



# Achieving Long-Lasting Digital Change in Higher Education

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## Abstract

This paper proposes an approach for implementing long-lasting digital transformation in higher education. As a motivation for the approach, we describe four typical reasons why digital transformation does not reach the set goals in higher education institutions. To address the challenge, two steps are needed. Firstly, we need to recognise the true nature of digital transformation – it is a complex process with building blocks both inside and outside the organisation. Secondly, we need to appreciate the size of the challenge – the digital transformation process is directly or indirectly linked to all major parts of the organisation. Consequently, successful implementation of digital change cannot be done as a traditional IT project or programme. Instead, several areas in the organisation will need to be addressed in a holistic way.

The first area is strategy, where we need to ensure the visibility of the digital world and its impact on the business. The second area is the role of digital technologies and the IT organisation. New approaches and working practices will be needed to move IT closer to the business. The third area is value creation, and here we need to combine traditional IT projects with business reengineering. The fourth area to address is structure, and this typically means both processes and the organisation. The fifth area combines culture and skills. We will have to make sure that people understand and accept the change and have the required competences to make it happen.

## 1 Introduction

Most higher education institutions are currently undergoing digital transformation and creating the required digital capabilities, see (Kähköpuro, 2017) for examples of such developments. In many cases, however, this work has not had the expected impact on the organisation. Even if the projects themselves are successful and deliver the planned results, the long-term impact is often a disappointment. A recent example illustrates this: digital tools were successfully taken into use during the pandemic for enabling

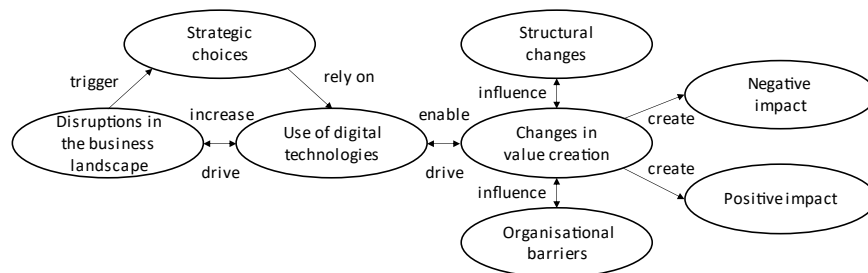
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remote and blended learning, but we have seen a significant reduction in the use of these tools now that Covid-related limitations have been lifted in most countries. This is not surprising. In fact, traditional IT projects have often followed the same pattern: while the project itself gets implemented as planned, the expected benefits do not materialise, and the business case turns out to be much too ambitious. In this paper, we identify some of the underlying reasons for this phenomenon in the context of digital transformation and propose an approach for addressing them.

## 2 What is digital transformation

Digital transformation has been defined in several ways in the literature. Vial (2019) provides an interesting study with 23 unique definitions for digital transformation. In this paper, we will use an adopted version of the framework compiled by Vial. Digital transformation is defined as a *process* consisting of eight interrelated building blocks. These blocks are illustrated in Figure 1. At the heart of the process is the *use of digital technologies* and *disruptions in the business landscape* which often feed each other. Disruptions also trigger *strategic choices* for the organisation, and these rely on the use of digital technologies. Within the organisation itself, the use of digital technologies enables *changes in value creation* processes and these in turn require *structural changes* and are affected by *organisational barriers*. Changes in value creation will have both *positive and negative impacts*.



**Figure 1. Building blocks for the digital transformation process, adapted from (Vial, 2019).**

Some relationships in the diagram are bidirectional and this is illustrated by arrows pointing in both directions. For example, the use of digital technologies enables changes in value creation but, at the same time, new ways of creating value drive the introduction of new technologies.

## 3 Why digital transformation often falls short of expectations

Given the complexity and the iterative nature of the digital transformation process, there are different ways it can fail. In this section, we identify some of the common challenges that can be observed in the higher education sector. These issues are not the only ones, but they are representative of the overall challenge posed by digital transformation for the sector.

### 3.1 Treating digital transformation as a one-time exercise

Digital transformation is often treated as a major project or a programme with the idea of identifying business goals, selecting the right technologies, implementing the required changes and, finally, scaling up the results, see (White, 2021) for a typical framework. While this approach sounds attractive (and

has a lot of useful elements), organisations often face challenges after the project has been completed. There are several reasons for this. Firstly, it is difficult to identify all the required changes in the organisation, as they may extend from easy-to-implement process changes to difficult and subtle cultural changes. If we fail to address cultural elements, for example, the organisation easily falls back to its old habits once the driving force, i.e., the project, is no longer there. Secondly, if the work is being managed as a traditional IT project, it is highly likely that cultural aspects are not addressed sufficiently (Parker et al., 2013). Finally, scaling up the implemented digital practices may encounter organisational barriers, such as inertia and resistance, as higher education is known to be a sector with long traditions and a slow clock rate for changes. In this case, the result is a successful change in a small part of the organisation while the majority continues working as before.

### 3.2 Managing digital tools with traditional IT governance

A straightforward and popular way to manage new digital tools is to treat them as part of traditional IT applications and infrastructure. However, this approach does not support the dynamic and iterative nature of digital transformation where, on one hand, business strategy provides input for digital tools and, on the other hand, the use of digital technologies fuels disruptions in the business and thereby triggers changes in the strategy. Separating the two in the governance model effectively slows down further development of the new digital tools once the initial implementation project has been completed.

In the higher education sector, IT governance is often driven by the IT and/or financial organisation with the goals of operational efficiency and value for money. Business growth, differentiation, and innovation seldom appear on the agenda. See (Kähköpuro, 2018) for a discussion of this and other possible models.

### 3.3 Expecting the IT organisation to be digital by nature

While IT people are familiar with digital tools, traditional IT organisations are not well-equipped for supporting digital transformation. Firstly, the focus of traditional IT is typically on operational efficiency and well-defined services and processes. This often translates into inertia and resistance to change. Secondly, while IT projects have a set of well-defined and efficient practices, such as those outlined in PRINCE2 and PMBoK, they are not particularly well suited for implementing business changes or driving cultural changes (Parker et al., 2013). Implementing digital transformation with an IT methodology will only get you half-way through – the rest will have to be done with a different set of instruments.

Higher education IT is no different. In fact, there is a long-standing tradition of using internal resources for tasks that could easily be outsourced. Shift to external service providers has been slow compared to the private sector. Consequently, the relative size of the technical part of the IT organisation is extensive and, therefore, the focus of the work is not on transformational matters.

### 3.4 Bypassing the customer viewpoint

While the customer viewpoint is usually stated as one of the fundamental principles for digital transformation, the reality is often different. Taking the customer at the centre stage often entails significant changes in employee roles and skills, and in the organisational culture. These in turn are often a source of resistance. Also, changes in the ways of working may entail significant adjustments in the structure or in the processes – again a significant source of additional work. Therefore, it is often easier to use digital tools for increasing the efficiency of the traditional (less customer focused) approach rather than taking a significant leap with a lot of resistance from the organisation and even from the customers.

In the higher education sector, a typical example is the introduction of self-service to replace basic over-the-counter services in student administration. While the self-service model can be more efficient, less expensive, faster, and user-friendly, we are still seeing a lot of basic student administration work being done in the traditional way.

## 4 Taking a new approach to digital transformation

The solution to the identified challenges has two main steps. The first step is to recognise the *real nature of digital transformation*. We are not dealing with a one-time exercise that can be implemented using traditional IT practices. Instead, digital transformation is a complex process combining elements both inside and outside the organisation, and the goal is to embed this process into the organisation in a long-lasting way. Consequently, there is a need to change several elements in the organisation – and these elements are outside the scope of typical IT projects. Failure to do so will result in a short-lived improvement. Typical elements to address are:

- Strategy
- Role of digital technologies and the IT organisation
- Value creation
- Structure
- Culture and skills

The first four elements correspond directly to four of the building blocks in Figure 1. The last element is addressing people from two different perspectives, and it relates to two building blocks: structural changes and organisational barriers. The importance of people cannot be underestimated.

The second important step is to realise *the magnitude of change and the amount of effort required*. Successful digital transformation may require the full reengineering of some of the processes within the organisation. Hammer and Champy (1993) propose a classical approach to business process reengineering, and one of the main recommendations is to start from scratch rather than trying to incrementally fix existing processes.

The rest of the paper briefly discusses the identified five organisational elements and, for each of them, points out main changes that are required to successfully implement digital transformation. Figure 2 illustrates the scope of the required work.

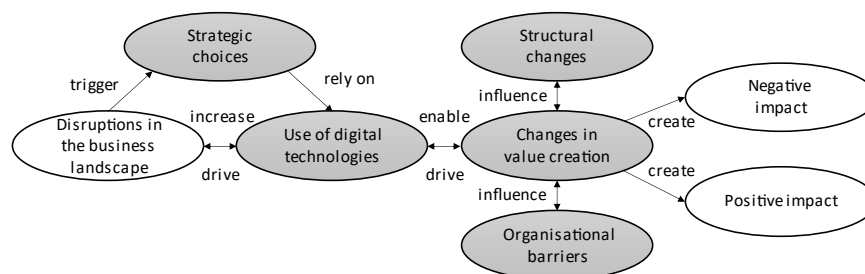


Figure 2. Scope of work for long-lasting digital transformation (in grey).

## 4.1 Strategy

Digital transformation needs to be part of the main strategy of the organisation. Institutions often start with a separate digital strategy, but this approach does not provide a sufficient foundation for a sustainable change, as this indirectly allows people to opt out and continue working in the traditional way – the message is not strong enough. In most organisations, there is a conservative part of staff that tends to keep their old practices unless there is an obligation to do otherwise. While it sounds harmless to have a small group of people following old practices, this often results in a need to have both the old and the new process in place – resulting in an increase in complexity and costs. This is exemplified by several finance and HR system implementations in higher education. The size of the support organisation has grown to keep both old and new practices running – the outcome in the private sector is often the opposite.

Organisational strategy can include digital aspirations in many ways. A typical approach is to include the principle “digital first” in the strategy. With this principle, digital alternatives are to be considered as the primary choice whenever there is a need to choose between different options. This is a way for the organisation to be future-proof as digital processes can be better adopted to changes taking place in the external world. This is also a way to increase agility (digital processes are typically easier to change) and efficiency (digital processes can be automated and enhanced with self service).

Another digital element in the top-level strategy can be the recognition of the value of data in understanding and running the business, i.e., becoming a data driven organisation. In higher education, data analysis has typically focused on statutory reporting and less attention has been paid on building business understanding at different levels: the students, the courses, the institution. The situation is improving through the recent business intelligence development work, but there is clearly a need to accelerate this as we are seeing radical changes in the education sector. Having a fact-based understanding of the ongoing change is critical for the success of the institution.

## 4.2 Value creation

Significant improvements in value creation are at the heart of business process reengineering, and this is also true for the changes required by digital transformation. The good news is that traditional IT practices can provide significant improvements using well-known project methodologies. However, there are certain aspects that are particularly important when dealing with digital transformation:

- The *customer first* principle is a sustainable way to improve business performance, and it should be respected whenever possible. The idea is to make the life of the customer as easy as possible, and use digital tools, such as automation, integration, and self-service, to deal with the underlying complexities of the process. However, there is an inherent challenge with this approach: to serve the customer in the best possible way, the need to change working practices easily extends beyond the original process, and may have consequences in curricula design, teaching methodologies, etc.
- To exploit the potential of digital processes, there is often a need to *change the way people are involved* in the process as digital tools are doing part of the work that used to human responsibility. An obvious way to do this is to combine multiple roles into one for reducing the time and effort for handovers and to empower workers to make decisions on the spot. Incidentally, Hammer and Champy (1993) have identified these techniques as typical ways to rethink business process whether they are digital or not. This may obviously create resistance in the organisation, as employee roles and skills will need to change as well.
- Continuous *innovation* in value creation is required as both digital technologies and the higher education sector are in constant development. Higher education institutions are

typically not well equipped in supporting digital innovation and, consequently, changes are needed to ensure that institutions can keep up with the change. To be efficient, the innovation process needs to be goal oriented and iterative in nature. This way, the process can better support business needs and the outcome is more likely to hit the often-evasive goal. See (Kähköpuro, 2021) for a wider discussion on the required changes in the innovation process.

### 4.3 Role of digital technologies and the IT organisation

The role of digital technologies will change, as the organisation becomes completely dependent on some of them – digital tools have turned from commodities into critical assets. In the past, most higher education processes could be executed without digital tools. For example, teaching could easily revert to traditional chalk and talk lectures and student administration could be implemented with paper-based processes. Today, remote and hybrid learning is no longer possible without digital tools, and student recruitment in the current volumes would be impossible without the existence of digital channels. This affects the way these technologies need to be supported: the traditional way to support higher education IT infrastructure and applications is no longer enough. Business-critical tools must be supported 24/7 and the support needs to be similar to other on-line industries, such as banking and telecommunications. Consequently, there is a tendency to move some of the basic operations to service providers that are doing the work at an industrial scale.

The role of the IT organisation will need to change as well. Rather than keeping the infrastructure and applications running (which will become the task of service providers), the IT staff will need to get closer to the business and build a bridge between technology and processes. This happens in several ways. Firstly, IT will be more visible to end users as most service delivery processes will have a digital element in them. Consequently, digital service design and support should be part of basic IT service delivery in all institutions. Secondly, the IT organisation will need to support end users to increase their personal productivity and innovativeness. This way, the full potential of digital tools can be unleashed despite the inherent bottleneck created by the limited capacity of the IT organisation. Thirdly, and perhaps most importantly, the IT organisation needs to be involved with the core business, i.e., education and research. This will require additional skills from the IT people – they will need to understand the business more deeply and they will also be partly responsible for the business outcomes. See (Kähköpuro, 2017) for a more detailed discussion on how the role of the IT organisation will change because of digital transformation.

### 4.4 Structure

New and different value creation processes will often require changes in the organisational structure. For example, a new ERP solution will need a support team with relevant IT and business skills. This kind of changes are typically well understood and can be implemented with the traditional IT project approach. However, digital transformation may require other, more subtle, structural changes for the transformation to be successful. Here are two typical examples of such changes:

- The *role of organisational leaders* will need to reflect the new way of working. As digital tools are increasingly dealing with basic activities and allow people to focus on higher-level tasks, people's role will change from controlled to empowered and, similarly, managers will change from scorekeepers to leaders, see (Hammer and Champy, 1993). This shift may be gradual, and it often starts from the process structure, but it will eventually have long-lasting consequences on the organisational structure as well. The organisation is likely to change from hierarchical to flat.

- To build a sustainable digital tool landscape there is often a need to change from the traditional *project mindset to product mindset*. With the project mindset, improvements are defined in terms of projects, and they are measured against the set schedule and budget. With the product mindset, the focus is on the product's success in terms of business outcomes – clearly a preferred option for the new digital processes that are much closer to the business (Gartner, 2022). However, to put in place product mindset in an IT organisation, there is a need to define the product structure and to introduce new roles to support the model. Also, existing IT services will need to be remodelled so that they fit into this new approach. For example, a traditional laptop life cycle service may become part of a “personal workplace” product with the business goal of ensuring staff productivity in all situations.

## 4.5 Culture and skills

For an organisation to survive and thrive in the new digital world, there is also a need to develop the culture. In higher education, several obvious cultural elements have been identified as key enablers for the required change. We have already touched some of them, but here is a top-seven list identified in (Kähköpuro, 2020):

- Focus on the customer – this will keep the focus on the end goal
- Digital first – this will ensure a future-proof renewal of the organisation
- Calculated risk taking – this will lead to faster development
- Agility – this will ensure competitiveness in the rapidly changing world
- Open innovation – this will allow the organisation to keep renewing itself
- Breaking silos – this will smoothen cultural clashes and increase process efficiency
- Data at the core – this will improve decision making

For the organisation to be able to address all of them, a multi-step approach is needed. Firstly, the foundations will typically need some adjustments, such as adding digital transformation into the core strategy. Secondly, there is a need to manage the change proactively at all levels of the organisation, and make sure that everyone is onboard. Thirdly, organisations must be able to navigate skilfully in the constantly changing landscape and adjust the selected approach. Cultural challenges will typically emerge because of activities in most other areas, such as changes in the value creation processes or changes in the role of the IT organisation. See (Kähköpuro, 2020) for a broader discussion on cultural aspects of digital transformation in higher education.

Another people related topic is the need for new skills in the organisation. An obvious change is the need for most people to be aware of digital technologies. However, for the people working on digital transformation, there is also a clear change in the required skills profiles. Traditional IT project skills are still needed but they are not enough. We can distinguish between the following groups:

- *Infrastructure and traditional IT*. These people will focus on service delivery, technologies, and suppliers. This is the foundation. A typical skills change is to move from inhouse delivery to managing external service providers.
- *IT people facing business*. The focus will be on business analysis, development work, and project delivery. This is the engine for change. The required skills change is to move from traditional IT project delivery to wider changes that require business reengineering.

- *Businesspeople facing IT*. The focus will be on the customers, external stakeholders, and business outcomes. This is where the business impact will be visible. The required skills change is to understand and manage businesses where digital elements are an essential part of the product or service.

See (Kähköpuro 2022) for a more detailed discussion on the required skills in each group.

## 5 Conclusions

We have defined digital transformation to be a complex process with eight interrelated building blocks (see Figure 1). Given the complexity of the process, there are various ways how it can fail, and we have identified four challenges that are typical in higher education digital transformation. To address the issues, there are two important steps to take. The first step is to accept the real nature of digital transformation – it is complex process, and it cannot be solved with a one-time project or programme. The second step is to appreciate the size of the challenge – to build a long-lasting solution, significant amount of work is needed in several areas.

In the *strategy* area, the most important thing is to recognise the need for digital transformation at the top level and to understand its impact on the organisation. The *role of digital technologies and the IT organisation* will change due to the increased dependency on them. Consequently, new approaches and working practices will be needed. The focus in digital transformation is often in changing the *value creation* processes but traditional IT project practices are not enough as most changes entail significant business reengineering. There is also a need for changes in *structure*, both in terms of processes and the organisation. Finally, *culture and skills* will also need to be addressed to ensure that people in the organisation understand the fundamentals of the change and have the required competences to make it happen.

This work is based on combining previous research results into a consistent framework for implementing a long-lasting digital transformation. As for further work in this area, it would be interesting to understand how well these observations correlate to real examples of digital transformation in higher education. Given the relatively young age of digital transformation in the sector, it will probably take a couple of years to collect the required information. Also, some of the identified elements may be more important than others, and more analysis could be done in this area as well.

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## 7 Author biographies



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