

Exploring the Impacts of Digital Transformation on Quality Assurance Activities

Mai Phuong NguyenThi^{1*}

¹Quality Assurance in Education and Testing Department, University of Transport and Communications, No.3 Cau Giay Street, Lang Thuong Ward, Dong Da District, Hanoi, Vietnam

Abstract: Digital transformation is considered one of the important and necessary tasks for the socio-economic development of the country. This activity also poses requirements and has a great impact on education and training activities in general, in which quality assurance activities are greatly affected. The purpose of this study is to explore the impacts of digital transformation on quality assurance activities; the challenges posed by digital transformation on quality assurance activities. To achieve this purpose, this study simultaneously implemented qualitative and quantitative methods. A survey of 47 people who are individuals working in the field of quality assurance at several universities. The results showed that 55,32% rated it as influential and very influential. Based on the research results, this study recommends solutions to promote the positive aspects and overcome the limitations of digital transformation on quality assurance activities in Vietnam's universities today.

Keywords: Impacts, digital transformation, quality assurance, universities.

Copyright © 2025 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution **4.0 International License (CC BY-NC 4.0)** which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

Research Paper

*Corresponding Author:

Mai Phuong NguyenThi

Quality Assurance in Education and Testing
Department, University of Transport and
Communications, No.3 Cau Giay Street, Lang
Thuong Ward, Dong Da District, Hanoi, Vietnam

How to cite this paper:

Mai Phuong NguyenThi (2025). Exploring the
Impacts of Digital Transformation on Quality
Assurance Activities. *Middle East Res J Econ
Management*, 5(3): 29-34.

Article History:

| Submit: 30.03.2025 |
| Accepted: 29.04.2025 |
| Published: 02.05.2025 |

INTRODUCTION

Previously, according to traditional methods, quality assurance activities in universities mainly focused on compliance with established standards and guidelines, with the aim of avoiding deviations and errors. This method, which is often reactive rather than proactive, relies on manual processes and checks to ensure quality. These traditional methods, although effective to some extent, are time-consuming, laborious and prone to human error. The emergence and application of quality management software solutions have begun to change this trend, streamlining and automating many processes in the implementation of quality assurance in universities.

As the digital age dawns, a new wave of quality management has emerged, called Quality 4.0 (Ho Chi Minh City Quality Association, 2023). This new approach leverages cutting-edge technologies such as AI, IoT, and big data to drive quality improvement. Quality 4.0 integrates these technologies into quality management processes, making them more proactive, predictive, and efficient. This has created a shift toward agile quality management, focusing on continuous improvement and flexibility. That is digital

transformation and the need for digital transformation in all sectors.

Recognizing that importance, the Politburo issued Resolution No. 57-NQ/TW (December 22, 2024) on breakthroughs in science, technology, innovation, and national digital transformation (Resolution No. 57-NQ/TW). At the same time, the Government issued Resolution No. 71/NQ-CP amending and updating the Government's Action Program to implement Resolution No. 57-NQ/TW of the Politburo on breakthroughs in science, technology, innovation and national digital transformation. It identifies specific tasks for ministries, branches and localities to develop action plans, organize implementation, inspect, supervise and evaluate the implementation of Resolution No. 57-NQ/TW, realizing the goal of making science, technology, innovation and national digital transformation the top important breakthrough, the main driving force for rapidly developing modern productive forces, perfecting production relations, innovating national governance methods, developing the socio-economy, preventing the risk of falling behind, and making the country develop and become rich and strong in the new era.

Digital transformation brings many benefits, such as improved efficiency, increased accuracy and consistency, and greater predictability. However, it also poses challenges that need to be addressed, including ensuring data security, managing resistance to change, and building digital skillsets. The role of AI in quality management is one of the key aspects of digital transformation. AI technologies, such as machine learning and predictive analytics, can help educational institutions predict and prevent quality issues, optimize processes, and drive continuous improvement. This can lead to significant cost savings, improved training quality, and increased satisfaction among faculty, students, and other stakeholders in higher education institutions.

To explore the impacts of digital transformation on quality assurance activities, this study focuses on clarifying the following basic issues: (i) Digital transformation, digital transformation in education, quality assurance activities; (ii) The importance of digital transformation activities on quality assurance activities; (iii) The impacts of digital transformation activities on quality assurance activities; (iv) The challenges of digital transformation activities on quality assurance activities.

LITERATURE REVIEW

Digital transformation

Today, the concept of “Digital Transformation” is being interested and applied in many places around the world and universities in Vietnam are no exception. According to Matt, et al. (2015), organizations today recognize the benefits and carry out activities to apply new technologies to their operations. The emergence of digital transformation has changed the way businesses operate to respond to changes in learner behavior, responding to the digital science race against competitors (Verhoef et al., 2021). According to Bhattacharya (2023), Digital transformation is the application of technology in a specific industry, changing the way people complete certain tasks. It has a huge impact on the way people communicate and engage with each other. According to the provisions of Section 3 of Decision 749/QĐ-TTg in 2020, the viewpoint of the national digital transformation program to 2025 includes: (i) Awareness plays a decisive role in digital transformation; (ii) People are the center of digital transformation; (iii) Institutions and technology are the driving force of digital transformation; (iv) Developing digital platforms is a breakthrough solution to promote faster digital transformation, reduce costs, and increase efficiency; (v) Ensuring network safety and security is the key to successful and sustainable digital transformation, and is also an inseparable and continuous part of digital transformation. All devices, products, software, information systems, and investment projects in information technology have mandatory components of network safety and security right from the design stage; (vi) The participation of the entire political system, synchronous actions at all levels, and the participation of

the entire population are factors that ensure the success of digital transformation. Harmoniously combine centralization and decentralization when implementing, and have a common coordinating agency.

From the above concepts, digital transformation is understood as: Digital transformation is a process of overall and comprehensive change of individuals and organizations in the way of life, work, and production methods based on digital technologies. At the same time, it is the process of using digital technology to improve or change all aspects of an organization or business, from production processes, business operations, to service delivery and customer interactions.

Digital transformation in education

According to PACE (2023): Digital transformation in education is the application of digital technology and internet information systems to the education sector to improve the quality of teaching, learning and education management. Including improving teaching methods, improving equipment and learning support tools, improving the experience of students, students and training participants.

Digital transformation helps create a learning environment where everything is connected (Luong, 2022). The new combination of technology and security aims to narrow the geographical distance to create a learning experience while enhancing the interaction of people. However, digital transformation in education also poses a number of challenges, including ensuring equitable access to technology, training and support for teachers and students, and ensuring information security and confidentiality in the digital environment.

The goal of digital transformation in education is to improve the quality of education, create a modern, flexible and fair learning environment, to comprehensively develop the capacity and qualities of learners, meeting the requirements of the digital age and international integration.

Quality assurance activities

According to ISO 9000, this is “a part of quality management, focused on providing confidence that quality requirements will be met”. Defect prevention in quality assurance differs from defect detection and elimination in quality control. This work is considered to be left-leaning in the production process because it focuses on quality earlier (Larry Smith, 2001). According to MISA (2024), quality assurance is a systematic process to ensure that a product or service meets the established quality standards before it reaches the customer. QA not only focuses on detecting defects but also focuses on preventing defects from occurring in the first place (Van, 2023; Thuan & AnLong, 2022).

From the above perspectives, quality assurance (QA) is understood as a set of systematic and carefully

planned activities to create a product or service that meets the specified quality requirements. QA is not simply testing the final product but also includes identifying, controlling and improving quality assurance processes in production to minimize defects and ensure quality consistency.

Quality assurance of higher education

According to Nguyen Duc Chinh (2002): Quality assurance is a process that occurs before and during implementation. Its concern is to prevent possible errors from the very first step. The quality of the product is designed right from the beginning to the end of its production process according to strict standards to ensure that there are no errors at any stage (Hong, 2022a & 2022 b; Duc, 2022). Quality assurance is largely the responsibility of the workers, often working in independent units, rather than the responsibility of the inspector, although the inspector can also have a certain role in quality assurance (Hang, 2020; Van, 2023). According to Vietnamese standard TCVN5814: “Quality assurance is all planned and systematic activities carried out within the quality system and demonstrated to be sufficient to create adequate confidence that the entity (Ministry of Education and Training, 2022).

Thus, quality assurance in higher education is defined as pre-determined systems, policies, procedures, processes, actions and attitudes aimed at achieving, maintaining, monitoring and strengthening the quality of education at a certain standard level and finding solutions to continuously improve the quality, contributing to the

fulfillment of the mission, creating trust and adequately demonstrating to stakeholders that the school will meet the declared quality requirements

RESEARCH METHOD

Qualitative research: Studying State documents on quality assurance and digital transformation activities, specifically: Law on Higher Education 2012; Law on Higher Education amended 2018; Decree 99/2019/ND-CP guiding the implementation of the Law on Higher Education amended; Circular 13/2023/TT-BGDDT regulating the monitoring and evaluation of quality assessment organizations for higher education and pedagogical colleges issued by the Minister of Education and Training; Circular 14/2022/TT-BGDDT regulating the assessment of higher education and pedagogical colleges issued by the Minister of Education and Training, etc. In addition, focus on studying the school’s research on digital transformation, the importance and impact of digital transformation in education in general and in quality assurance activities in particular.

Survey method: This study conducted a survey of 47 people who are working in the field of quality assurance activities at some universities through a questionnaire with related issues such as: (i) The importance of digital transformation to quality assurance activities; (ii) The impacts of digital transformation on quality assurance activities; (iii) The challenges posed by digital transformation to quality assurance activities. The survey levels are specified in Table 1.

Table 1: Conventions for processing survey information

Medium score	$1.00 \leq \bar{X} \leq 1.80$	$1.81 \leq \bar{X} \leq 2.60$	$2.61 \leq \bar{X} \leq 3.40$	$3.41 \leq \bar{X} \leq 4.20$	$4.21 \leq \bar{X} \leq 5.0$
Conventional points	1	2	3	4	5
Critical level	Not important	Less important	Rather important	Important	Very important
Level of implementation	Not affect	Little affect	Rather affect	Affect	Very affect
Challenge	Not challenge	Little challenge	Rather challenge	Challenge	Very challenge

Processing survey data: Use the formula to calculate the average score:

$$\bar{X} = \frac{\sum_{i=1}^k X_i K_i}{n} \cdot \bar{X}$$

: Medium score. Xi: Score at level i. Ki: Number of participants rated at Xi level. n: Number of people participating in the assessment.

RESEARCH RESULTS AND DISCUSSION

The importance of digital transformation in quality assurance activities

To properly assess the importance of digital transformation in quality assurance activities, in addition to studying theoretical issues, this study focuses on conducting a survey of 47 people who are working in the field of quality assurance activities at several universities through a questionnaire. The convention on the level of assessment is determined in Table 1. The results are shown in Table 2.

Table 2: The importance of digital transformation in quality assurance activities

Order	Content	Rating Level					XTB	Level
		1	2	3	4	5		
1	Diverse information from learners, teachers and stakeholders	1	6	16	19	5	3.45	1
2	Flexibility in collecting information from learners, teachers, alumni and stakeholders	1	7	16	18	5	3.40	4

Order	Content	Rating Level					XTB	Level
		1	2	3	4	5		
3	Disseminating digital knowledge to students, teachers and stakeholders	0	5	15	21	6	3.60	2
4	Staff interact more with learners, teachers and stakeholders	0	6	17	20	4	3.47	5
5	Easily access information and knowledge, narrowing geographical distance	2	7	17	17	4	3.30	3
Total average		0.80	6.20	16.20	19.00	4.80	3.44	

The survey results in Table 2 show that with XTB = 3.44, it is at the “Important” level, but is at the lower end of the rating level. Examining each survey content shows that there are still contents that are rated as “Rather important”, such as: “Easy access to information and knowledge, narrowing geographical distance” with XTB = 3.33 and “Flexibility in collecting information from learners, teachers, alumni and stakeholders” with XTB = 3.40. In addition, in all evaluated contents, some people rate it as “Not important” with 0.80/47 reviewers; “Less important” with 6.20/47 reviewers; “Rather important” with 16.20/47 reviewers. The rating level is concentrated at “Important” with 19/47 reviewers. The rating of “Very important” was only 4.80/47 people. This result shows that there are still some people who have not properly

assessed the importance of digital transformation for quality assurance activities. Therefore, it is necessary to have solutions to raise awareness of lecturers, students and managers at universities about the importance of digital transformation for quality assurance activities

Impact of digital transformation on quality assurance activities

To properly assess the impact of digital transformation on quality assurance activities, in addition to studying theoretical issues, this study focuses on conducting a survey of 47 people who are working in the field of quality assurance activities at several universities through a questionnaire. The convention on the assessment level is determined in Table 1. The results are shown in Table 3.

Table 3: Impact of digital transformation on quality assurance activities

Order	Content	Rating Level					XTB	Level
		1	2	3	4	5		
1	Strengthening the technical infrastructure in quality assurance activities	1	5	14	22	5	3.53	1
2	Expanding access to technology to ensure seamless quality assurance activities	0	6	16	19	6	3.53	4
3	Developing digital content in quality assurance activities	0	4	14	22	7	3.68	2
4	Developing online quality assurance systems	0	5	16	20	6	3.57	5
5	Developing digital skills of staff working in the quality assurance field	0	6	17	20	4	3.47	3
6	Collaboration among stakeholders in quality assurance activities	1	6	16	18	6	3.47	6
Total average		0.33	5.33	15.50	20.17	5.67	3.54	

The survey results in Table 3 show that with XTB = 3.54, it is at the “Influence” level but is at the lower limit of the evaluation level. Examining each survey’s content shows that no content is rated as “No influence”, “Little influence” and “Rather influence”. However, in all evaluated contents, some people rate it as “No influence” with 0.33/47 evaluators; “Little influence” with 5.33/47 evaluators; “Rather influence” with 15.50/47 evaluators. The evaluation level is concentrated at “Influence” with 20.17/47 evaluators. The “Very influence” level is only 5.67/47 evaluators. This result shows that there are still some people who have not properly assessed the impact of digital transformation on quality assurance activities. Therefore,

there is a need for solutions to show lecturers, students and managers at universities about the impact of digital transformation on quality assurance activities.

Challenges of digital transformation in quality assurance activities

To properly assess the challenges of digital transformation in quality assurance activities, in addition to studying theoretical issues, this study focuses on conducting a survey of 47 people who are working in the field of quality assurance activities at several universities through a questionnaire. The convention on the level of assessment is determined in Table 1. The results are shown in Table 4.

Table 4: Challenges of digital transformation in quality assurance activities

Order	Content	Rating Level					XTB	Level
		1	2	3	4			
1	Lack of close and comprehensive control over digital learning materials	1	5	15	20	6	3.53	1
2	Difficulties in protecting personal data	2	4	16	19	6	3.49	4
3	Many limitations in using technology tools and applications	1	4	13	21	8	3.66	2
4	Lack of cybersecurity policies and regulations	2	4	16	19	6	3.49	5
5	Lack of technology knowledge and skills	1	5	15	20	6	3.53	3
6	Difficulty in integrating new digital technologies into old systems	1	6	15	19	6	3.49	6
Total average		1.33	4.67	15.00	19.67	6.33	3.53	

The survey results in Table 4 show that with XTB = 3.53, it is at the “Challenge” level but is at the lower limit of the assessment level. Examining each survey’s content shows that no content is rated as “Not challenging”, “Less challenging” and “Rather challenging”. However, in all assessed contents, some people rate it as “Not challenging” with 1.33/47 assessors; “Less challenging” with 4.67/47 assessors; “Rather challenging” with 15.00/47 assessors. The assessment level is concentrated at “Challenging” with 19.67/47 assessors. The “Very challenging” assessment level is only 6.33/47 assessors. This result shows that there are many challenges to digital transformation for quality assurance activities. These challenges require universities to have many solutions to overcome difficulties and challenges. Take advantage of the opportunities that digital transformation brings to quality assurance activities.

Some issues to discuss

In recent years, many projects and investment contents of higher education institutions have included digital transformation. Many higher education institutions have begun to implement digital transformation, considering digital transformation as a key issue and implementing it with different steps, from research, study, implementation, and application. However, in the quality assurance activities of higher education institutions, the digital transformation process is facing many challenges:

First, digital transformation in higher education must change the awareness of each individual and training institution. Awareness cannot only take place at the top, that is, individuals, policy and planning units, but also needs to take place in each teacher, manager, learner, etc. Currently, there is still a situation where several lecturers have not adapted to new technology, are not ready for teaching, research, connection, and application of information technology in research and teaching activities. Not to mention some learners who are familiar with traditional training methods and are “afraid” to change to new training methods.

Second, the development of new technology in training and management has not received much

investment attention in higher education institutions. Digital transformation in testing and evaluating the quality of higher education needs to continue to be promoted to find effective solutions, constantly improve, enhance accountability, and autonomy of higher education in the era of breakthrough technology. Digitalization (of data) requires time and effort because of the number of records, documents, programs, textbooks, lesson plans, etc. The amount of paper in thousands of higher education institutions is huge. Without a detailed plan and guidance, it is difficult to implement a synchronous, systematic system to ensure the operation process.

The third is human resources for digital transformation: This issue refers to all entities and subjects in the field of higher education, specifically lecturers and students. The context of digital transformation requires lecturers to equip themselves with new skills to organize teaching activities, maintain learners’ attention, and organize effective teaching and learning activities for learners in virtual space. On the contrary, students need to improve their initiative, creativity and interest in learning. These requirements are challenges for the digital transformation of human resources at higher education institutions.

The fourth is digital infrastructure: Technology infrastructure for digital transformation includes hardware, such as computers, internet connection, teaching support applications, open learning resources, and software systems to support testing and evaluation. In the current conditions of unsynchronized investment at higher education institutions, having a digital infrastructure that ensures transformation will also be a big challenge.

CONCLUSION

We live in a digital, global and hyper-connected world, characterized by societal and technological change, where the constant emergence of new market players, mobility and constant connectivity have a major impact. Today, digital transformation is not just an option. Universities need to get out of their comfort zone, reinvent themselves and compete in a world dominated

by advanced technologies. Digital transformation is a long process with many challenges that force universities to change and adapt. However, digital transformation will help universities to increasingly improve the quality of work of quality assurance teams, lecturers, students and stakeholders, improve public services, help reduce congestion and serve the needs of learners more effectively. Digital transformation also helps universities reduce operating costs due to the unlimited connectivity of the digitalization process, without the need for available resources, although this process is still very difficult due to the incomplete human resources that most businesses have to retrain. Therefore, universities need to quickly upgrade their digital systems to help complete the digital transformation process to meet current trends.

REFERENCES

- Abachnick, B. G., & Fidell, L. S. (2007). Using multivariate statistics. New York: Pearson Education.
- Abad-Segura, E., González-Zamar, M. D., Infante-Moro, J. C., & Ruipérez García, G. (2017). Sustainable management of digital transformation in higher education: Global research trends. Sustainability
- Bhattacharya, A. (n.d.). (2023). Digital transformation challenges in educational institutions. EHL Insights. <https://hospitalityinsights.ehl.edu/digital-education-transformation>.
- Chinh, N. D. (2002). Quality assessment in higher education. Hanoi: Vietnam National University, Hanoi.
- Duc, H. H. (2022). The changes in education policy in the context of educational innovation in Vietnam. *Revista on Line De Política E Gestão Educacional*, 26(esp.1), e022043.
- Government. (2019). Decree 99/2019/ND-CP guiding the implementation of the revised Law on Higher Education. Hanoi.
- Government. (2024). Resolution No. 71/NQ-CP amending and supplementing the Government's Action Program to implement Resolution No. 57-NQ/TW of the Politburo on breakthroughs in science and technology development, innovation and national digital transformation. Hanoi.
- Hang, L. T., et al. (2020). Building Strong Teaching and Learning Strategies through Teaching Innovations and Learners' Creativity: A Study of Vietnamese Universities. *International Journal of Education and Practice*, 8(3), pp. 498-510.
- Ho Chi Minh City Quality Association. (2024). Whose benefit – digital transformation in quality management. Retrieved from <https://vietnamquality.org.vn/loi-ich-cua-ai-chuyen-doi-so-trong-quan-ly-chat-luong/>
- Hong, V. V. (2022a). Management of educational activities in schools towards the approach of learners' competency: a case study of a high school. *Nuances: Estudos Sobre Educação*, 32(00): e021005.
- Hong, V. H. (2022b). Necessity and solutions for ethical education among teachers in the framework of Industrial Revolution 4.0. *Revista on line de Política e Gestão Educacional*, Araraquara, v. 26, n. 00, p. e022166, 2022. DOI: 10.22633/rpge.v26i00.17731. Disponível em: <https://periodicos.fclar.unesp.br/rpge/article/view/17731>.
- Larry Smith. (2001). Shift-Left Testing. Retrieved from <https://www.drdoobs.com/shift-left-testing/184404768>
- Luong, N. V. (2022). O papel educacional das redes sociais na comunicação de políticas no Vietnã. *Revista on Line De Política E Gestão Educacional*, 26(esp.1), e022037. <https://doi.org/10.22633/rpge.v26iesp.1.16513>
- Ministry of Education and Training. (2022). Circular 14/2022/TT-BGDĐT regulating the accreditation of higher education and pedagogical colleges. Hanoi.
- MISA. (2024). What is quality assurance? Quality assurance process in enterprises. Retrieved from <https://amis.misa.vn/176735/dam-bao-chat-luong/>
- National Assembly. (2018). Revised Law on Higher Education 2018 No. 34/2018/QH14 effective from 01/07/2019. Hanoi.
- PACE. (2023). Digital transformation in education: Current status, role & solutions. Retrieved from <https://www.pace.edu.vn/tin-kho-tri-thuc/chuyen-doi-so-trong-giao-duc>
- Political Bureau. (2024). Resolution No. 57-NQ/TW on breakthroughs in science, technology, innovation and national digital transformation (Resolution No. 57-NQ/TW). Hanoi.
- Roll, M. J., & Ifenthaler, D. (2021). Multidisciplinary digital competencies of pre-service vocational teachers. *Empirical Research in Vocational Education and Training*, pp. 1-25.
- Thuan, P.V. & AnLong, D. N. (2023). Management of Self-Assessment and Quality Accreditation Activities at Vocational Colleges in Vietnam: Policy, Practice and Some Solutions. *Journal for Educators, Teachers, and Trainers*. 14(3), pp: 326-334. DOI: <https://doi.org/10.47750/jett.2023.14.03.040>
- Thuy, D. T. (2023). Analyzing the impact of digital transformation on the learning quality of human resource management students at the University of Economics and Finance, Ho Chi Minh City (UEF). *Journal of Development and Integration* 73(83), pp. 78-86.
- Van, H. V. (2023). Ensuring the Quality of Education and Training in the Context of Educational Innovation. *Quality Access to Success*, vol. 5, no. 98, pp. 40-50. <https://doi.org/10.47750/QAS/25.198.05>