



A SECOND ORDER CONFIRMATORY FACTOR ANALYSIS OF THE DIGITAL TRANSFORMATION FOR A DISTANCE EDUCATION INSTITUTION

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ABSTRACT

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In the current times, very little attention is paid on measuring the performance of digital transformation in educational institutions so that it can run sustainably. This study aimed to create an appropriate instrument in measuring digital transformation in educational institutions, especially distance education institution. The study used a quantitative approach and collected data from 402 Universitas Terbuka students of 5 faculties; the Faculty of Economics (FE), Faculty of Law, Social and Political Sciences (FLSPS), Faculty of Teacher Training and Education (FTTE), Faculty of Science and Technology as well as the Graduate Program. An online questionnaire was used to collect data related to digital transformation applied by the Universitas Terbuka as a distance education institution using the random sampling method. The data were analyzed using a Second Confirmatory Factor Analysis (CFA) to verify the instrument's factor structure based on the model developed in the study. The results of the study show evidence that the five indicators consist of a) Strategy and institutional governance, b) Curriculum and delivery methods, c) Assessment, d) Staff support and professional development, and e) Infrastructure and resources had good goodness of fit criteria and creating a valid and reliable instrument to measure the performance of digital transformation in distance education institution.

Contribution/Originality: This study examines the performance of digital transformation in educational institutions, a research domain which was so far confined only to the corporate. This research's contribution is the creation of a valid and reliable instrument to measure digital transformation performance in distance education program of Universitas Terbuka.

1. INTRODUCTION

The rapid development of digital technologies, such as artificial intelligence, big data, cloud computing, blockchain, and the industrial internet, is turning the traditional economy into a digital and intelligent economy that becomes an important mechanism for organizations to achieve breakthrough innovation and sustainable development (Vial, 2019) become an important pathway for organizations to increase organizational resilience and has been widely studied, both by academics and business practices (Zhang, Long, & Von Schaewen, 2021). Especially in the era of the COVID-19 pandemic, according to the International Data Company Survey, direct investment in digital transformation is expected to exceed \$6.8 trillion from 2020 to 2023.

Digital transformation, in general, can be interpreted as a radical process that occurs in organizations in utilizing technology, human resources, and business processes that cause the business performance of the organization to change drastically (Boulton, 2021). According to Yoo, Henfridsson, and Lyytinen (2010) digital transformation is a process in which the "digital world" merges with the "physical world". Digital transformation is an evolutionary process that relies on capabilities and digital technology to create or change business processes, operational processes and customer experiences to create new value (Morakanyane, Grace, & O'Reilly, 2017).

Digital transformation is not only about how a company implements a digital technology, but also about how to combine strategy with today's technology. Rogers (2016) argues that digital transformation is basically not about technology, but about strategy, meaning that leaders or managers must be able to find ways to utilize and use them to create an innovation and be able to create a new business model and can also optimize customer needs and experience. Education with e-learning, business with e-business, banking with e-banking, government with e-government, and many other fields have made this transition. The goal is to increase the efficiency and effectiveness of work and supporting files by using databases.

In order to face new demands, Digital transformation has become a core motivator for almost all higher education organizations around the world, including the University of Indonesia. The digital transformation carried out is in the form of digitizing higher education services, including pedagogical services. According to Brdese and Alsaggaf (2022), digital transformation in academic guidance services and course registration in universities provides increased student satisfaction in supporting academic achievement, skills and learning experiences at universities.

To promote the implementation of digital transformation on campus, a reliable and valid instrument is needed to measure the construct: digital transformation. The instrument was developed from an instrument made by the Digi-HE project (2020-2022), an Erasmus+ funded project coordinated by the European University Association (EUA). This questionnaire aimed to develop a self-assessment tool for higher education institutions. The purpose of this study was to demonstrate the construct validity of the instrument developed to measure the application of digital transformation in Universitas Terbuka (UT).

The Open University has implemented digital transformation in all aspects of its learning process services through the Digital Learning Ecosystem-UT. The Digital Learning Ecosystem-UT is a long way towards Cyber University, and it is currently providing significant benefits for the digital needs of UT students and academics. The Digital Learning Ecosystem-UT contributes to the formation of a social network and virtual environment that allows all internal users and UT stakeholders easy access to digital information. The provision of 1.7 million sets of digital essay questions, web-based online exam services (UO), services for providing various online digital library materials (e- Resources), services for providing online open certificate programs or Massive Open Online Courses (MOOCs), website services, and utilization of block chains to align are just a few of the services offered.

2. LITERATURE REVIEW

2.1. Distance Learning of Indonesia

Indonesia is a country with a wide geographical area stretching from Sabang in Aceh to Merauke in Papua and it has more than 17,000 islands. Among more than 275 million people, only 31.19% of them have higher education qualifications (Central Bureau of Statistics, 2022). Following the low number of Indonesians who can access higher education, the Government established the Universitas Terbuka (UT) Open University through Presidential Decree Number 41 of 1984 on September 4, 1984 as the 45th State University.

Universitas Terbuka uses fully distance education learning mode and is, designed to be a flexible and inexpensive university with a focus on serving people who do not have the opportunity to attend a face-to-face higher education system due to various constraints, either due to lack of funds, coming from remote and rural areas, due to work, or other reasons. As a member of the Asian Association of Open Universities (AAOU), UT implements

a distance education operational system that is decentralized in regional offices as a service technical implementing unit. Tutorials are broadcast through television, radio and the internet. In addition, UT already has an application for digital learning materials in android format that can reach students throughout Indonesia. It also intensively uses and develops information and communication technology for the development of learning materials and examinations, management and student services. Implementation of UT is in accordance with International Standardization Organization (ISO) 9001:2015 standards on Academic Management for 34 study programs, and in 2018, Universitas Terbuka received ISO 9001:2015 on Distance Learning Management for 38 regional offices.

The open university system at UT continues to develop and improve in terms of teaching-learning systems, management, and support services for students. Thus, current position of UT not only reflects its past developments and achievements, but also its future direction in the context of the needs of students in Indonesian society (Universitas Terbuka, 2022).

2.2. Digital Transformation

Digital transformation, in general, can be interpreted as a radical process that occurs in organizations in utilizing technology, human resources, and business processes that cause the business performance of the organization to change drastically (Boulton, 2021). Digital transformation is an evolutionary process that relies on capabilities and digital technology to create or change business processes, operational processes and customer experiences to create new value (Morakanyane et al., 2017). The main purpose of carrying out digital transformation by an organization is related to the digital readiness of the organization. This suggests that organizations assure that they are ready to enter the digital world and are ready to change when needed (Osmundsen, Iden, & Bygstad, 2018).

Digital transformation in universities lags behind other sectors such as the trade industry, manufacturing industry and service industry. This occurs due to ineffective leadership and retention of cultural change, low levels of innovation and inadequate financial support (Rodríguez-Abitia & Bribiesca-Correa, 2021). According to Rogers (2016) digital transformation is basically not about technology, but about strategy, meaning that leaders must be able to find ways to leverage and use them to create an innovation and be able to create something that can optimize customer needs and experience.

Digital transformation is obtained from the use of a combination of digital innovations that result in changes to the structure, values, processes, positions or ecosystems within the organization and the environment outside the organization (Hinings, Gegenhuber, & Greenwood, 2018). This process is considered to force organizations to cope with change and uncertainty shocks (Scholz, Czichos, Parycek, & Lampoltshammer, 2020). Digital transformation involves integrating internal and external resources through information technology, computing, communication, and connectivity to reshape the vision, strategy, organizational structure, processes, capabilities, and corporate culture to adapt to the ever-changing digital world (Vial, 2019). Digital transformation can be used to change the way companies create value, exchange value and interact directly with consumers (Yadav & Pavlou, 2014). The impacts that can be seen when digital transformation occurs according to Schwarzmüller, Brosi, Duman, and Welpe (2018) are: a) Teleworking and b) employee substitution.

Digital transformation is obtained from the use of a combination of digital innovations that result in changes to the structure, values, processes, positions or ecosystems within the organization and the environment outside the organization (Hinings et al., 2018). This process is considered to force organizations to cope with change and uncertainty shocks (Scholz et al., 2020). However, this change is sometimes difficult to accept because of the low learning performance of students, lack of access to resources, and the fear of the academic community for change. On the other hand, fear of change followed by lack of experience and privacy concerns are the most significant factors hindering the successful adoption of transformation (Alhubaishy & Aljuhani, 2022).

Data governance is an effective tool in implementing the digital transformation process in higher education institutions. Good data governance practices are necessary for smooth and effective digital transformation. This practice can be incorporated into a college's strategy to use digital technology in an appropriate way. Universities are required to create effective functional teams for data governance tasks, develop data governance internal audits, follow up on regulatory compliance procedures, determine priorities for data governance activities, provide frequent data governance training for employees and faculty members, enforcement and follow-up standards, and frequent assessments of data governance plans and policies (Glykas, Hasan Bailey, Omar Al Maery, Omar Al Maery, & Technopolis, 2015; Omar & Almaghthawi, 2020).

Similarities and differences in perceptions between employees, staff, and managerial level stakeholders of universities have an impact on the adoption of digital transformation. To be able to accelerate the adoption of digital transformation, a higher consensus is needed (Rof, Bikfalvi, & Marquès, 2020). Digital transformation is directly related to innovation, creativity, and bringing about significant change. However, the use of digital technology in universities, especially the transmission of information that is not critical and unidirectional, can be an obstacle to the digital transformation process itself. In addition, the lack of involvement of many lecturers in the available pedagogical support is an obstacle for adequate digital transformation in universities, both in times of crisis and in the future (Monteiro & Leite, 2021).

The Open University has carried out digital transformation in the form of the Digital Learning Ecosystem-UT in all aspects of its learning process services. The Digital Learning Ecosystem-UT contributes to forming a social network and virtual environment that provides easy access to digital information for all internal users and UT stakeholders. The Digital Learning Ecosystem-UT can be understood with the following information:

1. Service of 15,000 physical classes for tutorials through Teams Classroom which run in parallel on Saturdays and Sundays.
2. Service 16,000 online classes with 8 weeks of learning activities.
3. Provision of 1.7 million sets of digital essay questions.
4. The web-based online exam service (UO) opens the accessibility of exam services to various test locations that have computer and internet facilities.
5. Services for providing various online digital library materials (e-Resources)
6. Services for providing Online Open Certificate programs or Massive Open Online Courses (MOOCs).
7. Website services, e-campus email, email services with 50 GB inbox capacity and 1 TB one drive storage integrated with Office365.
8. Utilization of block chains, which can be used for credit transfer as well as alignment with the digital job market.

3. METHODOLOGY

3.1. Research Design

This study adopted a quantitative research design using Confirmatory factor analysis (CFA) with two order to investigate the relationship between a set of latent variables (factors) and a set of variables observed in the instrument. The instrument was developed from an instrument made by the Digi-HE project (2020-2022), an Erasmus+ funded project coordinated by the European University Association (EUA) in 2022. This instrument used a Likert scale with four levels, namely: 1) strongly disagree; 2) disagree; 3) agree; 4) strongly agree.

3.2. Respondents and Sampling Procedure

This study used primary data as the data source. The population of this study consisted of all students enrolled at the Universitas Terbuka. A total of 402 students from 5 faculties namely the Faculty of Economics (FE), the Faculty of Law of Social and Political Sciences (FLSPS), the Faculty of Teacher Training and Education (FTTE),

the Faculty of Science and Technology (FST), and the Postgraduate Program (FP) participated in this research. Sample selection was made randomly. Each student was asked to provide information related to the digital transformation they experienced during their lectures.

3.3. Data Analysis

The data analysis techniques included descriptive analysis, reliability and a second order confirmatory factor analysis methods. Descriptive analysis was used to determine the characteristics of the students who were respondents in this study. Meanwhile, second order confirmatory factor analysis was used to design the right instrument in measuring digital transformation as proposed in the model and shown in Figure 1.

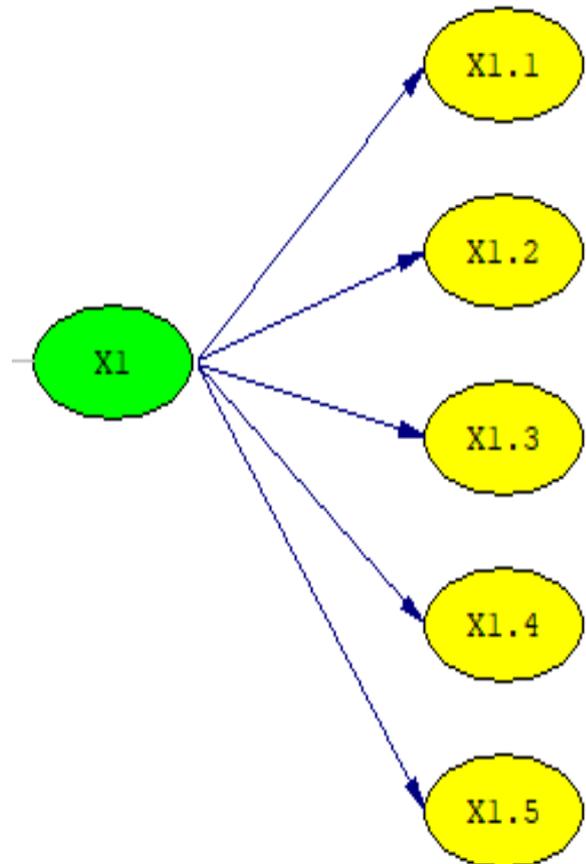


Figure 1. Model CFA.

4. RESULTS

4.1. Descriptive Statistics Analysis

A total of 402 Universitas Terbuka students from 5 faculties; the Faculty of Economics (FE), the Faculty of Law, Social and Political Sciences (FLSPS), the Faculty of Teacher Training and Education (FTTE), the Faculty of Science and Technology (FST), and the Postgraduate Program (PP) participated in this research. 35.57% from FTTE faculties, 33.08% from FLSPS, 25.87% from FE, 4.23% from FST, and 1.24% from PP from 31 provinces in Indonesia. The majority of respondents were female respondents (64.68%), and only 35.32% were male students. The age range of respondents was quite diverse. Respondents were dominated by students aged >26 years (66.92%), followed by students aged 23-24 years (22.14%).

Respondents came from student representatives from semester 1 to semester 15 where most of the respondents came from students in semester 15. At least 1 out of every 4 respondents were students sitting in semester 15, which was followed by students in semester 8, amounting to 15 %. On the other hand, about 2 out of every 3 respondents were those who were studying while working, with the majority working as private (60.38%), civil servants (11.64%), self-employed (5.66%), and others (22.33%). On average, respondents worked for 4-6 years (31.45%), >10 years (26.42%), and 1-3 years (23.90%).

4.2. Reliability

The reliability coefficients for the four scales are shown in Table 1. The scale score was calculated as the average of the responses to all items on the scale based on a sample of 402 respondents. It can be seen that the average student gave positive word scale (agree / strongly agree) and had a score range of 3,012 to 3,138. The indicator with the highest average was the indicator of Strategy and institutional governance (X1.1). This indicates that the implementation of Strategy and institutional governance at the Universitas Terbuka was considered to be the best in terms of implementation compared to other indicators. In addition, it can be seen that the Cronbach alpha coefficient of each indicator had a coefficient higher than 0.70 showing good internal reliability on the scales (Nunnally, 1978).

Table 1 Mean, variance of a Cronbach alpha for digital transformation instruments.

No	Indicators	Mean	Variances	Cronbach Alpha
1	Institutional strategy and governance (X1.1)	3.138	0.403	0.882
2	Curriculum and delivery methods (X1.2)	3.131	0.391	0.927
3	Rating (X1.3)	3.080	0.380	0.881
4	Staff support and development (X1.4)	3.096	0.408	0.900
5	Infrastructure and resources (X1.5)	3.012	0.511	0.922

4.3. Confirmatory Factor Analysis

Confirmatory factor analysis (CFA) is a form of measurement to empirically test a measurement model consisting of latent variables and indicator variables (Hair, Black, Babin, & Anderson, 2010). CFA is divided into First-Order CFA and Second-Order CFA. In First-Order CFA, a latent variable is measured based on several indicators that can be measured directly. In the Second CFA, latent variables cannot be measured directly through direct questions, but are measured through several indicators consisting of several statements with several indicators where these indicators cannot be measured directly, and require several more indicators to measure them. Second CFA shows the relationship between latent variables at the first level as indicators of a second level latent variable.

4.4. Uji Measurement Model

In CFA, the first step that must be done is to test the measurement model. The tests include the convergent validity test, discriminant validity test, and reliability test. Convergent validity test is done by measuring the loading factor value in the model. Indicator measurement is declared valid if the Standardized Factor Loading (SFL) > 0.50 (Igbaria, Zinatelli, Cragg, & Cavaye, 1997). Invalid indicators (SLF 0.5) are included for further estimation. The calculation results are shown as follows in Figure 2:

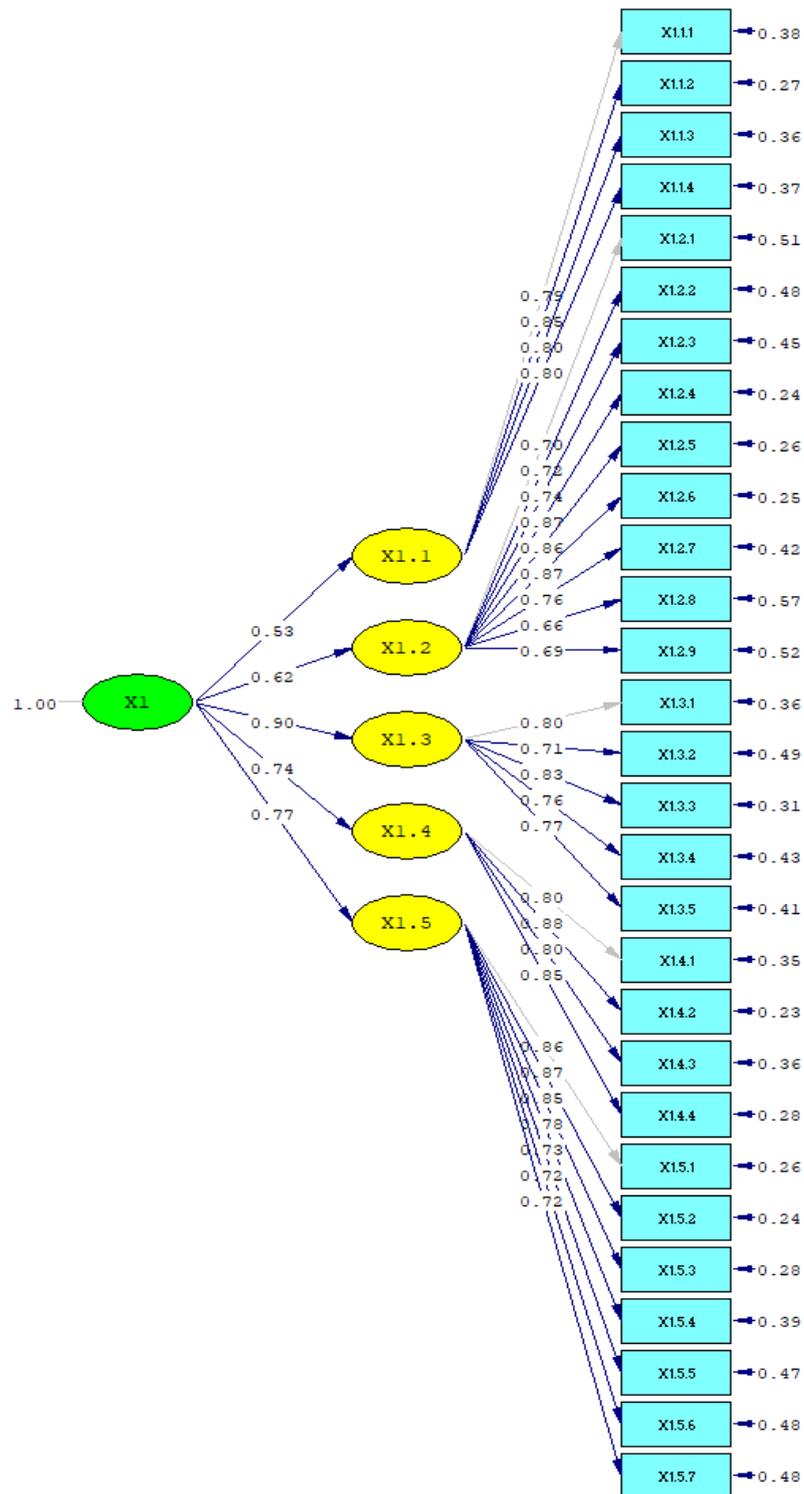


Figure 2. Standardized factor loading.

Figure 2 illustrates the Standardized Factor Loading (SFL) values for the latent variable and indicator greater than 0.5. This indicates that the model that is being built has a valid indicator. In the latent variable, the entire SLF scores has range from 0.53 to 0.90, in which the highest rating is at Rating (X1.3) and the lowest rating is at Strategy and Institutional Governance (X1.1). Furthermore, the SLF values for indicators also display a high value. The indicator's SLF value ranges from 0.66 to 0.87 meaning the indicators are valid.

In detail, the convergent validity test is described in Table 2.

Table 1. Standardized factor loading (SFL).

Latent Variable	Indicator	Statement	SFL	t-value	Description
X1.1	X1.1.1	Universitas Terbuka campus has a strategy for digital-based learning	0.79	-	Valid
	X1.1.2	Universitas Terbuka campus has the budget to support digital transformation	0.85	17.98	Valid
	X1.1.3	Universitas Terbuka campus ensures that technology support hardware is regularly maintained	0.8	16.68	Valid
	X1.1.4	Universitas Terbuka campus ensures that technology support software is regularly maintained	0.8	16.65	Valid
X1.2	X1.2.1	Universitas Terbuka Campus has implemented a flipped room system (Students learn new material independently and do assignments in class with online tutor/lecturer guidance)	0.7	-	Valid
	X1.2.2	Universitas Terbuka campus has implemented a project-based learning system (packaging all materials and assignments in group projects based on real scenarios in the community)	0.72	13.79	Valid
	X1.2.3	Universitas Terbuka campus has implemented MOOC-based learning (Massive Open Online Courses (MOOCs))	0.74	14.18	Valid
	X1.2.4	Universitas Terbuka campus has taught digital literacy	0.87	16.54	Valid
	X1.2.5	Universitas Terbuka campus has taught digital culture	0.86	16.39	Valid
	X1.2.6	Universitas Terbuka campus has taught digital security	0.87	16.52	Valid
	X1.2.7	Universitas Terbuka campus has taught digital behavior	0.76	14.53	Valid
	X1.2.8	Universitas Terbuka campus integrates the learning process using digital technology (e.g. OneDrive, Google Drive, Dropbox, and Quip)	0.66	12.64	Valid
	X1.2.9	Universitas Terbuka campus provides online material in the form of interesting videos	0.69	13.22	Valid
X1.3	X1.3.1	Universitas Terbuka campus applies digital assessment	0.8	-	Valid
	X1.3.2	Universitas Terbuka campus has implemented digital signatures for administration	0.71	15.07	Valid
	X1.3.3	Software for the campus administration system has been running optimally	0.83	18.29	Valid
	X1.3.4	There is a guide / Standard Operating Procedure (SOP) / training for using campus service software	0.75	16.22	Valid
	X1.3.5	Universitas Terbuka Campus conducts promotions by utilizing digital technology (e.g. through social media)	0.77	16.61	Valid
X1.4	X1.4.1	Universitas Terbuka Campus provides an online Repository to access study materials	0.8	-	Valid
	X1.4.2	If there are technical problems in the digitization system, the Universitas Terbuka campus is ready to solve them	0.88	20.05	Valid
	X1.4.3	All components of the Universitas Terbuka campus are ready to make changes by simplifying existing work based on technology	0.8	17.64	Valid
	X1.4.4	Lecturers/Tutors who teach understand technology	0.85	19.07	Valid
X1.5	X1.5.1	Universitas Terbuka online admissions are going well	0.86	-	Valid
	X1.5.2	Online registration for study programs on the Universitas Terbuka campus is going well	0.87	23.15	Valid
	X1.5.3	The development of the Universitas Terbuka Academic Information System is running optimally	0.85	22.1	Valid
	X1.5.4	Universitas Terbuka students have 24-hour access to all information and services	0.78	19.27	Valid
	X1.5.5	Universitas Terbuka provides software licenses needed by students (e.g. Statistical Package for the Social Sciences (SPSS), Tableau, Office, etc.)	0.73	17.28	Valid
	X1.5.6	Universitas Terbuka campus has adequate wireless Internet	0.72	17.07	Valid
	X1.5.7	Access research database libraries, electronic journals open to the public	0.73	17.19	Valid

Note: if the value of standardize loading factor (SFL) 0.5 and t-count 1.96, then the indicator variable has good validity.

Then the discriminant validity test is conducted by comparing the square root of the AVE of each variable with the correlation value between the variables in the model. The discriminant validity test is met if the square root

value of AVE is greater than the correlation value between variables or $AVE > 0.5$. As a reference, the minimum composite reliability value limit for a reliable instrument is 0.6, but 0.7 is recommended.

Table 3. Average Variance extracted (AVE) and composite reliability (CR).

Latent Variable	AVE	CR
Digital Transformation (X1)	0.75	0.99
• Strategy and institutional governance (X1.1)	0.78	0.93
• Curriculum and delivery method (X1.2)	0.71	0.96
• Rating (X1.3)	0.72	0.93
• Staff support and development (X1.4)	0.81	0.94
• Infrastructure and resources (X1.5)	0.75	0.95

The Average Variance extracted (AVE) and composite reliability (CR) values for each latent variable are shown in Table 3. The AVE values are between 0.71 and 0.81 and are greater than 0.5. It indicates that based on the AVE value, the latent variables are discriminately valid. Meanwhile, the CR values are in the range from 0.93 to 0.96. These values exceed 0.7 indicating that the latent variable has a discriminant validity based on the composite reliability value.

4.5. Overall Model Fit

This test was carried out by the goodness of fit indicator as shown in Table 4. Root Mean Square Error of Approximation (RMSEA) is an index that can be used to compensate for the chi-square statistic in a large sample (Baumgartner & Homburg, 1996). The RMSEA value indicates the expected goodness of fit when the model is estimated in the population (Hair et al., 2010). An RMSEA value that is smaller than or equal to 0.08 is a condition for the acceptance of the model which shows the good fit criteria, meaning that the model is based on the degree of freedom (Browne & Cudeck, 1993).

In addition, the fit of the model can be measured from the GFI value. GFI (Goodness of Fit Index) is a non-statistical measure that has a range of values between 0 (poor fit) to 1.00 (good fit). A high value in this index indicates the model is better fit. Based on the results of the analysis, the GFI value was 0.71 so that the model in this study was included in the almost good fit category. AGFI (Adjusted Goodness of Fit Index) shows the recommended level of acceptance if it has a value equal to or greater than 0.90 (Hair et al., 2010). GFI and AGFI are criteria that take into account the weighted proportion of variance in a sample covariance matrix (Ferdinand, 2002). A value of 0.95 can be interpreted as a good level.

Table 4. Indicator of goodness of fit.

Indicator of Goodness of Fit	Cut-off-Value	Hasil Uji	Description
Root Mean Residual (RMR)	≤ 0.1	0.025	Good fit
Root Mean Square Error of Approximation (RMSEA)	≤ 0.08	0.095	Almost Good fit
Normed Fit Index (NFI)	≥ 0.90	0.94	Good fit
Non Normed Fit Index (NNFI)	≥ 0.90	0.95	Good Fit
Comparative Fit Index (CFI)	≥ 0.90	0.95	Good fit
Incremental Fit Index (IFI)	≥ 0.90	0.95	Good fit
Relative Fit Index (RFI)	≥ 0.90	0.93	Good fit
Goodness of Fit Index (GFI)	≥ 0.90	0.77	Almost Good fit
Adjusted Goodness of Fit Index (AGFI)	≥ 0.90	0.73	Almost Good fit

5. DISCUSSION

The goals of the present study were to design the right instrument to measure digital transformation performance in Universitas Terbuka using the Second-Order CFA. A Second CFA is used because in this

instrument, the variable of implementing digital transformation is not directly through questions, but is measured through several indicators compiled from several statements. Second CFA shows the relationship between latent variables at the first level as indicators of a second level latent variable.

The instruments used in this study were developed from instruments made by the Digi-HE (Higher Education) project (2020-2022), an Erasmus+ funded project coordinated by the European University Association (EUA), to develop self-assessment tools for higher education institutions in Europe. The Instrument Digi-HE project had 40 core questions. Then the instrument was summarized and adapted to the development of digital transformation at the Universitas Terbuka into 29 questions consisting of 5 indicators;

1. Strategy and institutional governance (X1.1: items 1-4);
2. Curriculum and delivery methods (X1.2: items 5-13);
3. Assessment (X1.3: items 14-18);
4. Staff support and professional development (X1.4: items 19-22);
5. Infrastructure and resources (X1.5: items 23-29).

Based on the results of the second order CFA test, it was found that all questions on each indicator had a Standardized Factor Loading (SFL) value greater than 0.50. This indicates that each question in each indicator is able to measure each indicator (all questions on each indicator are valid). In addition, the value of Standardized Factor Loading (SFL) for all indicators is also > 0.50 . This means that indicators of strategy and institutional governance, curriculum and delivery methods, assessment, staff support and professional development, and infrastructure and resources are able to measure digital transformation variables (all indicators on digital transformation variables are valid).

In the discriminant validity test, the results of the manual calculation of the CR and AVE values indicate that all indicators have $VE \geq 0.5$ and $CR \geq 0.7$ values. This means that the indicators used in this study are valid and reliable. Therefore, it can be concluded that the questions on each of the indicators used in this study have a very good ability to measure the indicators and are reliable.

In the Overall Model Fit test, an RMSEA value of 0.095 was obtained which indicated that the model formed was in the almost good fit category. This is reinforced by the values of GFI and AGFI which are close to 0.90. This means that the model can be accepted with a good level and is included in the almost good fit category. Meanwhile, when viewed from the other goodness of fit measurement criteria, namely RMR, NFI, NNFI, CFI, IFI, RFI, a value that exceeds 0.9 indicates that the model built has the appropriate value (goodness of fit statistics) and the structural model has met the criteria. determined so that the model built can explain empirical information according to the data collected.

6. CONCLUSION

The results of the study show evidence that the digital transformation performance measurement instrument at the Universitas Terbuka was can be developed with five indicators, namely a) Strategy and institutional governance, b) Curriculum and delivery methods, c) Assessment, d) Staff support and professional development, and e) Infrastructure and resources. These indicators have the values of SFL that are greater than 0.50 for all sub indicators and have the value of CR and AVE that are more than 0.5 and 0.7 respectively. In addition, the value of RMSEA, GFI and AGFI, RMR, NFI, NNFI, CFI, IFI, RFI as indicators of goodness of test fit also show high scores (more than 0.9) indicating that the model formed was a good fit. This means that the five indicators outlined in the instrument have been able to measure the measurement of digital transformation performance at the Universitas Terbuka.

Furthermore, this study has not captured the effects of digital transformation at the Universitas Terbuka in Indonesia. This instrument can be supplemented with other variables such as leadership and organizational resilience so that analysis can be carried out to see the effect of the measured variables.

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