ECONOMICS OF SUSTAINABLE DEVELOPMENT
Vol. 10, May-August 2026, №. 2
UDK 33+502/504
ISSN 2560-421X

Pavle Popović[1]
University of Niš, Faculty of Economics

Aleksa Krstić[2]

P. 77-99
REVIEW PAPER
DOI: 10.5937/ESD2602077P
Received: January 10, 2026
Accepted: March 30, 2026

CONTROL OF THE DIGITALIZATION STRATEGY OF HEIs USING THE KEY SUCCESS FACTORS METHOD

Abstract

The digitalization of higher education institutions is one of the most important modern activities undertaken by these institutions. It enables the improvement of teaching and non-teaching activities, as well as increasing the competitiveness of the institution in national and international environments. During the digitalization process, modern technologies and innovations are used to modernize the traditional education system. A limitation of the digitalization process is that the achieved effects are not easily visible to measure, which complicates the process of control. For this reason, strategic control methods are applied, which enable reliable control of the success of the digitalization strategy in higher education institutions during and after implementation. In this process of defining control indicators, the key success factors method is particularly useful. The aim of this paper is to present the methodological procedure for the application of the key success factors method. The goal is also to present a concrete example that illustrates the process of defining strategic goals for the digitalization of higher education institutions, defining key success factors, and then selecting and formulating key performance indicators according to key success factors.

Key words: *strategy, digitalization, higher education institutions, control, key success factors*

JEL classification: *I23*

КОНТРОЛА СТРАТЕГИЈЕ ДИГИТАЛИЗАЦИЈЕ ИНСТИТУЦИЈА ВИСОКОГ ОБРАЗОВАЊА ПРИМЕНОМ МЕТОДА КЉУЧНИХ ФАКТОРА УСПЕХА

Апстракт

Дигитализација институција високог образовања је једна од најзначајнијих савремених активности ових институција. Она омогућава унапређење наставних и ненаставних активности, као и повећање конкурентности институција у националном и међународном окружењу. Током процеса дигитализације користе се савремене технологије и иновације које модернизују традиционални систем образовања. Недостатак процеса дигитализације је што остварени ефекти нису видљиви и лаки за мерење, чиме је отежан процес контроле. Из тог разлога

[1] pavlepopovic32@gmail.com, ORCID ID 0009-0008-6123-9206

[2] krstic.aleksa@gmail.com, ORCID ID 0009-0001-4046-6556

се примењују методе стратегијске контроле које омогућавају поуздану контролу успешности стратегије дигитализације у институцијама високог образовања, у току њене имплементације и након њене имплементације. У том процесу, дефинисање индикатора за контролу, посебно је корисна метода кључних фактора успеха. Циљ овог рада је да прикаже методолошки поступак у примени метода кључних фактора успеха. Такође, циљ је да прикаже и конкретан пример који илуструје процес дефинисања стратегијских циљева дигитализације институција високог образовања, дефинисања кључних фактора успеха, а онда и избора и формулисања кључних индикатора перформанси по кључним факторима успеха.

Кључне речи: *стратегија, дигитализација, институције високог образовања, контрола, кључни фактори успеха*

Introduction

The digitalization of higher education institutions is a significant factor in improving the quality of education, increasing accessibility, and adapting to modern requirements. Digital learning is not only focused on technology, but primarily on the learning process (Ivenicki, 2023, p. 127). The education system plays a very meaningful role in the competitive advantage of a country (Krstić & Rađenović, 2020, p. 262). The potential of higher education to stimulate economic development and improve the quality of life in society is significant (Krstić & Krstić, 2018). The global e-learning market was worth around US$200 billion in 2019, with a projected growth of US$848.12 billion by 2030 (Gkrimpizi et al., 2023, p. 1). The COVID-19 pandemic also had a major impact on this growth. Kaplan (2022) points out that technology for online teaching has been around for a long time, but the COVID-19 pandemic has changed the academic community's stance and encouraged opponents of digitalization to become its advocates. Rodrigues (2017) believes that digital transformation is not just technical adoption, but a change in the business model of higher education institutions to increase their performance. These changes are based on the use of various resources and advanced technologies, such as artificial intelligence (AI), big data, cloud technology, augmented and virtual reality, mobile applications, and blockchain. The success of digital transformation of higher education institutions depends on factors such as organizational culture, employee competencies, resource availability, resistance to change, legal regulations, and data protection. Higher education institutions (HEIs) are in the process of evolving towards a new model – the so-called "digital university" (Fernández et al., 2023, p. 12351). The concept of the "digital university", in addition to adopting new technologies, also deals with the transformation of higher education institutions and is aimed at providing quality and competitive education.

This work consists of a theoretical and empirical part. The theoretical segment analyzes the digitalization of HEIs and the process of digital transformation. Then, the control of the digitalization strategy of HEIs is discussed, and the key success factor method and its importance in the control of the digitalization strategy are analyzed. The practical part of the paper contains an example of controlling the digitalization strategy

of the Faculty of Civil Engineering, Architecture, and Geodesy in Split (FCEAG) using the key success factors method.

1. Digitalization of HEIs – Concept and Challenges

Higher education institutions are key to creating a competent workforce, scientific research results, innovation, knowledge transfer, as well as fostering entrepreneurship and economic growth (Krstić et al., 2016, p. 102; Krstić & Rađenović, 2020, p. 263). The modern environment requires these institutions to digitize and transform. The development of digital education takes place within the framework of the broader digital economy (OECD, 2023, p. 27). It is crucial to modernize traditional education methods, which will enable the improvement of digital skills of future professionals (Klochkova et al., 2020, p. 72; Radivojević et al., 2019, p. 105). Digital transformation is "a series of deep and coordinated culture, workforce, and technology shifts that enable new educational and operating models and transform an institution's operations, strategic direction, and value proposition" (World Bank, 2022, p. 34). The digitalization of HEIs must not be reduced to simply transferring courses to an online format, but should also involve profound pedagogical and organizational innovations (Kaplan, 2022, p. 3). HEIs most often implement digitalization in three areas (World Bank, 2022, p. 3):

1. Teaching and learning – introduction of e-learning platforms, hybrid teaching models, application of artificial intelligence;
2. Administration – digitalization of academic and non-academic activities;
3. Research – use of digital tools in research and data analysis.

The digital transformation of HEIs is not only technological, but also encompasses a pedagogical and social process (Rodrigues, 2017, p. 2). To better understand the digital transformation of higher education institutions, it is important to introduce the concept of digital readiness. Digital readiness refers to "the capacity of a higher education institution to support its own digitalization process" (OECD, 2021, p. 16). Digital readiness assesses the readiness of a higher education institution to adopt and integrate digital technologies into its activities, strategies, and culture (Chounta et al., 2024, p. 2).

HEIs are in the phase of widespread use of communication software and learning management systems (Schuetze et al., 2024, p. 7). The digital transformation of HEIs creates new challenges that require attention and adaptation by institutions. Transformation includes digital technology and employees who need to be educated (Kučna Softić et al., 2021, p. 19). Digital transformation is focused on changing business (Kolarski, 2022, p. 52). It also builds new skills and models through digital technologies (Oliveira & De Souza, 2022, p. 283). The successful implementation of digital technologies depends largely on the attitudes of teaching staff. It is the teaching staff that is the key factor on which whether digital technology will be accepted and implemented or not depends (Meštrić et al., 2023, p. 68). The level of motivation of teaching staff has the greatest impact on the result. It is common for teachers and students to be digitally competent in using digital tools and methods. In this way, they slow down the process of digital transformation. To overcome these problems, it is necessary to provide teachers and students with continuous training and support. The digital transformation process

should take place gradually and with careful selection of digital tools. Although the initial costs of establishing digital tools are high, the long-term results are significant and valuable (Qureshi et al., 2021, p. 41). Each higher education institution should identify the necessary tools and thus create its own structure of digital tools. It is also necessary to take into account the characteristics and goals of HEIs in all areas (Carmo et al., 2025, p. 2). The use of digital tools in HEIs has multiple significance, enabling greater efficiency, higher quality of the teaching process, and transparency (World Bank, 2022, pp. 51–61).

Digital transformation in HEIs is a relatively new field (Aparisi-Torrijo et al., 2024, p. 3). It permeates all processes, places, formats, and objectives of teaching, learning, and research in HEIs (University of Shkodra "Luigj Gurakuqi", 2023, p. 11). For this reason, digital transformation faces barriers that make its implementation difficult. Gkrimpizi et al. (2023, p. 16–20) classify barriers as follows: environmental barriers, strategic barriers, organizational barriers, technological barriers, human resource barriers, and organizational culture barriers. These barriers are connected. The lack of financial resources affects the technological infrastructure, which affects both teaching and non-teaching staff. Although barriers may slow down the process of digital transformation, it nevertheless permeates all processes of learning, teaching, research, and the overall work of HEIs. The crucial motivation is to have an accurate and clear picture of how HEIs are transforming, what digital transformation initiatives they are implementing, and whether they are doing so through an integrated plan that is aligned with the digital strategy (University of Shkodra "Luigj Gurakuqi", 2023, p. 11).

2. Control of the Digitalization Strategy of HEIs

Digital transformation affects all activities of HEIs (Kaputa et al., 2022, p. 64). Measuring and controlling the digitalization process in HEIs are complex activity, which is hampered by numerous limitations and shortcomings. If HEIs do not recognize the importance of actively controlling digital transformation, this can be a source of difficulties (Esteve-Mon et al., 2023, p. 560). The evaluation of higher education is a quite complex process that requires reliable and adequate standards, criteria, and performance measures (Krstić & Rađenović, 2020, p. 264). Insufficient systematicity in data collection results from different institutional priorities, uneven levels of digital maturity, and limited financial and human resources (OECD, 2021, p. 78).

The process of controlling a digitalization strategy as a long-term plan (for example, four years) can be viewed as:

1. Control during the implementation period (after each year of its implementation) and
2. Control after the implementation (after each year of implementation), and it is to define a management checklist based on the principles of a modern performance measurement system (Krstić, 2012, p. 175).

By applying a system (set, aggregate) of performance measures, HEIs can systematically monitor the progress of digitalization strategy implementation. They can also identify deviations during its implementation and take timely corrective actions. In this way, after the entire implementation period, all long-term goals that were planned through the process of its formulation are achieved, and during the period of its implementation. In order

to achieve the long-term goals defined by the digitalization strategy, it is necessary to set budgets based on it, as one-year plans. It is necessary to "translate" the long-term goals in the strategic plan into a set of objectives that will be realized annually within the time horizon of the strategy's implementation.

2.1. Control of the Digitalization Strategy of HEIs During Implementation

The control of digitalization strategy during implementation has the character of control of operational efficiency and effectiveness in the implementation and direction of activities such as projects, actions, programs, and initiatives (Krstić, 2012, p. 175). This type of control covers a period of six months or a year. Control during the implementation of the digitalization strategy is based on budget control. Since this control does not provide sufficient information, it is necessary to include a set of financial and non-financial control instruments during the implementation of the digitalization strategy of higher education institutions. Table 1 presents the control instrument during the implementation of the digitalization strategy.

Table 1: Control instrument during the implementation of the digitalization strategy

Time period covered by the digitalization strategy	Plan/budget	Budget control and planning of financial goals				Selection/definition of additional measures/goals (financial and non-financial) by activities/actions for operationalizing the strategy			Target level	Achieved and deviation from the target	Corrective action and the responsible person
		Actual value	Deviation ±	Corrective action	Responsible person(s)	Planned activity A for the execution of annual budgets and strategy	Planned activity B for the execution of annual budgets and strategy	Planned activity C for the execution of annual budgets and strategy			
1st year	Annual objecitve 1.1 Annual objecitve 1.2 Annual objecitve 1.3 Annual objecitve 1.4					- - -	- - -	- - -			
2nd year	Annual objective 2.1 Annual objective 2.2 Annual objecitve 2.3					- - -	- - -	- - -			
3rd year	Annual objective 3.1 Annual objecitve 3.2					- - -	- - -	- - -			
4th year	Annual objective 4.1 Annual objective 4.2 Annual objecitve 4.3 Annual objective 4.4 Annual objective 4.5					- - -	- - -	- - -			

Source: Adapted according to Krstić, B. (2012), p. 175

Table 1 shows a structured framework for controlling and monitoring the implementation of the digitalization strategy of higher education institutions. The table represents a framework for monitoring progress, where the rows represent the years of implementation of the digitalization strategy. The columns present the most important control components: plan/budget, budget control, and selection of financial and non-financial performance measures for the digitalization process/activity. Also shown are the target/desired performance levels for individual processes/activities through which the digitalization strategy is implemented, i.e., achieves short-term (annual) goals. Their implementation by year actually implements a (four-year) digitalization strategy in a higher education institution.

The target level column shows the planned results for each activity, while the actual value and deviation show the actual state, as well as the deviation from the planned state. Based on the differences, corrective measures and the person responsible for their implementation are identified. The approach to controlling the digitalization strategy during implementation allows for monitoring progress, identifying deviations, and taking timely corrective action. Combining budget control with financial and non-financial instruments provides comprehensive insight into the process of implementing the digitalization strategy. In this way, an effective control instrument is established within higher education institutions.

In addition to the above, it is emphasized that the digitalization strategy can be implemented by defining programs that should be implemented for the period of its implementation (e.g., four years). Programs consist of two or more projects that must be implemented to finalize the program. In this way, a project approach is introduced into the process of formulating and implementing a digitalization strategy, i.e., managing the performance of projects related to various digitalization processes of a higher education institution. From each conceived project, the definition of appropriate actions can emerge.

2.2. Control of the Digitalization Strategy of HEIs After Implementation

Control of the digitalization strategy after implementation is carried out using a management control chart, in which goals are defined by projects, initiatives, or actions, and based on these goals, performance measures are selected to monitor the success of their implementation (Krstić, 2012, p. 175–176). The application of the management control chart allows HEIs to evaluate the effects of digital transformation. This allows for the assessment of the degree of achievement of strategic goals through established performance measures. Table 2 presents the control instrument after the implementation of the digitalization strategy of higher education institutions.

Table 2: Instrument for monitoring effects after implementing a digitalization strategy

Elements	Program 1 Project 1/ Project 2 Activities or actions in project implementation (A1.1, A 1.2, A 1.3, A 2.1, A 2.2, A 2.3, A 2.4...)	Program 2 Project 3 / Project 4 / Project 5 Activities or actions in project implementation (A3.1, A3.2, A3.3, A4.1, A4.2, A4.3, A4.4, A5.1, A5.2...)	Program 3 Project 6/ Project 7 Activities or actions in project implementation (A6.1, A6.2, A6.3, , A7.1, A7.2, A7.3, A7.4...)

Description (definition) of goals for the time period covered by the strategy (for example, 4 years or, possibly, longer and their disaggregation by years of program/project implementation)	...	...	...
The performance metrics used to track them	...	...	...
Target (desired) cumulative performance level for a specific period	...	...	...
Achieved performance value	...	...	...
Achievement of the defined goal	Yes/No	Yes/No	Yes/No
Identification of factors/causes of failure to meet the target by the responsible persons	...	...	...
Need to redefine the target performance level	Yes (by how much)/ No	Yes (by how much)/ No	Yes (by how much)/ No
EVALUATION OF THE SUCCESS OF THE DIGITALIZATION STRATEGY	Successful/ Unsuccessful	Successful/ Unsuccessful	Successful/ Unsuccessful

Source: Adapted according to Krstić, B. (2012), p. 176

Table 2 shows the instruments for controlling the digitalization strategy of HEIs after its implementation. The first column provides a description of the control elements, while the other columns provide the activities of higher education institutions. The first line describes the goals for a specific time period. After that, the following lines determine the performance measures for monitoring the implementation of the defined goals, as well as the target performance levels planned for a certain period. By comparing planned and achieved performance, the degree of success of the strategy implementation is assessed by programs/ projects and activities.

Identifying factors or causes of failure to meet goals enables the timely detection of problems and the definition of corrective measures. If necessary, the target performance level is redefined. At the end of the table, the success of the digitalization strategy for each activity is assessed, and it is determined whether the strategy achieved the planned goals or not. This tool allows HEIs to comprehensively evaluate their strategy, identify gaps, and improve future digital transformation processes.

3. The Key Success Factors Method in Strategy Control

In the management literature, there are a large number of studies that develop different views on strategic control, such as (Krstić, 2012, p. 105): control of strategic assumptions/premises; control of strategy implementation; strategic monitoring (strategic oversight); steering by strategic issues and strategy updating, and the key success factors method. One of the methods particularly applied in practice is the key success factors method. Key success factors (KSFs) are specific areas of business that management should focus on in order to better differentiate the organization's activities from the competition (Krstić, 2012, p. 111). KSFs are characteristics, conditions, or variables that can have a significant impact on the success of a company competing in a particular industry (König et al., 2023, p. 4479). There are three main understandings of key success factors: as a characteristic of business, as a planning tool, and as a description of the market (Grunert & Ellegaard, 1992, p. 2). KSFs in the industry are competitive determinants that influence an organization's success in the market. They include resource characteristics, capabilities, competencies, product/service characteristics, technology characteristics, and other elements. Companies should develop a strategy that encompasses the KSFs necessary for effective implementation (Magd et al., 2022, p. 21). The list of KSFs for a specific company organization depends on the level of competition in the industry, the market position of the company, the characteristics of the industry, etc. However, company management should also identify KSFs in production, distribution, marketing, and other areas. Using key success factors in strategy implementation can be helpful for companies (Leyh et al., 2021, p. 433). The term KSFs is used in two contexts. First, during (re)formulating the strategy, and second, during controlling the implementation of the strategy (Krstić, 2012, p. 111).

The first use of the KSFs concept is when formulating, or reformulating, a digitalization strategy, as a support for the strategic planning process. KSFs arise from the organization's mission/vision and strategic market assessment. In the case of applying KSFs to formulate a strategy, the starting point is market information and a defined mission/vision. Here, KSFs are defined as determinants by which a company can differentiate itself from competitors and thus create stable and effective relationships with customers/consumers. It is a market-oriented approach to key success factors. According to this approach, they include: quality, time, cost savings, innovation, services, etc. It is emphasized that KSFs are derived from the market and cannot be directly managed. Therefore, in the second stage, they are connected to key business processes. Starting from market-oriented KSFs, the following relation can be derived (Krstić, 2012, p. 112):

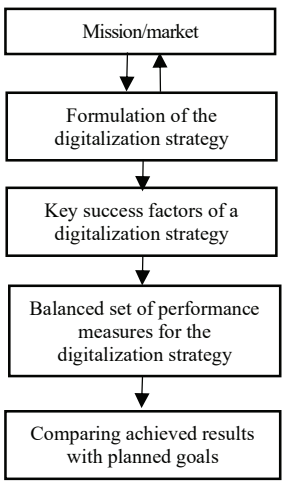
Mission/market/strategy ⇒ KSFs ⇒ Key business processes ⇒ Key control variables (performance measures).

When a significant deviation between the created and expected value is identified, the organization's management will analyze what caused the deviation. If the negative deviation is significant (and thus unacceptable), management must review and analyze key (but especially critical and problematic) business processes. However, if the processes are implemented without any particular problems, it is necessary to revise (reformulate) the digitalization strategy. The revision is being carried out because there have probably been some changes in the premises/assumptions of strategic planning, as well as in the KSF. The revised digitalization strategy is then the starting point (basis) for redesigning the system of financial and non-financial performance measures.

KSFs in another context – strategy implementation controls, is important because they are derived from the digitalization strategy, in fact, they are largely determined by a specific strategy (Figure 1). The identified KSFs then form the basis for designing a performance control (measurement) system. The KSFs method serves the purpose of defining metrics (indicators) for monitoring success in implementing a digitalization strategy. The connection between the measurement (control) system and the concept of KSFs in the process of implementing a digitalization strategy can be illustrated as follows (Krstić, 2012, p. 112):

Mission/market/strategy ⇒ KSFs ⇒ Balanced system of key performance indicators ⇒ Performance measurement and comparison with defined objectives.

Figure 1: Key success factors (KSFs) as a method of strategic control



Source: Authors

The two different perspectives of the KSFs, highlighted above, are neither opposed to each other nor are they mutually exclusive. They, in fact, constitute unity (Krstić, 2012, p. 113). This is because the strategic management process is cyclical.

4. Control of the Digitalization Strategy of the FCEAG in Split by Applying the KSFS Method

The Faculty of Civil Engineering, Architecture and Geodesy (FCEAG) in Split has adopted a digital transformation strategy for the period from 2024 to 2028, which clearly defines the institution's vision as a modern and digitally mature faculty that uses modern technologies to enhance teaching, research, and management (FCEAG, Split, 2024, p. 2–4). The strategy is aligned with national and European documents, and in particular with the Action Plan for Digital Education for the period 2021–2027 and the digitalization strategy of the University of Split. The main objectives of the digital transformation strategy are presented in Table 3.

Table 3: Goals of the digital transformation strategy of the FCEAG in Split

Strategic (long-term) objective	***Description of the strategic objective***
No. 1: Digitalisation of teaching and learning	Integration of digital tools into teaching, development of hybrid learning, and improvement of digital competencies of teachers and students
No. 2: Advancement of scientific and artistic excellence	Application of advanced technologies for simulations, data analysis and research innovations
No. 3: Increasing efficiency through continuous improvement of ICT infrastructure and digitalization of business processes	Improving administrative processes, ICT equipment and communication for more efficient management and sustainable development
No. 4: Improving cooperation with the community and business partners	Creating platforms for cooperation, joint projects and events with the economy

Source: FCEAG, Split (2024), p. 9–18

FCEAG's vision for digital transformation is reflected in a holistic approach that includes modernisation of education, research, administration, and management, while connecting with industry and promoting sustainable practices (FCEAG, 2024, p. 4). The effects of the implemented digital transformation strategy are expected to include improved quality and inclusiveness of education, strengthened research and artistic capacities, increased innovation, enhanced international cooperation, and the development of digital competencies among teaching staff and students, as well as broader social and economic development through the application of modern digital technologies in teaching, research, and management.

The objectives of the digital transformation strategy of the FCEAG, presented in Table 3, indicate a comprehensive and multidimensional approach to digitalization. This approach includes improving: teaching, research, infrastructure, and community collaborations. The integration of digital tools in teaching requires continuous training of teaching staff and the development of digital competencies of students. The application of advanced technologies in research involves systematic planning and the use of digital tools and data. Increasing efficiency through the digitalization of business processes and administration emphasizes the need for the introduction of a unified information system and a stable network infrastructure.

In analysing the current state, some limitations can be identified. Although the modernization process has begun in recent years, primarily through the introduction of

e-learning platforms and partial renovation of equipment through various projects, there is a need for a systemic approach that would ensure uniform equipment. While some departments and laboratories are technologically well-equipped, other departments still use outdated equipment. The strategy envisages the continuous procurement of computer and network equipment, the introduction of cloud technology for data processing and storage, as well as the integration of various digital services into a single faculty information system.

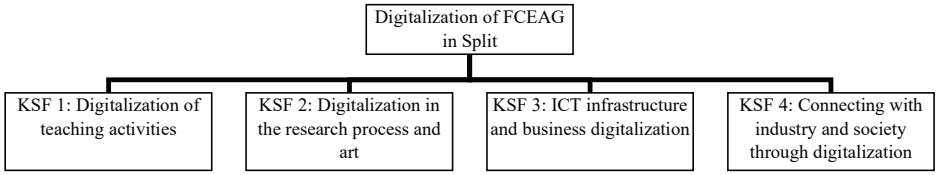
The digital transformation strategy prioritises the digitalization of the teaching process, emphasizing its role in improving the quality of education and pedagogical methods. In addition to improving hybrid and online teaching, the systematic creation of multimedia teaching materials, the introduction of interactive platforms, and the encouragement of new approaches that should enable personalized learning and greater student involvement in the process are planned. The COVID-19 pandemic has shown the need for such solutions, but also the limited digital competencies of some teaching staff. For this reason, the strategy envisages extensive training programs, including workshops, online courses, and cooperation with other universities and organizations in the country and abroad (FCEAG, 2024, p. 2–3). In the user support section, FCEAG introduces the concept of a digital learning center, which serves as technical and pedagogical support for teaching staff and students. This includes the development of e-mentoring, counseling, and technical assistance, thereby contributing to reducing the digital imbalance among users. Stakeholder engagement is another important component of the strategy. In addition to cooperation with the University of Split, the digital transformation strategy foresees the involvement of the private sector, as well as participation in international projects and networks.

Financing of digital transformation is based on a combination of state funds, university budgets, and European funds. A key factor in sustainability is efficient resource management. Monitoring and evaluation are central to FCEAG's digital transformation strategy. Clear progress indicators have been set, as well as specific deadlines for the implementation of activities over four years. Each phase of implementation should be followed by reports and feedback. This allows the strategy to be adjusted according to results and new needs. This approach identifies successful initiatives, but also enables a timely response to potential deviations, thereby increasing the efficiency of digital transformation.

The key success factors are actually key areas defined by the digitalization strategy of the FCEAG in Split. According to the key success factor method, as one of the most important for strategic control (Krstić, 2012, pp. 111–112), it is necessary to determine key success factors as specific areas of business. Management should focus on these factors to better differentiate its activities from the competition. Key success factors are used when formulating a strategy or when monitoring the implementation of a strategy. When formulating a strategy, key success factors are used to support the strategic planning process. Key success factors arise from the mission/vision of the higher education institution and strategic market assessment. When controlling the implementation of a strategy, key success factors are derived from the strategy and form the basis for creating a performance control system.

The process of strategic control, i.e., control of the digitalization strategy of the FCEAG in Split using the key success factors method, can be represented through four key success factors (Figure 2).

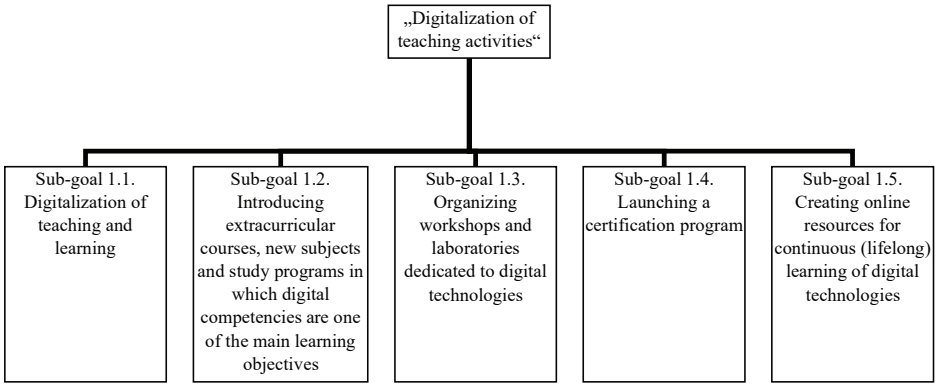
Figure 2: Key success factors of the digitalization strategy of the FCEAG in Split



Source: Author according to FCEAG, Split, 2024, p. 8

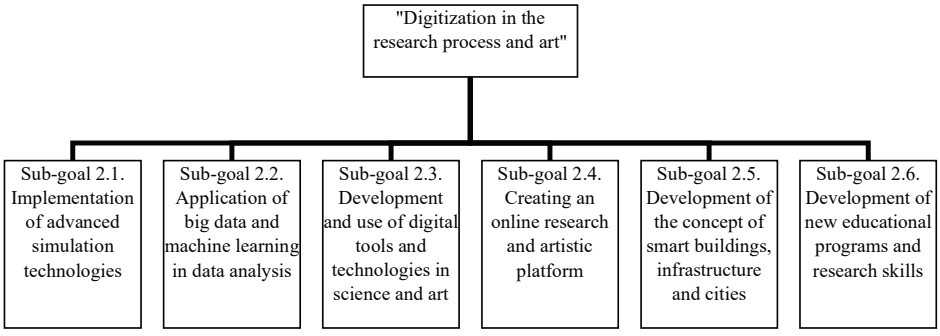
For each key success factor, FGAG in Split defined specific activities to be implemented, thereby translating long-term (strategic) goals into sub-goals, i.e., short-term operational objectives grouped by key success factors (Figures 3–6).

Figure 3: Key success factor No.1"Digitalization of teaching activities" and defined sub-goals of Strategic Goal No. 1



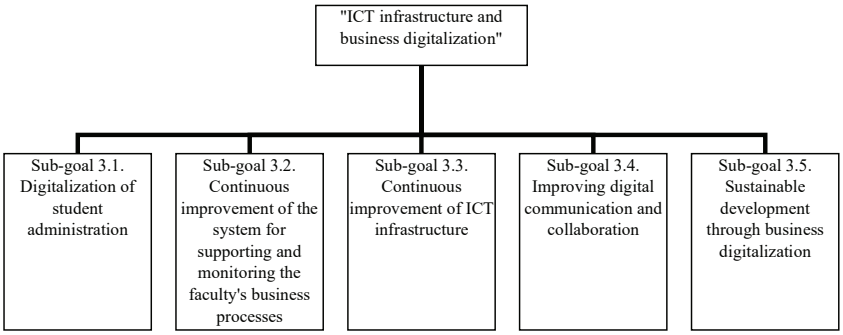
Source: Author according to FCEAG, Split (2024), p. 8

Figure 4: Key success factor No. 2 - "Digitalization in the research process and the arts" and defined sub-goals of Strategic Goal No. 2



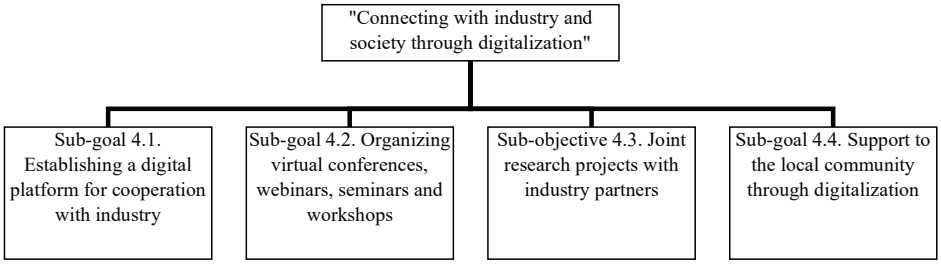
Source: Author according to FCEAG, Split (2024), p. 8

Figure 5: Key success factor No. 3 - "ICT infrastructure and business digitalization" and defined sub-goals of Strategic Goal No. 3



Source: Author according to FCEAG, Split (2024), p. 8

Figure 6: Key success factor No. 4 - "Connecting with industry and society through digitalization" and defined sub-goals of Strategic Goal No. 4



Source: Author according to FCEAG, Split (2024), p. 8

Sub-goals, i.e., short-term (operational) goals, are linked to the activities that need to be implemented. The effective implementation of these sub-goals will ensure the realization of the formulated strategic (long-term) goals. For each operational objective (sub-objective), the relevant activities have been defined. For each activity, a qualitative or quantitative measure of activity performance is selected that is necessary for controlling that activity, but also for controlling the key success factor. Ultimately, these measures allow for control of the decentralization strategy either during its implementation or after its implementation.

For the control of key success factor No. 1, activity performance measures have been defined (Table 4).

Table 4: Key success factor No. 1 - sub-goals, activities, and control measures

Sub-goals		
S 1.1 Digitalisation of teaching and learning	**Activities for the implementation of S1.1**	**Activity performance control measures A1.1**
	A1.1.1. Continued introduction of online learning platforms and implementation of LMSs such as Merlin or Blackboard for curriculum management, student progress tracking, and distribution of teaching materials.	M1. Increasing the number of online learning platforms introduced. M.2 Increase in the percentage of subjects using learning platforms.
	A1.1.2. Implementing hybrid learning by combining physical presence and online teaching to enable flexibility and accessibility of education.	M3. Implemented hybrid learning in at least five subjects in accordance with regulations.
	A1.1.3. Using AR/VR technology in the teaching process and for simulating real projects. The goal is to gain student experience in a virtual environment.	M4. AR/VR was introduced in at least one subject per study program over a period of 3 years.
	A1.1.4. Introducing modern learning technologies into teaching.	M5. Modern digital equipment and aids have been introduced within the teaching processes in at least five subjects per study program.
	A1.1.5. Introducing the principles of digital pedagogy into the teaching process with the aim of developing an innovative learning process supported by digital technologies.	M6. Principles of digital pedagogy are introduced in at least three subjects per study program.
	A1.1.6. Organizing workshops to strengthen teachers' competencies for digital teaching, including redesigning teaching methods according to the principles of digital pedagogy.	M7. At least one workshop is organized per year, with 100% teacher coverage.
S 1.2. Introducing extracurricular courses, new subjects and modules, and study programs with digital competencies as key learning outcomes	**Activities for the implementation of S1.2**	**Activity performance control measures A1.2**
	A1.2.1. Creation of a catalog of necessary digital competencies for qualifications acquired at universities.	M8. Catalogs created for all undergraduate and graduate study programs by the end of 2026.
	A1.2.2. Amendments and additions to study programs with the necessary digital competencies.	M9. All study programs offered at the faculty have been amended and supplemented with the necessary digital competencies.
	A1.2.3. Analyzing the digital competencies of students and teachers (including general digital competencies and those specific to the field of study) to provide an analytical basis for the selection of extracurricular courses.	M10. A survey conducted via online self-evaluation questionnaires for all students and teachers and a report was created once a year.
	A1.2.4. Introducing extracurricular courses that cover basic and advanced aspects of digitalization needed in construction for teachers and students.	M11. Organized at least one course per year for basic training in the use of tools such as: AutoCAD, Python or MATLAB. M12. Organized at least one course per year for advanced training in the use of tools such as: AutoCAD, Python or MATLAB.
	A1.2.5. Developing a new study program with an ICT qualification.	M13. Developed a university master's degree in geoinformatics based on the newly developed 7th-level qualification from the LABIRINT project.
	A1.2.6. Organizing courses on creating, analyzing and managing BIM models focused on BIM technology. BIM enables the integration of building information throughout its entire life cycle, from design to maintenance.	M14. At least one interdisciplinary course for advanced training in the use of BIM technologies has been organized within the past two years.
	A1.2.7. Organizing courses focused on GIS technology that enables the integration of geospatial data in the planning and management of the built and natural environment.	M15. At least one interdisciplinary course for advanced training in the use of GIS technologies has been organized within the past two years.

S 1.3. Organizing workshops and laboratories dedicated to digital technologies	**Activities for the implementation of S1.3**	**Activity performance control measures A1.3**
	A1.3.1. Organizing practical workshops on machine learning and data processing, on the use of machine learning and analytical tools for predicting the behavior of construction materials, optimizing construction processes and analyzing big data.	M16. At least one workshop organized within the two years.
	A1.3.2. Implementation of laboratories where students can work with 3D printers and robotic systems. Learning how these technologies are used in construction and architecture to create models, prototypes, or entire structures.	M17. Ensured the availability of 3D printing and robotics laboratories.
	A1.3.3. Implementation of laboratories where students can work with GIS technology. Learning how this technology is used in planning and managing the built and natural environment.	M18. Ensured the availability of GIS-SPO and Geodetic and Geoinformatics Laboratories.
S 1.4. Launching a certification program	**Activities for the implementation of S1.4**	**Activity performance control measures A1.4**
	A1.4.1. Creating and launching modules for the certification of digital tools and technologies in cooperation with software companies and software distributors such as: Autodesk, Bentley, Trimble, etc. These modules allow students to gain official certifications for using key digital tools that are in demand in the industry.	M19. Created and launched modules for certification of digital tools and technologies – at least two certification modules.
	A1.4.2. Creating and launching a certification module in sustainable construction. Education and certification of students in sustainable construction and energy efficiency using digital tools for resource analysis and optimization.	M20. At least one module for educating and certifying students in sustainable construction and energy efficiency using digital tools for resource analysis and optimization created and launched.
	A1.4.3. Establishing courses or colleges that cover the concept of smart cities and the application of IoT technologies in development projects. Students learn how to implement sensors, collect data and manage infrastructure through digital networks, use GIS technology for planning and managing urban spaces, as well as for analyzing topographic data in the context of construction projects.	M21. At least one course (collegium) covering the concept of smart cities established.
	A1.4.4. Developing digital skills through interdisciplinary projects with industry partners. Engaging students in interdisciplinary projects with industrial partners where they apply their digital skills to real-world challenges in the construction industry. Projects cover all phases, from digital design to process automation and optimization.	M22. Application and implementation of the process with industry partners of at least one interdisciplinary project dealing with digital design or automation and optimization.
	A1.4.5. Encouraging cooperation between the faculty and the IT sector on the development of software solutions for the construction industry, such as project management applications, simulation tools and data analysis tools.	M23. At least one collaboration with the IT sector on the development of software solutions for the construction industry achieved.
	A1.4.6. Establishing courses and workshops that train students on the use of VR and AR technology for simulating construction processes, reviewing 3D models, and training construction site workers. These technologies enable an interactive experience that improves understanding and precision in planning and executing work.	M24. At least one course or workshop established to train students on the use of VR and AR technology for simulating construction processes.
	A1.4.7. Developing interactive simulations that allow students to train skills in a virtual environment, including operating construction machinery, planning construction sites, and performing complex construction operations.	M25. At least one interactive simulation or training developed.
S 1.5. Establishing online resources for continuous (lifelong) learning of digital technologies	**Activities for the implementation of S1.5**	**Activity performance control measures A1.5**
	A1.5.1. Launching e-learning platforms – creating online courses and resources available to students and professionals who want to improve their digital skills. This includes video lectures, interactive modules, and knowledge tests.	M26. Launched an e-learning platform for continuing (lifelong) education.
	A1.5.2. Developing a continuing education program that allows professionals to upgrade their digital skills through short courses, workshops, and certification programs.	M27. At least three continuing education programs have developed.

Source: Adapted from FCEAG, Split (2024), p. 9–11

Table 4 shows that the achievement of key success factor No. 1 "Digitalization of teaching activities" is planned through the implementation of 25 activities, the success of which will be monitored, directed, and controlled using 27 key performance indicators. The planned activities are defined based on 5 sub-goals (short-term goals), the successful implementation of which in the four years of strategy implementation should ensure the realization of the defined long-term strategic goal No. 1.

For the control of key success factor No. 2 appropriate activity performance measures have been defined (Table 5).

Table 5: Key success factor No. 2 - sub-goals, activities and, control measures

Sub-goals		
S 2.1. Implementation of Advanced Simulation Technologies	**Activities for the implementation of S2.1**	**Activity performance control measures A2.1**
	A2.1.1. Using digital twins to create virtual copies of buildings and cities. This enables researchers to monitor and analyze the performance of buildings in real time and simulate various scenarios, such as: operational processes, planning decisions for urban development, or emergencies such as fires, earthquakes, floods, and other natural disasters.	M1. At least five research projects reported through which this technology will be implemented. M2. At least one research project implemented in which digital twin technology will be implemented.
	A2.1.2. Using simulation software to test different combinations of materials and designs before implementation in real projects can help develop new, more efficient and sustainable building solutions.	M3. At least five scientific research or professional projects implemented using advanced simulation software.
S 2.2. Application of big data analytics and machine learning in data analysis	**Activities for the implementation of S2.2**	**Activity performance control measures A2.2**
	A2.2.1. Application of big data analytics to collect and analyze field data through measuring devices, sensors, drones, etc. to optimize processes, predict risks, and reduce construction costs.	M4. At least one project implemented in which various field data will be collected and analyzed using various measuring devices, sensors, drones, etc., to optimize processes, predict risks, and reduce construction costs.
	A2.2.2. Using machine learning based on collected data to predict the behavior of building materials and structures over time. The goal is better planning of maintenance and extending the lifespan of buildings.	M5. At least one project using machine learning based on collected data implemented.
S 2.3. Development and use of new digital tools and technologies in science and art	**Activities for the implementation of S2.3**	**Activity performance control measures A2.3**
	A2.3.1. Research into the application of 3D printing in construction for the construction of complex structures or prototypes can reduce costs and speed up the construction process.	M6. At least one project implemented that explores the application of 3D printing in construction.
	A2.3.2. Research into the use of robots on construction sites or in prefabricated element factories to automate repetitive or dangerous tasks.	M7. At least one project implemented that explores the use of robots on construction sites or in factories.
	A2.3.3. Researching the use of digital technology in artistic processes in the field of architecture, advanced visualizations and interactive tools.	M8. At least one project implemented that explores the use of digital technology in artistic processes.
S 2.4. Creating an online research and artistic platform	**Activities for the implementation of S2.4**	**Activity performance control measures A2.4**
	A2.4.1. Establishing an online research platform where researchers and artists from different universities and industrial partners can collaborate on joint projects.	M9. Established research and artistic online platform.

S 2.5. Development of the concept of smart buildings, smart infrastructure and smart cities	**Activities for the implementation of S2.5**	**Activity performance control measures A2.5**
	A2.5.1. Research into the integration of smart construction, architectural and urban solutions in the broader context of smart cities.	M10. At least one project implemented that explores the integration of smart building solutions in the context of smart cities.
	A2.5.2. Developing the concept of smart buildings and infrastructure through the installation of sensors in buildings for real-time condition monitoring.	M11. At least one pilot project implemented that includes the concept of smart buildings or infrastructure.
S 2.6. Development of new educational programs and research skills	**Activities for the implementation of S2.6**	**Activity performance control measures A2.6**
	A2.6.1. Developing new educational programs and research skills by introducing courses that train students in the use of advanced digital tools such as BIM, GIS, Python, Java, MATLAB, data analytics, artificial intelligence, machine learning, digital twins, cybersecurity, the Internet of Things, virtual and augmented reality, cloud computing, automation, robotics, and blockchain technology.	M12. At least three courses or educational programs held to improve digital research skills.
	A2.6.2. Promoting cooperation between different disciplines such as computer science, electrical engineering, maritime engineering, civil engineering, architecture, urban planning, geodesy and geoinformatics to develop innovative solutions.	M13. At least one roundtable held to encourage collaboration between different disciplines.
	A2.6.3. Developing digital platforms for environmental impact assessment that enable the simulation of long-term effects of construction projects.	M14. At least one project that explores sustainable development through digitalization has been implemented.
	A2.6.4. Implementing digital tools to optimize the use of resources such as water, energy, and building materials to reduce the environmental footprint.	M15. At least one digital tool for optimizing resource use implemented.

Source: Adapted from FCEAG, Split (2024), p. 12-14

Table 5 shows that the achievement of key success factor No. 2 "Digitization in the research process and art" is planned through the implementation of 14 activities. The success of the activity will be monitored, directed, and controlled using 15 key performance indicators. The planned activities are defined on the basis of 6 sub-goals (short-term goals), the successful implementation of which in the four years of strategy implementation should ensure the implementation of the defined long-term strategic goal No. 2.

For the control of key success factor No. 3, appropriate activity performance measures have been defined (Table 6).

Table 6: Key success factor No. 3 - sub-goals, activities, and control measures

Sub-goals		
S 3.1. Digitalization of student administration	**Activities for the implementation of S3.1**	**Activity performance control measures A3.1**
	A3.1.1. Actively monitoring the development of new ISVU services and their introduction into business processes at the faculty.	M1. New ISVU services introduced into business processes.
	A3.1.2. The expansion of the Faculty's Electronic Document Management System (DMS) to include student service documentation.	M2. Extended coverage.

S 3.2. Continuous improvement of the Faculty Business Process Support and Monitoring System (SP4)	**Activities for the implementation of S3.2**	**Activity performance control measures A3.2**
	A3.2.1. Analysis of employees' digital competencies (including general digital competencies and those specific to the field of work) for the purpose of selecting and organizing training.	M3. Surveys were conducted via online questionnaires for all employees and a report produced once a year.
	A3.2.2. Organization of digital competence workshops for administrative staff.	M4. At least one workshop held each year, with 100% coverage by the end of 2028.
	A3.2.3. Implementation of a system for supporting and monitoring the faculty's business processes in all processes in order to integrate all administrative functions. This includes applications and implementation of scientific and professional projects, management of equipment, finances, human resources, procurement and maintenance of facilities.	M5. Implemented a system for supporting and monitoring faculty business processes in 90% of processes.
	A3.2.4. Expansion of the electronic document management system (DMS) for the secure storage, organization and search of all administrative documents in digital format.	M6. Expanded electronic document management system (DMS).
	A3.2.5. Establishing a system for monitoring the application and implementation of scientific and research projects within a unified information system.	M7. A system for digital monitoring of the application process and implementation of scientific and research projects established.
S 3.3. Continuous improvement of the ICT infrastructure	**Activities for the implementation of S3.3**	**Activity performance control measures A3.3**
	A3.3.1. Creation of a plan for the renewal and procurement of servers and network infrastructure.	M8. An annual plan developed.
	A3.3.2. Development of a plan for the renovation and procurement of ICT office equipment.	M9. An annual plan developed.
	A3.3.3. Renovation and procurement of servers, network infrastructure and office ICT equipment.	M10. Procurement implemented on an annual basis.
S 3.4. Enhancing digital communication and collaboration	**Activities for the implementation of S3.4**	**Activity performance control measures A3.4**
	A3.4.1. Creating an internal online platform for student and employee support with an archive of frequently asked questions and answers, as well as the ability to ask new questions and report problems.	M11. An online platform created to support students and employees.
	A3.4.2. Developing an internal portal for employees and students that provides access to important information, notifications, and documents.	M12. Developed an internal portal for employees and students that provides access to important information, notifications and documents.
	A3.4.3. Launching an initiative at the University of Split level for the development of mobile applications that would allow students to access all important information and services from any location.	M13. An initiative launched to develop a mobile application at the University of Split.
S 3.5. Sustainable development through business digitalization	**Activities for the implementation of S3.5**	**Activity performance control measures A3.5**
	A3.5.1. Reducing paper use in all processes that currently require paper, by switching to e-documents, e-reports and digital presentations.	M14. Reduced paper use in administration by at least 50%.
	A3.5.2. Introducing and using technology to monitor and optimize energy consumption in faculty buildings, such as systems for automatic regulation of lighting, heating, and cooling according to needs.	M15. Technology introduced for monitoring and optimizing energy consumption in faculty buildings.

Source: Adapted from FCEAG, Split (2024), p. 15–16

Table 6 shows that the achievement of Key Success Factor No. 3, "ICT Infrastructure and Business Digitalization," is planned through the implementation of 15 activities. The success of the activity will be monitored, directed and controlled using 15 key performance indicators. The planned activities are defined on the basis of 5 sub-goals (short-term goals),

the successful implementation of which in the four years of strategy implementation should ensure the realization of the defined long-term strategic goal No. 3.

For the control of key success factor No. 4, appropriate activity performance measures have been defined (Table 7).

Table 7: Key success factor No. 4 - sub-goals, activities, and control measures

Sub-goals		
S 4.1. Establishing a digital platform for collaboration with the industry	**Activities for the implementation of S4.1**	**Activity performance control measures A4.1**
	A4.1.1. Developing a digital platform for student collaboration with industry partners through work on real projects. Through the platform, students would register their interests and skills, and companies would list available projects and internship opportunities. The platform would facilitate establishing contacts and implementing cooperation.	M1. Developed a digital platform for collaboration with industry partners.
	A4.1.2. Developing a virtual career center: establishing a digital employment center through which companies would publish open calls for employment. Students would search for available jobs, submit their resumes, and participate in virtual interviews.	M2. A virtual career center established.
S 4.2. Organization of virtual conferences, webinars, seminars and workshops	**Activities for the implementation of S4.2**	**Activity performance control measures A4.2**
	A4.2.1. Organizing virtual conferences, webinars, seminars and workshops in partnership with industry leaders and experts in construction, architecture and geodesy. This would enable students, researchers, and professionals to exchange knowledge, ideas, and innovations regardless of geographic location.	M3. At least one activity held per year.
	A4.2.2. Organizing digital skills competitions in which students can participate in solving real-world construction problems. Organize competitions in cooperation with companies, which could offer prizes or even employment to the best participants.	M4. At least one activity held per year.
S 4.3. Joint research projects with industry partners	**Activities for the implementation of S4.3**	**Activity performance control measures A4.3**
	A4.3.1. Joint research projects with industry partners. The projects would enable joint work on the development of new technologies, materials or methods, with financial support from industry and funds.	M5. Applied to at least five calls for proposals for joint research projects with industry partners. Conducted at least two joint research projects with industry partners.
	A4.3.2. Establishing an innovation center in collaboration with leading industry companies, where students and researchers could engage in prototype development, testing new technologies, and the commercialization of innovations.	M6. Innovation center established.
S 4.4. Supporting the local community through digitalization	**Activities for the implementation of S4.4**	**Activity performance control measures A4.4**
	A4.4.1. Establishing an online platform through which citizens, businesses, and local authorities could receive expert advice and consultations from professors and faculty students on projects, sustainable practices, and infrastructure renovation.	M7. Online platform established.
	A4.4.2. Developing free online courses and educational materials on topics such as energy efficiency, sustainable construction, and construction site safety. These publicly available resources would help educate the general public on key construction topics.	M8. At least ten courses or educational materials developed.
	A4.4.3. Using digital design and urban planning tools such as GIS and BIM in cooperation with local and regional government units.	M9. At least one cooperation agreement with local and regional self-government units formalized.

Source: Adapted from FCEAG, Split (2024), p. 17–18

Table 7 shows that the achievement of Key Success Factor No. 4, "Connecting with Industry and Society through Digitalization," is planned through the implementation of nine activities. The success of the activity will be monitored, directed and controlled using 9 key performance indicators. The planned activities are defined based on 4 sub-goals (short-term goals), the successful implementation of which in the four years of strategy implementation should ensure the realization of the defined long-term strategic goal No. 4.

A set of 66 performance control indicators has been defined to control the digitalization strategy (during and after implementation). The digital transformation strategy of FCEAG in Split can be said to be comprehensive and offers a clear path towards digital transformation. Although challenges in the area of financial sustainability and uneven implementation remain, consistent implementation of the strategy, motivation of teaching staff, continued support from the state, the EU, the University, as well as active use of international funds and partnerships, are key areas that can ensure successful digital transformation.

Conclusion

Control is seen as a key instrument for achieving quality, efficiency, and sustainability of digital transformation. Controlling the digitalization strategy allows institutions to monitor the implementation of set goals and detect deviations in the implementation process. It contributes to transparency, improved governance, and timely adoption of corrective measures. Effective control is based on regular reporting, data analysis, and the engagement of all stakeholders in the system. The challenges in measuring and controlling the digitalization strategy of HEIs can be great. Measuring the effects of digitalization is often made difficult by the inability to convert qualitative results (such as motivation and teaching quality) into measurable indicators. Fragmented data and the lack of uniform standards are also problems. Control of the digitalization strategy of HEIs is seen as control during and after the implementation of the digitalization strategy. During implementation, control includes monitoring the activity plan, testing the solution, and educating users, and the control instrument is explained during implementation. Monitoring the digitalization strategy of HEIs after implementation involves assessing the long-term effects on teaching, efficiency, and higher education institutions. This control involves comparing achieved and planned performance, as well as potentially redefining the strategy. The post-implementation control instrument is explained, which evaluates the strategy based on successfully implemented activities that were achieved during the strategy implementation period. The application of key success factors as a strategic control method allows for linking planned goals to appropriate performance measures. This makes it easier to monitor the success of strategy implementation. Identifying key success factors makes it easier to monitor the most significant areas that have a key impact on the achievement of the strategy. The example of the Faculty of Civil Engineering, Architecture, and Geodesy in Split demonstrates the practical application of key success factors in controlling a digitalization strategy. By defining key success factors, FCEAG focused attention on key areas and defined sub-goals for them. The FCEAG also defined activities to achieve these sub-goals, as well as key performance indicators for the defined activities. This approach allows for control of strategy implementation and adequate response if its implementation is not implemented according to plans.

References

Aparisi-Torrijo, S., García-Hurtado, D., & Botella-Carrubi, D. (2024). Towards digitalization in higher education: conceptual and bibliometric paradigm. *ESIC Market*, *55*(2), e349. https://doi.org/10.7200/esicm.55.349

Carmo, J. E. S., Lacerda, D. P., Klingenberg, C. O., & Piran, F. A. S. (2025). Digital Transformation in the Management of Higher Education Institutions. *Sustainable Futures*, 9, 100692. https://doi.org/10.1016/j.sftr.2025.100692

Chounta, IA., Ortega-Arranz, A., & Daskalaki, S. (2024). Toward a data-informed framework for the assessment of digital readiness of higher education institutions. *Journal of Educational Technology in Higher Education*, *21*(1), 59. https://doi.org/10.1186/s41239-024-00491-0

Esteve-Mon, F. M., Postigo-Fuentes, A. Y., & Castañeda, L. (2023). A strategic approach of the crucial elements for the implementation of digital tools and processes in higher education. *Higher Education Quarterly*, *77*(3), 558–573. https://doi.org/10.1111/hequ.12411

FCEAG in Split (2024). *Strategija digitalne transformacije*. Available at: https://gradst.unist.hr/Portals/9/docs/Akti_Fakulteta/STRATEGIJA%20digitalne%20transformacije%20FGAG%202024-2028.pdf?ver=pqNfv3Ui0IUxC1physEXOQ%3d%3d.

Fernández, A., Gómez, B., Binjaku, K., & Meçe, E. K. (2023). Digital transformation initiatives in higher education institutions: A multivocal literature review. *Education and information technologies*, *28*(10), 12351–12382. https://doi.org/10.1007/s10639-022-11544-0

Gkrimpizi, T., Peristeras, V., & Magnisalis, I. (2023). Classification of barriers to digital transformation in higher education institutions: Systematic literature review. *Education Sciences*, *13*(7), 746. https://doi.org/10.3390/EDUCSCI13070746

Grunert, K. G., & Ellegaard, C. (1992). *The concept of key success factors: theory and method*. Department of Management – MAPP.

Ivenicki, A. (2024). Digital Learning and Higher Education in Brazil: A Multicultural Analysis. *Journal of Comparative and International Higher Education*, *16*(2), 127–135. https://doi.org/10.32674/jcihe.v16i2.5846

Kaplan, A. (2022). *Digital transformation and disruption of higher education*. Cambridge University Press.

Kaputa, V., Loučanová, E., & Tejerina-Gaite, F. A. (2022). Digital transformation in higher education institutions as a driver of social oriented innovations. *Social innovation in higher education*, *61*, 81–85. https://doi.org/ 10.1007/978-3-030-84044-0_4

Klochkova, E., Serkina, Y., Prasolov, V., & Movchun, V. (2020). The Digitalisation of the economy and higher education. *Space and Culture, India, 7*(4), 70–82. https://doi.org/10.20896/saci.v7i4.697

König, C. M., Karrenbauer, C., & Breitner, M. H. (2023). Critical success factors and challenges for individual digital study assistants in higher education: A mixed methods analysis. *Education and Information Technologies*, *28*(4), 4475–4503. https://doi.org/10.1007/s10639-022-11394-w

Krstić, B., Stanišić, T., & Radivojević, V. (2016). The impact of innovativeness' factors on the EU countries competitiveness. *Industrija*, *44*(2), 101–116. https://doi.org/10.5937/industrija44-10674

Krstić, B., & Krstić, M. (2018). Higher education as a factor of Serbian national economy competitiveness. In: *Improving the competitiveness of enterprises and national economies*. Niš, Serbia: Faculty of Economics (pp. 1–28).

Krstić, B., & Rađenović, T. (2020). Performance Evaluation System as a Base for Designing the Intellectual Capital Report: The Case of Serbian Public Universities. In: *Handbook of Research on Enhancing Innovation in Higher Education Institutions* (pp. 261–286). IGI Global. https://doi.org/10.4018/978-1-7998-2708-5.ch012

Krstić, B., (2012). *Uloga strategijske kontrole u unapređenju poslovnih performansi*. Niš: Ekonomski fakultet.

Kučina Softić, S., Odak, M., & Lasić Lazić, J. (2021). *Digitalna transformacija: Novi pristupi i izazovi u obrazovanju*, Sveučilište Sjever, Centar za digitalno nakladništvo, Koprivnica.

Leyh, C., Köppel, K., Neuschl, S., & Pentrack, M. (2021). Critical success factors for digitalization projects. *2021 16th conference on computer science and intelligence systems (fedcsis)* (pp. 427–436). IEEE. https://doi.org/10.15439/2021F122

Magd, H., Nzomkunda, A., Negi, S., & Ansari, M. (2022). Critical Success Factors of E-Learning Implementation in Higher Education Institutions: A Proposed Framework for Success. *Global Business & Management Research*, *14*, 20–38.

Meštrić, K. B., Maravić, J., Makovac, M., & Ivanković, R. (2023). *Digital Transformation in Higher Education: A Focus on Croatia.* Dalam Saqr M., S. of C. University of Eastern Finland Yliopistokatu, *2*, 67–73.

OECD (2021). *Supporting the Digital Transformation of Higher Education in Hungary, Higher Education*. OECD Publishing, Paris. https://doi.org/10.1787/d30ab43f-en.

OECD (2023). *Advancing Digital Maturity in Croatia's Higher Education System, Higher Education*. OECD Publishing, Paris. https://doi.org/10.1787/c3c8d452-en.

Oliveira, K. K. D. S., & De Souza, R. A. (2022). Digital transformation towards education 4.0. *Informatics in Education*, *21*(2), 283–309. https://doi.org/10.15388/infedu.2022.13

Qureshi, M. I., Khan, N., Raza, H., Imran, A., & Ismail, F. (2021). Digital Technologies in Education 4.0. Does it Enhance the Effectiveness of Learning? A Systematic Literature Review. *Int. J. Interact. Mob. Technol., 15*, 31–47. https://doi.org/10.3991/ijim.v15i04.20291

Radivojević, V., Kahrović, E., & Krstić, M. (2019). Population skills as an indicator of European countries competitiveness in the modern economy. *Vojno delo*, *71*(5), 105–116. https://doi.org/10.5937/vojdelo1905105R

Rodrigues, L. S. (2017). Challenges of digital transformation in higher education institutions: A brief discussion. *Proceedings od 30th IBIMA Conference*.

Schuetze, H. G., de Vries, W., & Álvarez Mendiola, G. (2024). Digitalization of Higher Education: An Introduction. *Journal of Comparative & International Higher Education, 16*(2), p. 6. https://doi.org/10.32674/jcihe.v16i2

World Bank (2022). *Digital Transformation of Philippine Higher Education (English).* Washington, D.C.: World Bank Group. http://documents.worldbank.org/curated/en/099925001062333685

University of Shkodra "Luigj Gurakuqi". (2023). University to Society Collaborations for Inclusive Digital Transformations in the Western Balkans - Digital Literacies Accelerator Programme (U2SID).