribution, and academic significance; practical value demonstrated through the capacity to address real-world challenges; legal protectability in accordance with intellectual property regulations; and commercialization potential through technology transfer, university–industry collaboration, or the creation of new economic and social values.

The most significant implication of identifying and establishing the value of intellectual assets lies in a fundamental transformation of management thinking: moving from the conventional perception that research products are merely outcomes of academic activities toward the recognition that they constitute dynamic knowledge assets requiring systematic governance, protection, and exploitation throughout their entire life cycle. This transformation represents a

critical institutional foundation enabling higher education institutions to strengthen their role as central hubs of knowledge creation, foster innovation-driven development, and make meaningful contributions to the advancement of the knowledge-based economy in the digital era.

3.2. Fundamental Issues in Intellectual Asset Governance in Vietnamese Higher Education Institutions in the Current Context

The governance and value exploitation of intellectual assets in higher education institutions under the influence of digital transformation are fundamentally centered on two core dimensions:

First, the development of an intellectual asset governance model toward a strategic, systematic, and comprehensive orientation.

In the knowledge-based economy, the value of intellectual assets is determined not only by the process of knowledge creation and generation but, more importantly, by the capacity to protect, govern, exploit, and transform knowledge into concrete scientific, economic, and social values. Numerous international studies have emphasized that, within the knowledge economy context, universities are not merely institutions for knowledge production but also active agents responsible for governing, leveraging, and transforming research outcomes into socio-economic values through intellectual property activities and technology transfer mechanisms (Perkmann et al., 2013). For Vietnamese higher education institutions, this issue represents not only a legal requirement but also a strategic factor determining institutional competitiveness, academic reputation, and the capacity to contribute to the national innovation ecosystem.

Empirical evidence indicates that Vietnamese universities currently possess abundant intellectual assets generated through educational activities, scientific research, and innovation initiatives. However, a considerable gap remains between the capacity for knowledge creation and the capability to govern and exploit intellectual assets effectively. Many valuable research outcomes have not yet been adequately identified for the establishment of intellectual property rights; intellectual asset portfolio management has not been systematically implemented; intellectual asset valuation continues to encounter significant challenges; and technology transfer, industry collaboration, and commercialization of research outputs have not yet become a continuous and effective operational cycle.

In-depth research on digital transformation and knowledge transfer activities in Vietnamese higher education institutions, particularly the case of the Banking University of Ho Chi Minh City, has demonstrated that current knowledge and technology transfer practices are facing significant challenges in the governance of research outcomes. The delayed resolution of bottlenecks in identifying and commercializing intellectual assets has weakened the pivotal role of universities in creating and leading innovation ecosystems (Tran, 2023). As a consequence of these limitations, a considerable proportion of intellectual resources generated within universities have not yet realized their full potential value and may even be at risk of being underutilized, lost, or overlooked in an increasingly competitive knowledge-based environment.

To address these challenges, higher education institutions need to approach intellectual asset governance as a long-term strategic development orientation closely associated with institutional autonomy, enhanced research capacity, and the establishment of innovation-driven university models. First and foremost, universities should develop intellectual asset governance strategies aligned with their overall development orientations while simultaneously establishing specialized units or dedicated focal points with sufficient expertise in legal affairs, science, technology, and market development to undertake functions related to intellectual asset management, consultation, and exploitation support.

An effective governance model should be structured around a comprehensive and integrated life-cycle framework consisting of six closely interconnected stages: Identification → Evaluation => Protection => Management => Utilization => Commercialization. Within this framework, identification aims to recognize research outcomes with potential for development into intellectual assets; evaluation determines their scientific value, applicability, and development potential; protection establishes ownership rights in accordance with legal regulations; management involves maintaining, monitoring, and expanding the intellectual asset portfolio; utilization seeks to broaden the scope of application and maximize practical value; and commercialization transforms knowledge resources into tangible economic and social benefits. Only through the effective operation of this complete life-cycle process can intellectual assets truly become strategic resources contributing to the sustainable development of higher education institutions.

Second, applying Digital Transformation to Enhance the Effectiveness of Intellectual Asset Governance and Development

In the context of rapid digital transformation, technology is no longer merely a supporting tool for administrative management but has become a strategic infrastructure for restructuring approaches to intellectual asset governance in higher education institutions. The application of digital platforms enables universities to establish centralized, transparent, and highly interconnected intellectual asset management systems, thereby enhancing the effectiveness of monitoring and controlling the entire life cycle of knowledge assets.

Through digital governance systems, universities can develop comprehensive intellectual asset databases that store information regarding authorship, protection status, exploitation processes, and technology transfer potential. Emerging technologies, including artificial intelligence, big data analytics, digital provenance tracking systems, and online copyright protection solutions, can support the detection of infringement activities, the management of usage rights, and the enhancement of security for digital knowledge products.

In particular, research on the application of artificial intelligence (notably tools such as ChatGPT) in Vietnamese higher education has demonstrated that the development of AI-based technologies is creating entirely new approaches to knowledge creation, storage, dissemination, and utilization. At the same time, these technological advancements also generate complex challenges and impose urgent requirements for the governance of intellectual property rights concerning academic outputs and knowledge assets created within digital environments (Uoc, 2023). Therefore, in the educational sector, protecting digital learning resources, electronic lectures, research data, and online training products has become an essential requirement to safeguard the legitimate rights and interests of lecturers, researchers, and educational institutions.

Beyond its protective function, digital transformation also provides new opportunities to enhance the connectivity, accessibility, and effective utilization of intellectual assets through the establishment of interactive platforms linking universities, researchers, enterprises, and society. This serves as an important foundation for promoting technology transfer, developing innovative products, and fostering the emergence of university-based entrepreneurial models.

4. CONCLUSION

This study has systematically reviewed and clarified fundamental theoretical issues regarding the identification and governance of intellectual assets in Vietnamese higher education institutions within the context of digital transformation. The research findings confirm that intellectual assets are not merely by-products of educational and scientific research activities,

but rather strategic knowledge resources that require systematic identification, protection, governance, and utilization throughout their entire life cycle in order to foster the development of innovation-driven university models. From a scientific perspective, this study contributes to the development of an integrated conceptual framework that connects intellectual asset governance with digital transformation, thereby addressing a significant research gap, as previous studies have predominantly focused on intellectual property management in business organizations rather than in higher education institutions. From practical and policy perspectives, the study provides valuable references for universities in formulating intellectual asset governance strategies, improving institutional mechanisms, developing specialized units, and standardizing governance processes from identification, protection, and management to exploitation and commercialization. Furthermore, the application of digital technology platforms is identified as a critical solution for enhancing copyright protection, managing intellectual asset databases, and promoting stronger linkages between universities and enterprises within innovation ecosystems. Nevertheless, this study has several limitations, primarily due to its reliance on qualitative analysis and theoretical synthesis without conducting an in-depth evaluation of the impacts across specific university models. Therefore, future research should expand empirical investigations, further examine the role of artificial intelligence and digital technologies in the protection and exploitation of intellectual assets, and conduct comparative studies of domestic and international governance models. Such efforts would contribute to the further development of knowledge governance ecosystems and promote the advancement of the knowledge-based economy.

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