Digital transformation in teaching and learning at university in Vietnam

MEc. Tran Thi Mo

1. Introduction

- Digital transformation is considered the current inevitable trend in the activities of enterprises, organizations and the state.

- Universities are institutions that research and provide educational services, spread and develop human knowledge, therefore, without digital transformation and successful digital transformation, universities cannot be a place to attract, train and lead in knowledge for scientists, students and businesses.

2. Education trends in the digital age

2.1 What is digital transformation in education?

Digital transformation of education sectors, which means the application of technology, based on the purpose and structure of the educational enterprise. Currently, it is applied under 3 main forms:

- Apply technology in teaching methods: Smart classrooms, programming ... in teaching.

- Application of technology in management: Tools for operation and management

- Technology application in the classroom: Teaching tools, facilities.

2. Education trends in the digital age

2.2 Education trends in the digital age

- It is becoming common for students to have a computer or smartphone with an internet connection in the digital age of the internet's explosion

- E-learning is a form of education and learning based on the internet connection. With an internet-connected tablet or smartphone, both lecturers and students can participate in the classes opened on the system through a tablet computer or smartphone with internet connection.

- In addition, there are other software programs like Camtasia Studio. With the help of these programs, we can quickly and easily construct online courses, video lessons, and explanations.

2.2. Education trends in the digital age

- **Digital learners**
- **Digital instructors**
- **Digital learning**
- **Digital learning environment**

2.2. Education trends in the digital age

- **Digital learners**

With this strategy, the learner now occupies the middle. Modern education allows students to freely select pre-designed modules from the curriculum framework and is more pro-active in allowing students to determine the content of their learning program

2.2. Education trends in the digital age

- **Digital instructors**

In order to meet the needs of students, it is necessary for the teaching staff to continuously adapt, learn, and use new technology. Teachers perform the role of instructing, transmitting, and connecting students with data sources and learning materials based on technology; Teachers are digital teachers who must be proficient in technology to easily support students in approaching, accepting, and using it, as well as inspire students to be able to use it and make the most of this priceless resources.

2.2. Education trends in the digital age

- **Digital learning**

The sources of knowledge, information, and educational skills are being increasingly digitized from A to Z from the design, production, publishing, and archiving stages with exceptionally big capacity, resulting in extremely vast open sources of educational resources. Readers will be able to quickly access, look up information, exchange and contribute ideas thanks to stored, digital resources,…

2.2. Education trends in the digital age

- **Digital learning environment**

Learning will be more individualized as a result of learners' interactions with artificial intelligence products, robotics in the classroom, face recognition, biometrics, and emotion recognition, among other technologies, leading to new, varied, and more eficient access to information for individualized learing

3. The benefits of digital transformation in the education sector in Vietnam

• **Be proactive in learning, flexible educational environment**

Through the Internet, digital technology has created a convenient learning environment that allows for on-the-go learning.

Learners can acquire knowledge conveniently and easily on any device (computer, laptop, smartphone,…). Anyone, everywhere, at any time, has access to the widest variety of information and expertise. It entirely eliminates the restrictions of distance, maximizes study time, and develops students' awareness and critical thinking.

3. The benefits of digital transformation in the education sector in Vietnam

• **Increased interactivity and real-world experience**

this new approach to learning actually fosters more two-way communication because students and teachers may speak face to face without being constrained by physical distance. Additionally, 4.0 technologies like virtual reality and augmented reality applications give students more "real" reality experiences.

3. The benefits of digital transformation in the education sector in Vietnam

- **Unlimited access to learning materials**

Thanks to the vast and limitless collection of documents, students may readily access them and save a lot of money. Additionally, the digital revolution in the education sector makes it easier to access and use resources swiftly with online tools, unrestricted by the users' financial means.

By lowering the cost of printing, technology makes it simpler and more cost-effective for teachers and students to share documents and textbooks.

3. The benefits of digital transformation in the education sector in Vietnam

- **The quality of education is improved**

Education has undergone a digital transition that has ushered in a new era when teachers and students are empowered to use technology. Achievements such as:

- Bigdata enables online knowledge storage.

- IoT aids in managing, supervising, and monitoring student activities.

- Blockchain facilitates the management of student data and academic records, allowing for the management and sharing of data from numerous institutions, the recording of academic history, and transcripts to assure accurate information.

3. The benefits of digital transformation in the education sector in Vietnam

- **Maximum savings in training and learning costs**

- The cost of fixing issues with buildings, facilities, equipment, and other things will be lower for schools. More options are provided to learners via number conversion. They can take use of inexpensive online learning opportunities instead of attending public schools. Even better, students can select the courses that best suit their interests and needs. This results in higher-quality learning that is also more effective.

4. The reality of digital transformation in teaching and tertiary study in Vietnam

4.1. Background and realities of digital transformation

The fundamental and thorough reform of education and training in Vietnam is constantly a crucial task in the Party and Government's objectives and policies

"Education and Training" has always been integrated in the strategies and policies for development of economic and social fields.

4. The reality of digital transformation in teaching and tertiary study in Vietnam

4.1. Background and realities of digital transformation

The fundamental and thorough reform of education and training in Vietnam is constantly a crucial task in the Party and Government's objectives and policies

"Education and Training" has always been integrated in the strategies and policies for development of economic and social fields.

4.1. Background and realities of digital transformation

The Party and Government issued documents on proactively participating in the Industry 4.0, building e-Government, digital government, digital economy and digital society:

- Resolution No. 52-NQ/TW dated September 27, 2019 of the Politburo,

- Resolution No. 17/NQ-CP dated March 7, 2019 of the Government,

- Resolution No. 50/NQCP dated April 17, 2020 of the Government.

- Most recently, the Prime Minister issued Decision No. 131/QD-TTg on approving the Project to enhance the application of information technology and digital transformation in education and training in the period of 2022-2025 with a vision to the year 2030 on January 25, 2022.

4.1. Background and realities of digital transformation

The prevalence of cellphones and the Internet gives Vietnam a significant advantage in the digital transformation of colleges.

According to statistics, the number of Internet users in November 2021 reached 68.72 million people, accounting for 70.3% of the population, the high percentage of Internet users in the population was one of the initial conditions to help Vietnam continue to Access to education 4.0 is faster.

Internet speed in Vietnam is considered to be good compared to the world, when the average download speed of fixed and mobile Internet in the world in November 2021 was 58 Mb/s and 29.06 Mb/s

4.1. Background and realities of digital transformation

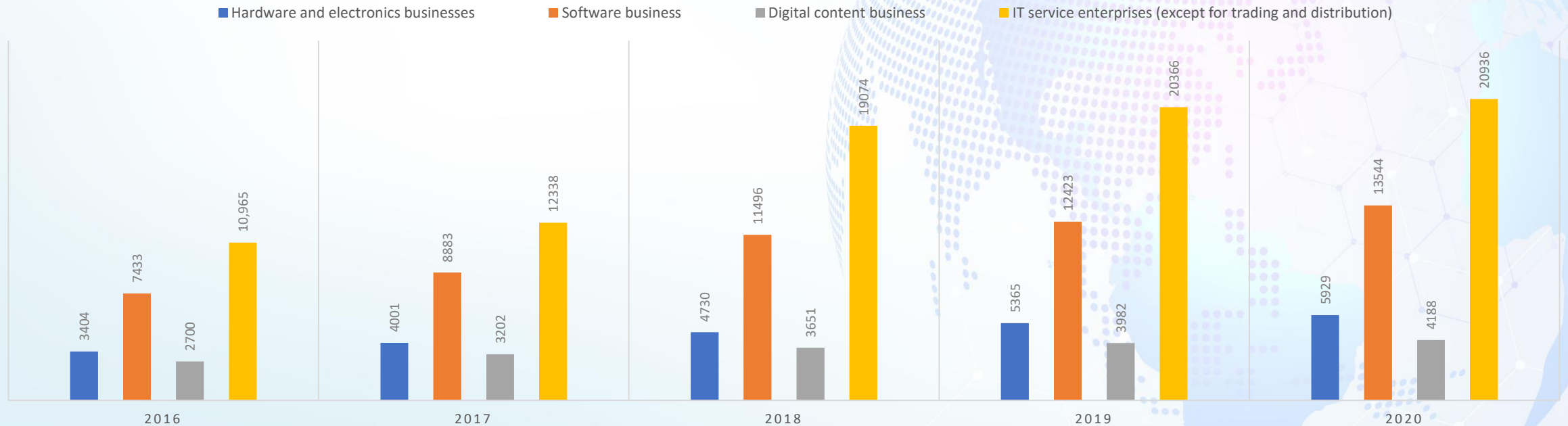## Table 1. Proportion of population covered by 2G, 3G, 4G

No	Target	Unit	2017	2018	2019	2020
1	Percentage of population with 2G mobile coverage	%	99.5	99.7	99.8	**99.8**
2	Percentage of population with 3G mobile coverage	%	98	99.7	99.8	**99.8**
3	Percentage of population with 4G mobile coverage	%	95	95.3	97	99.5

Source: Ministry of Information and Communications

4.1. Background and realities of digital transformation

Due to the State's excellent policies and action programs, there will be a substantial increase in the number of IT-related businesses between 2016 and 2020, adding excitement to the digital economy.

NUMBER OF BUSINESSES IN THE IT SECTOR

■ Hardware and electronics businesses   ■ Software business   ■ Digital content business   ■ IT service enterprises (except for trading and distribution)

Year	Hardware and electronics businesses	Software business	Digital content business	IT service enterprises
2016	3404	7433	2700	10,965
2017	4001	8883	3202	12338
2018	4730	11496	3651	19074
2019	5365	12423	3982	20366
2020	5929	13544	4188	20936

Source: Information and Communication Technology White Paper 2021

Chart 1. Number of businesses in the IT Sector from 2016 - 2020

4.1. Background and realities of digital transformation

With investments from the government and private businesses, ICT and telecoms infrastructure is advancing steadily. faster and more reliable internet speed. Science and technology, notably 5G technology, are gradually advancing and competing with the rest of the world. The digital environment is becoming more and more diverse as a result of the rising number of websites, electronic, and social networks.

4.1. Background and realities of digital transformation

The index of human resources and information technology infrastructure of the provinces is quite high.

Table 2: Number of websites and social networks

Target	Unit	2016	2017	2018	2019	2020
Number of general websites of press agencies	Website	172	166	189	175	**184**
Number of general websites licensed by agencies, enterprises or organizations that are not press agencies	Website	1,323	1,384	1,349	1,587	**1,716**
Number of licensed social networking sites	**Social Network**	**240**	**401**	**493**	**614**	**755**

Source: Ministry of Information and Communications

4.1. Background and realities of digital transformation

Table 3. Number of employees in the IT industry in Vietnam

Unit: per person

Target	2016	2017	2018	2019	2020
Number of employees in hardware and electronics industry	568,288	678,917	717,955	760,097	842,458
Number of employees in software industry	97,387	112,004	127,366	143,149	149,072
Number of employees in the digital content industry	46,647	55,908	51,952	42,479	34,377
Number of IT service employees (except for trading and distribution)	68,605	75,692	76,419	59,481	55,361
Total	780,926	922,521	973,692	1,005,206	1,081,268

Source: Vietnam Information and Communication Technology White Paper 2021

4.1. Background and realities of digital transformation

Table 4. ICT human resource training

Target	2018	2019	2020
Total number of universities offering IT, electronics, telecommunications, and cyber security training	149	158	**158**
Total number of vocational colleges and vocational secondary schools offering training in IT, electronics, telecommunications, and cyberinformation security	412	442	**442**
Total number of university enrollment targets for IT, electronics, telecommunications, and cyberinformation security	51,114	6,435	**8,085**
Actual rate of university enrollment in IT, electronics, telecommunications, and cyberinformation security	82%	82%	**84%**
Percentage of enrollment targets for vocational colleges and intermediate vocational schools in IT, electronics, telecommunications and network information security/Total enrollment targets	**12.53%**	**9.54%**	**7.7%**

Source: Vietnam Information and Communication Technology White Paper 2021

4. The reality of digital transformation in teaching and tertiary study in Vietnam

4.2 Transition of reality in teaching and learning of higher education in Vietnam

- **Application of converting numbers in teaching and learning methods.**

It is necessary to mimic Digital Technology trends in learning and teaching environments. Smart technologies like video recorders, smart desks, smart electronic boards, meeting equipment, etc. have been implemented in classrooms.

4.2 Transition of reality in teaching and learning of higher education in Vietnam

Numerous educational businesses also offer opportunities for students to engage in activities, access cutting-edge technology, and even take part in virtual reality tours.

- E - learning online course

- Methods of learning through projects

- Learning method by using virtual reality

- Classes in Programming, STEM, STEAM, English for technology

- Integrate online learning video

- Learn from AR / VR (Augmented Reality / Virtual Reality)

- Competency portal

- Learning Experience Platform

4.2 Transition of reality in teaching and learning of higher education in Vietnam

• Attend attendance without contact

Educational institutions can benefit from this technology in the following ways: Students can log their attendance by scanning their ID card or by employing facial recognition technology.

Applying technology in management

Currently, school management software has been applied by many public institutions. Private educational institutions employ software to manage their operations; these operations have been steadily computerized with school management software.

4.2 Transition of reality in teaching and learning of higher education in Vietnam

- **Use of enrollment technology**

The learner must wait in line to complete the admissions procedures and send the paperwork, and frequently, the learner must visit the school to check the status of the position. To submit their own, the admissions team must also review their profile, verify their qualifications, make a list of students and update their profile status on the system.

- **Operate and administer educational companies using technology.**

The education sector is actively encouraging technology development, online-oriented work procedures, the use of BigData, IoT, and improving departmental communication.

Every activity runs like a business, with supporting divisions like human resources and financial accounting…

5. Conclusion

- Overall, it is clear that integrating technology into education is a necessary trend that will have a significant impact on society as a whole and benefit people, groups, and the entire community.

- *For teachers*: Develop your creativity and flexibility in the classroom.

- *For students*: having access to a novel teaching strategy that is significantly more alluring than the conventional reading-copy strategy

- *For the society*: Teaching techniques have changed for the better and teacher quality has increased. We can only hope that Vietnam's education will soon keep pace with the advancement of nations with the best education systems in the world.