



Digital Transformation in Higher Education

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Abstract. At this time, in the pandemic season of Covid-19, digital transformation is developing twice as fast; as usual, the organizations or institutions that are most demanded to adapt to this pandemic are universities. The purpose of this research is to identify the development of digital transformation that occurs in universities from year to year and to identify the development of digital transformations that occur based on areas in higher education using the core concepts of digital transformation and By using the systematic literature review (SLR) method, The results of this study are expected to provide insight into the development of digital transformation that occurs in higher education.

Keywords: Digital Transformation, Higher Education, College.

1. Introduction

Digital transformation (DT) is the core values of higher education, which can be developed more effectively by enriching and expanding the mission of higher education. Digital transformation seeks to increase value of an organization by encouraging changes in activities that are carried out more quickly and significantly through the strategic integration of information technology, computing, communication, and connectivity [1].

DT is a rapid technological innovation to carry out business activities, improve company performance, events, practices, and models [2]. It is also allowing companies performance to improves, efficiency of operations, customer experience, and lastly combination of digital and physical business [3]. Digital innovation has driven the development of new business services and product offerings, Through the strategic utilization of digital technology, innovative product and service design methodologies were enhanced by reconfiguring and recombining digital components. [4].

Higher education institutions continue to transform from year to year from their business activities in a conventional way to activities that are fully digital. This, of course, needs to be seen to what extent digital developments have occurred in universities from year to year.

This study is analyzing development of digital transformation that occurs in universities from year to year and in which areas digital transformation occurs most. The methods that are



used in this study are systematic literature review (SLR) methods from previous studies. The results is to provide insight into development of digital transformation that occurs on higher education.

2. Method

This section, author used structured literature review (SLR) methods to find and determine data related to the topic. SLR is a methodical approach that systematically identifies, evaluates, and interprets all findings in the studies to answer predefined research questions [5]. This method is executed in a methodical manner, adhering to steps and procedure which allows the review process avoiding bias and subjective interpretations by the author. There are also stages that are carried out in this SLR method, which are as follows: Research questions and process, study selection, inclusion and exclusion criteria, quality assessment, data collection and analysis.

3. Results and Discussion

This part, we will be discussing the results of digital transformation on higher education; this part will present the findings for Research Question 1, focusing on the year-by-year development of digital transformation, and research question 2, the studies area of transformation digital that occurs on higher education.

3.1. Research Question

The research question is the first stage to guide or focus the process and extraction of literature. The research questions are:

- Development of transformation digital in universities from year to year?
- Research areas digital transformation is applied the most in higher education?

3.2. Search Process

The research process is the second stage of SLR; this section describes the process of searching for the literature that will be used. The flow of the literature search process is as follows:

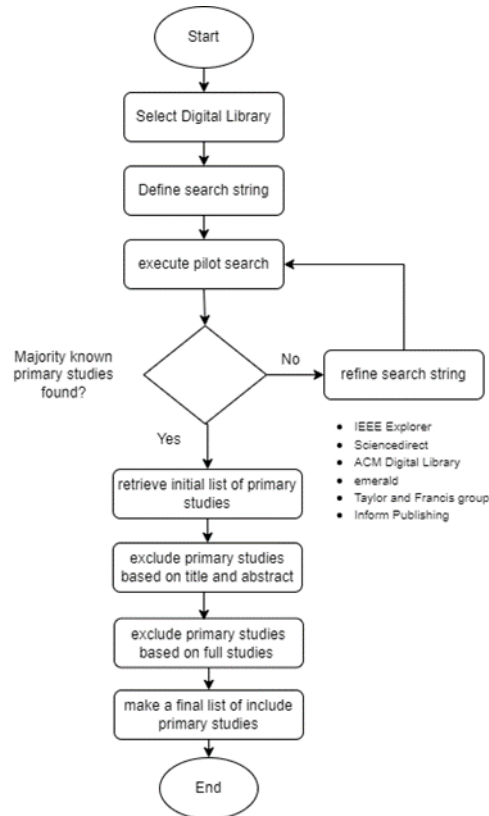


Figure 1. Research process

The database used is a Scopus indexed source and has a good ranking according to SJR, namely:

- IEEEExplore Digital Library.
- Sciencedirect.
- ACM Digital Library.
- Emerald.
- Taylor & Francis group.
- PubsOnline Informs.

The search keywords used to find papers related to research questions are:
 (("digital transformation" OR "digital transformation") AND ("higher education" OR "university")).

3.3. Inclusion & Exclusion Criteria

Inclusion and exclusion criteria are the third steps of SLR. This step determines the criteria for the article that will be used, the criteria that will be used in this research, namely:

- International journals & proceedings / conferences.

- Focus on discussing transformation digital on higher education.
- In the English language.
- Publication Year 2016 - 2020.

3.4. Extraction data

This step determines the data collection used to support RQ1 & RQ2; here are the results of the selection of articles & journals that will be used as data collections, namely:

Table 1. Data collections

Source	Studies found	Candidate studies	Selected studies
IEEEExplore	53	26	9
ACM	45	10	6
Sciencedirect	57	26	5
emerald	32	13	1
T & francis online	23	12	2
Informa PubsOnline	20	7	1
Total	230	94	24

3.5. Analysis Data

In this step, the method used to analyze the data uses descriptive analysis methods to provide brief information about development of transformation digital on higher education and determine the direction of future research.

3.6. Development of Transformation Digital in Higher Education from Year to Year

Table 2 shows the development of transformation digital on higher education for the last five years, starting from 2016 - 2020.

Table 2. Development of transformation digital in higher education based on year to year

Year	Article	Reference
2016	1	[25]
2017	2	[3] [7]
2018	6	[26][27][6][8][10][11]
2019	8	[9][12][14][15][16][5][19][22]
2020	7	[18][13][17][20][21][24] [23]
total	24	

It can be seen in Figure 3 that the publication of development of transformation digital on higher education has increased from year to year, from 2016 to 2020.

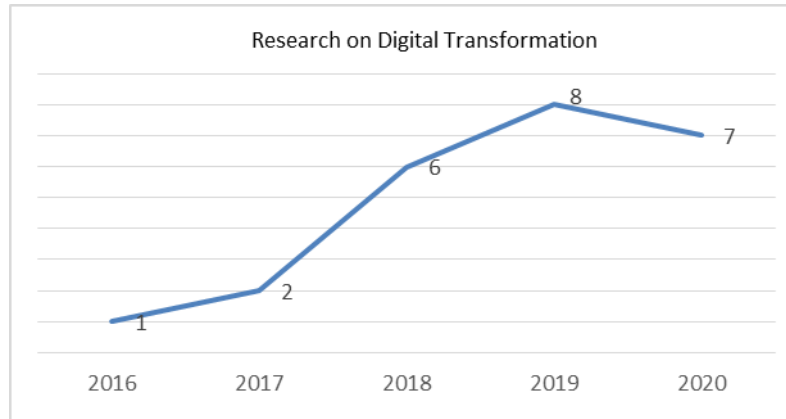


Figure 2. DT in higher education based on the year

3.7. Digital transformation research areas in higher education

Table 3 shows the research areas with the most digital transformation changes in higher education.

Table 3. Research area DT In higher Education

Research area	article	reference
strategy	8 (33,33 %)	[25][7][9][10][15][5][19][21]
business model	5 (20,83%)	[18][6][13][20][22]
technology	9 (37,51%)	[2][26][27][8][12][14][16][17][23]
People	2 (8,33%)	[11][24]
Total	24 (100%)	

Based on Figure 3, the development of transformation digital on higher education is based on the studies area; namely, the highest percentage occurs in the technology area 38% and the strategy area 33%, the business model area 21%, and the people area 8%.

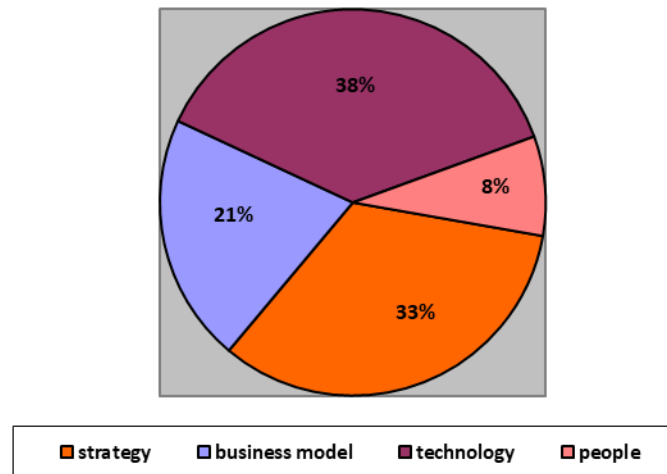


Figure 3. Research area DT in Higher Education

4. conclusion

In this paper, a systematic literature review carried out on digital transformation that occurs in higher education; from the results that have been done, it can be concluded that digital transformation that occurs in tertiary institutions continues to develop from 2016 to 2020. The development of transformation digital in Higher education occurs very quickly in the technology and strategy area, while for the people area, the development of transformation digital is only 8%. Of course, it can be said that the development of transformation digital that occurs in universities is not suitable for users; this will certainly make it difficult for universities to follow developments digitally. This is also a challenge for universities that developments that must be carried out are not only focused on technology and strategy but must also be considered the development of users so that developments that occur can be aligned between strategy, technology, and users.

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