



Digital Education Enterprise

**IO2: DIGITAL TRANSFORMATION PLAN TO
REENGINEER THE USUAL WAY OF ADULT TRAINING
AND EDUCATION TO THE DIGITAL EDUCATION
ENTERPRISE BUSINESS MODEL**



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Scope	O2 Digital Transformation Plan to reengineer the usual way of adult training and education to the Digital Education Enterprise business model
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Table of Contents

.....	1
1. UNDERSTANDING DIGITAL TRANSFORMATION	4
1.1. THE MEANING OF DIGITAL TRANSFORMATION.....	4
1.1.1. Definition	4
1.1.2. Types	4
1.2. COVID-19 IMPACT ON DIGITAL TRANSFORMATION	7
1.3. DIGITAL TRANSFORMATION IN THE EU	7
1.4. DIGITAL TRANSFORMATION IN EDUCATION.....	9
1.4.1. Benefits of digital transformation in the education sector	9
1.4.2. Challenges of digital transformation in the education sector	12
2. DIGITAL TRANSFORMATION PLAN.....	16
3. BIBLIOGRAPHY	38

Table of Figures

Figure 1. Types of Digital Transformation	6
Figure 2. EU's Digital Intensity Index (DII) in 2021, according to Eurostat.....	8
Figure 3. Benefits of digital transformation for organisations, educators and learners.....	11
Figure 4. Challenges of digital transformation for organisations, educators and learners.....	15
Figure 5. Four stages in the digital maturity model.....	18
Figure 6. Example of Botsify chatbot interacting with a potential student.	30
Figure 7. Example of Mia chatbot assisting student. Source: Yeallow.ai	30
Figure 8. Metaverse's application in Education. Source: Leeway Hertz.....	31
Figure 9. Example of impact effort matrix.	33
Figure 10. Example of a digital transformation roadmap.....	35

Table of Tables

Table 1. SMARTER goals.....	23
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1. UNDERSTANDING DIGITAL TRANSFORMATION

1.1. THE MEANING OF DIGITAL TRANSFORMATION

1.1.1. Definition

Digital transformation is different for every company as digital technologies used and implemented, as well as the goals guiding the implementation, can differ from company to company. Thus, it is hard to pinpoint a definition that applies to every case or context. However, to put it in a broad sense, digital transformation could be described as:

"Digital transformation is the integration of digital technology into all areas of a business resulting in fundamental changes to how businesses operate and deliver value to customers."

Digital transformation in companies usually focuses on outcomes: new products and/or services, improved processes leading to enhanced capabilities, business value, and buy-in for the transformation.

When it comes to digital transformation in education, it can be described as follows:

Digital transformation in education is a physical and philosophical change designed to meet the demands of students, faculties and campuses, creating a learning environment where everything connects. It creates an ecosystem where technology, services and security are combined to breach the digital gap, creating collaborative, interactive and personalised learning experiences."¹

Digital transformation in the education industry is designed to help improve the learning experience for learners, teachers, and other stakeholders. Usually, such changes focus on improving engagement and accessibility through interactive and flexible learning.

Besides all technical transformations, it is essential to mention that digital transformation is also a cultural change that requires organisations, especially human resources, to challenge their way of thinking, experiment with new ideas and practises, and understand that failure is often a part of the process.

It is vital to understand that depending on the level of digital transformation, digital technologies may be a complex process, requiring a reorganisation of the company's business and retraining staff.

1.1.2. Types

Depending on the industry and enterprise, the types of digital transformation may vary. Here are the five most commonly identified types of digital transformation:

1. Business Process Transformation

¹ Alactel Lucent Enterprise. (2019). Why Digital Transformation for Education? URL: <https://www.al-enterprise.com/-/media/assets/internet/documents/digital-transformation-faq-en.pdf>



Business process transformation refers to an organisation's use of technology to update its inner processes. This affects how employees use technology in their day-to-day activities and can include automating manual processes and gathering new data, which is incorporated, not business decisions, etc. A key objective of such transformation is cost reduction. Other goals can include improving the quality of products and/or services, improving customers' experience, increasing productivity, developing brand image, etc.

For example, this could include implementing robotic process automation to transform manual tasks in procurement, supply chain management and other administrative functions.

2. Business Model Transformation

This type of transformation changes business models to adapt them to the new digital environment. It requires consideration of how the core business of the industry operates and often involves exploring new ways of conducting business beyond what is already established and used in the industry. In other words, it requires "thinking outside the box" and focusing on potential innovations. The main objective of this transformation is to improve business outcomes in general. Other goals can include enhancing value for customers, responding to market changes and customers' needs, etc.

A good example of this transformation is UBER company, which changed how we think about transportation. It tackled our needs – the need to travel from A to B without driving ourselves, using public transport or expensive taxi services. As a result, many companies nowadays follow the UBER business model.

3. Domain Transformation

Domain transformation refers to a company using innovative technology to expand its products and/or services offered. Companies can either extend current products and/or services or develop new products and/or services.

Many companies choose this type of transformation that allows them to grow by entering new fields and offering a wider range of products and/or services. These products or services do not necessarily need to belong to one market.

A good example of such a transformation that most people are familiar with is Facebook. However, even though Facebook started as social media, it later launched other products and services, such as Facebook Watch.

As this transformation can occur in many industries as it is driven by the use of various technologies (artificial intelligence, Internet of things), it has a lot of potential.



4. Cultural Transformation.

This type of digital transformation refers to transforming a business' culture. As mentioned earlier, digital transformation does rely on not only technical/digital components but also a cultural one, which is vital for the success of any digital transformation.

This part can be challenging to many organisations as it involves educating and retraining existing staff to ensure everyone understands the new technologies and the potential they have to improve business and embrace more forward-thinking attitudes towards technology. Such transformation requires employees that can adapt to changes, redefine their mindsets and willingness to learn and develop to meet new needs – all in order to integrate technologies and transform business processes, models, products and/or services and much more.

Often, such transformation occurs naturally when teams adopt new digital tools and processes and recognise the benefits of it.

5. Cloud Transformation.

Cloud transformation is the process of transitioning a business's data, apps, and software to the cloud. Cloud transformation usually involves modernising and optimising an organisation's data management, analytics, and security to align with the company's digital transformation objectives².

Cloud transformation allows organisations to respond quickly to threats and embrace new ways of working that incorporate the digital adoption of innovative technologies. Moreover, it aims to empower organisations with a data-driven strategy that focuses on customer engagement, organic growth, and structural technologies adaptation to stimulate growth and reduce costs.



Business Process Transformation. Business process transformation refers to an organisation's use of technology to update its inner processes.



Business Model Transformation. This type of transformation changes business models to adapt them to the new digital environment.



Domain Transformation. Domain transformation refers to a company using innovative technology to expand its products and/or services offered.



Cultural Transformation. Cultural transformation refers to transformation refers to transforming a business' culture.



Cloud Transformation. Cloud transformation is the process of transitioning a business's data, apps, and software to the cloud.

Figure 1. Types of Digital Transformation

To meet customers' needs and face an unpredictable future, as well as pursue sustainability, organisations should focus on implementing at least one of these types of digital

² Jason Lim (2021). What is Cloud Transformation? Benefits and Best Practices. URL: <https://www.alation.com/blog/what-is-cloud-transformation/>



transformation. Each type of digital transformation requires organisations to focus on business outcomes, such as improved processes and new products and services, which stimulate growth and build value in the post-COVID-19 economy.

1.2. COVID-19 IMPACT ON DIGITAL TRANSFORMATION

Even though education is recovering, and educational institutions are open, there is no doubt that the COVID-19 pandemic caused a historic disruption that affected more than 1.5 billion students and youth, with the most vulnerable learners being hit hardest. Unfortunately, the real damage to education systems at various levels is yet to be seen in the years to come.

Even though the impact of the pandemic has been huge on education, it also brought positive changes as well. The COVID-19 outbreak made educational organisations realise the importance of digital transformation for their own organisation's survival. COVID-19 has been a catalyst for tactical digital transformation. Due to the pandemic and restrictions imposed by local governments to manage it, businesses have had to react quickly to adjust to rapidly changing trading conditions, leveraging new technologies and new ways of working on the way.

As of today, many organisations are still providing their learners with remote learning, although some of them are planning to return to the standard way of teaching. This time around, though, the "standard way" of education includes new technological solutions and tools. Even though restrictions are being lifted, the digital transformation that occurred during the pandemic remains and will continue to be useful for learning.

According to the European Investment bank (EIB), the implementation of digital technologies was usually associated with the most innovative and modern companies. However, the pandemic has made digital transformation an integral part of society — and integral to organisations' survival.

1.3. DIGITAL TRANSFORMATION IN THE EU

While digital transformation is not a new process for business leaders, in many cases, organisations still have a long way to go in applying digital technologies and creating a culture that embraces change, digital technologies and continual improvement.

According to Eurostat, in 2021, 56% of EU enterprises reached a basic level of digital intensity. A basic level entails using at least four of twelve selected digital technologies (such as using any AI technology, having e-commerce sales account for at least 1% of total turnover, etc.). A basic level includes businesses with low, high and very high levels of the Digital Intensity Index (DII), excluding the very low ones. Of small and medium-sized enterprises (SMEs), 55% reached a basic level of digital intensity compared with 88% of large enterprises.



Only 3% of EU SMEs reached a very high level of digital intensity, while 18% reached a high level. Most SMEs recorded low (34%) or very low (45%) digital intensity levels.

The highest number of enterprises reaching a very high level of the DII was in Finland, Denmark and Malta (all 10%) and Sweden (9%). Meanwhile, Romania and Bulgaria were lagging behind, with around three-quarters of enterprises characterised by a very low digital intensity (77% and 74%, respectively)³.

EU has set a target to reach 90% of EU SMEs with at least a basic level of digital intensity by 2030.

According to EIB Investment Survey⁴, 46% of firms in the EU report that they took action to become more digital — for example, by providing services online. However, significant differences exist across firm size classes, sectors and countries. Comparing the different EU regions, 48% of firms in Western and Northern Europe reported taking steps or investing to become more digital, compared with 43% in Southern Europe and 37% in Central and Eastern Europe.

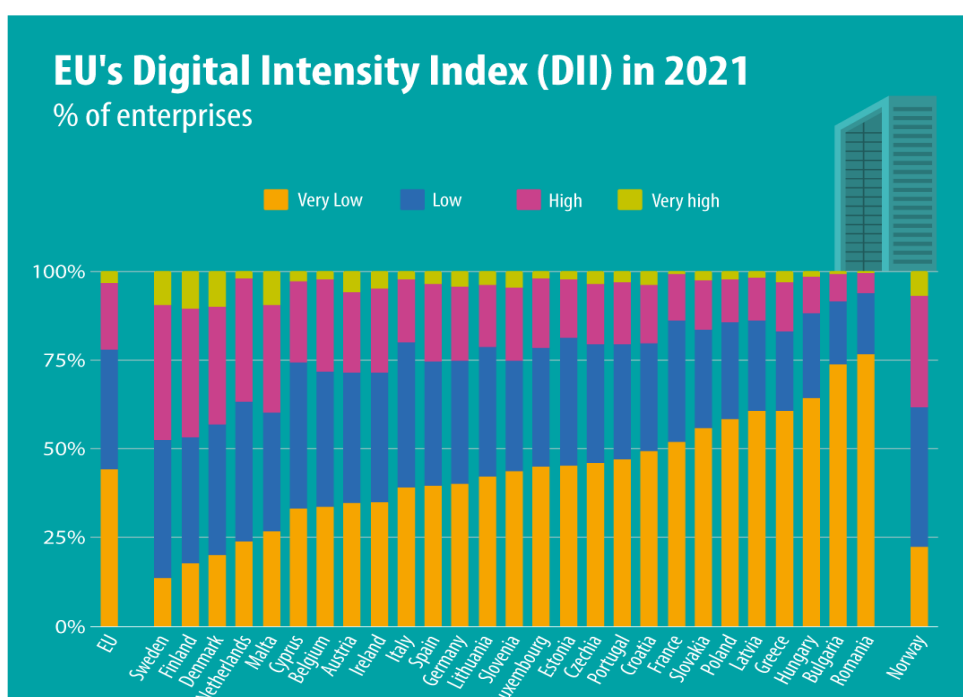


Figure 2. EU's Digital Intensity Index (DII) in 2021, according to Eurostat

³ Eurostat (2021). How digitalised are the EU's enterprises? URL: <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20220826-1>

⁴ European Investment Bank (2022). Digitalisation in Europe 2021-2022: Evidence from the EIB Investment Survey. URL: https://www.eib.org/attachments/publications/digitalisation_in_europe_2021_2022_en.pdf



1.4. DIGITAL TRANSFORMATION IN EDUCATION

The 4th and the 5th industrial revolutions, the COVID-19 pandemic and innovative technologies available today are one of many key factors that have and are still constantly changing our thinking about education - not only what learners need to learn but also how they should be learning. Traditional teaching is evolving, with the growing trend of technologies playing a significant role in how we teach.

Although some educational institutions have already used technology solutions for the past years, the importance of digital transformation in the education environment has received recognition in most educational institutions during the COVID-19 outbreak.

Digital transformation in education helps the system to rethink the traditional system – the way we learn and teach as well as administrative practices aiming to make it more efficient and future-focused. However, despite the many benefits digital transformation brings, digital transformation also brings challenges that organisations and other stakeholders have to consider and overcome.

1.4.1. Benefits of digital transformation in the education sector

Digital transformation can bring numerous benefits to educational institutions, including learners and educators themselves. Following is a list of the most common benefits digital transformation can bring:

1. Learners' performance and results tracking

Digital transformation allows for a more practical and systematic approach to tracking students' performance and results, leading to reduced workload for the staff. However, gathering and systemising large quantities of data can be overwhelming, especially for smaller organisations. This is why it can be crucial to use data analytics to monitor student performance and improve results, among other things.

The data collected can help educators identify knowledge gaps and areas where learners are underperforming, as well as lead to a better understanding of who is improving and who requires more attention. While digital data insights do not aim to replace educators' professional insight but rather provide them with a valuable tool. Technological advancements can assist educators in spotting such shortcomings more quickly and accurately than an individual educator could accomplish manually.

Digital tools can also be used for assessment, which enables educators to save time and make grading and giving feedback simpler and more effective. For example, quizzes with correct and incorrect answers can be automatically marked, saving educators considerable time.



2. Improved results with data analytics

Educational institutions can use data analytics to monitor and enhance results. Utilising traditional and advanced analytics can help educators and educational institutions determine where learners struggle and succeed, develop new methods, and test whether these methods bring expected results.

Besides this, technology can help learners choose an occupation and function as a career advisor. Through data collection and analysis of learners' performance, strengths, weaknesses, and preferences, learners can receive a comprehensive career guide, suggesting potential career options and occupations that could suit their interests and capabilities.

3. Accessibility

Nowadays, education does not only mean face-face classes – learners can also choose to learn online. Learners from any part of the world, including rural communities, can join the online courses or training programmes provided they have one thing – an internet connection. Furthermore, technological innovations such as advances such as text-to-speech and speech-to-text can also eliminate barriers for learners with disabilities enabling them to join courses as well. Finally, learners with additional responsibilities, such as work, child care, etc., can also fit educational activities into their busy lives.

As a result, learners and adult education institutions are no longer confined to a specific geographic area or barriers caused by disabilities. This allows businesses to expand their target groups and circle of potential clients.

4. Personalised learning & greater engagement

Personalised learning recognises that one size rarely fits all learners when it comes to education. Learners learn in different ways and at different speeds.

Digital technologies allow learners to study at their own pace while also choosing the lessons that suit their needs, capabilities, and learning style. Furthermore, the learning platforms usually allow learners to combine materials from different resources and make their learning a personalised experience. Having more flexibility and personalised learning can also help engage students with various disorders, such as autism spectrum disorder and ADHD.

Educators, for their part, have limitless resources to use to engage learners. Interactive whiteboards, tablets, smart classes, chatbots, Augmented reality (AR), virtual reality (VR), and Artificial intelligence (AI) powered software – all of which can help educators to engage their learners, boost learning performance and save time on various managerial tasks.

5. Limitless resources

As mentioned earlier, bringing digital technologies into education can help overcome many barriers, including inequality. It gives learners equal access to resources that most likely would not be possible in traditional education. Learners can experiment in online labs, attend online



workshops and courses, as well as virtual tours and science simulators and much more, without the need to have expensive professional equipment or travel. This can lead to enhanced learners' engagement, knowledge acquisition and retention.

For example, Expeditions Pro is an educational app that offers VR tours available to everyone. It helps educators and learners to explore art galleries, museums, and underwater or outer space. It also allows people to upload their tours – enriching the app and the number of tours available.

6. *Saving resources*

Organisations that use digital tools and technologies tend to save on resources such as labour costs and materials, time resources, for example, reduction in energy, paper, and other office supplies, etc. Furthermore, organisations that have digitalised most of their service save money on specific premises rent and related costs.

7. *Future-focused education*

The world is changing rapidly, and so are innovative technologies. The workplaces as well demand workers that have 21st-century skills and can learn and adapt to innovative technologies. The education system and educational offers cannot afford to stay the same if they want to attract and engage learners looking to obtain knowledge and digital skills through flexible, engaging and personalised learning. Thus, educational offers should constantly adopt innovative digital tools to equip learners with the necessary 21st-century skills and competencies. This is a way to establish future-focused quality education, attracting more learners and benefiting the business.

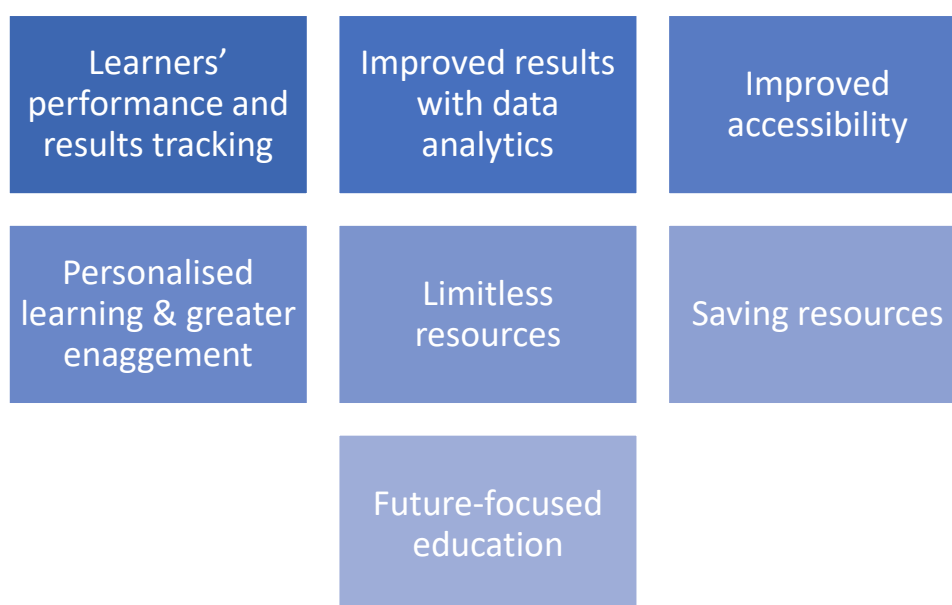


Figure 3. Benefits of digital transformation for organisations, educators and learners



1.4.2. Challenges of digital transformation in the education sector

Besides numerous benefits, there are also some challenges educational institutions should consider before starting their digital transformation process. Following is a list of the most common challenges digital transformation can bring⁵:

1. Developing new services and products

Digital transformation, depending on its type, often involves developing new products or services to support a business's core portfolio as well as identifying new target groups. As mentioned before, one of the benefits of digital transformation is the ability to reach new target groups that help businesses grow. However, organisations often struggle to identify new target groups or products/services that fit their original business strategy. Therefore, a significant amount of time should be invested in this for digital transformation to be successful.

2. Digitising internal processes

Digital transformation often addresses the need to optimise internal processes and procedures. In many organisations, this may include adapting internal processes and structures for them to function in a newly implemented digital environment. This might include, for example, analysing where digital tools can replace traditionally used tools. However, not every process or structure can be digitalised or easily digitalised. Thus, it is crucial for the organisation to conduct a proper analysis and identify the processes, structures and tools in which digitalisation provides added value for the organisation and the customers.

3. Gaining the commitment of top leaders

To start the digital transformation process, it is necessary to have the organisation's top leaders on board. In another sense, to achieve the desired outcomes, top leaders of organisations have to have a holistic approach to digital transformation and a strong commitment to implement it. Furthermore, for digital transformation to succeed, the top management should also foster enthusiasm and a clear vision for all employees.

4. Employee pushback

One of the most common challenges in digital transformation is the employees' hesitation. There are many reasons for that - employees may feel insecure about their digital skills or ability to adapt to new technologies, they may feel threatened about their job security, or they simply do not want to leave their comfort zone due to the fear of failure and lack of motivation, etc.

Unless employees also get on board with digital transformation and understand its benefits, the transformation will not be as successful as it could be. This is why it is essential to have a

⁵ Jürgen Grabenhofer (2022). Eight key challenges for digital transformation to succeed. URL: <https://www.siemens-advanta.com/blog/digital-transformation-challenges>



clear and transparent vision of why digital transformation is vital for the business that every employee knows and understands. It is also vital to keep employees engaged and informed throughout the whole process, minimising their fears and doubts along the way.

5. Organisational structure

Digital transformation may sometimes require relatively substantial changes in organisational structure as well, for example, switching roles or departments or changing the whole organisation structure. This can also cause a lot of pushback from employees. To help employees manage this change, it is vital to be open and transparent, explaining why these changes are made and how they will help the organisation and employees optimise processes and grow.

6. Lack of expertise in leading digitisation initiatives

Digital transformation is driven by not only technology but also talent and skills. Digital transformation brings a handful of challenges. Thus, the organisation's employees need to be ready to face them.

Thus, as mentioned earlier, any type of digital transformation goes hand in hand with cultural transformation. Therefore, it is essential to train the employees to be digitally literate, help them enhance the skills needed for innovation, and provide employees with incentives to motivate them.

In case the current employees do not have the necessary skills and knowledge, organisations can outsource - find business partners/ consultants or new hires that will help them with digital transformation.

7. Digital transformation plan

The plan is vital for successful digital transformation. The plan should include vision, goals and concrete steps to achieve them. It should also give the whole organisation and its employees a clear vision and purpose. Furthermore, the plan should establish a holistic approach involving everyone in the company - organisational structures, processes, technologies and human resources, to reach goals successfully. It also needs to be adaptable to any real-life changes and situations – as business priorities may change along the way. Setting up trackable key performance indicators (KPIs) and other measures is essential to keep track of progress and make corrective changes whenever necessary.

Not having a proper strategy in most cases leads to a failed transformation, costing time, money, and sometimes the business itself.

8. Limited budget



Depending on the organisation's size, budget constraints are also one of the most common challenges organisations face, limiting the implementation of digital transformation. Thus, when developing a digital transformation strategy, it is crucial to plan and allocate the budget realistically, clearly stating how much the organisation can allocate to digital transformation and under which time framework. It is also advisable to include the analysis of risks and threats and how they would be managed, for example, an organisation suddenly experiencing the loss of one of the biggest customers leading to a decrease in revenue. Moreover, additional costs are most likely to occur due to the nature of the transformation. This should also be included in the financial part of the strategy.

To not put digital transformation and the whole organisation at risk, it is advised to develop a plan that includes several phases over several years, if that is required.

9. Security risks

Organisations planning digital transformation should also consider any potential cybersecurity risks. Digitalisation and using digital tools always carry the risk of cyber-attacks and breaches.

Due to covid-19 pandemic and more people working from home, 2021 was one of the most active years for cyberattacks. According to Check Point Research⁶, cyberattacks increased 50% year-over-year, with Education and Research being the most attacked sector.

It is estimated that each organisation faces 925 cyberattacks per week globally, while around 30,000 websites are hacked daily. It is also estimated that cybercrimes worldwide cost up to \$6 trillion per year, which is expected to increase to \$10.5 trillion by 2025.

This is why any potential risks, vulnerabilities, and mitigation plans should be included in the update or newly created organisation's cybersecurity strategy.

Suppose the organisation does not have the capacity to develop such a strategy or take care of cybersecurity within the organisation. In that case, it is advised to outsource it to third-party companies. The cost of such services is smaller than dealing with cybersecurity breaches and losses that come after.

⁶ Check Point (2022). Check Point Research: Cyber Attacks Increased 50% Year over Year. URL: <https://blog.checkpoint.com/2022/01/10/check-point-research-cyber-attacks-increased-50-year-over-year/>

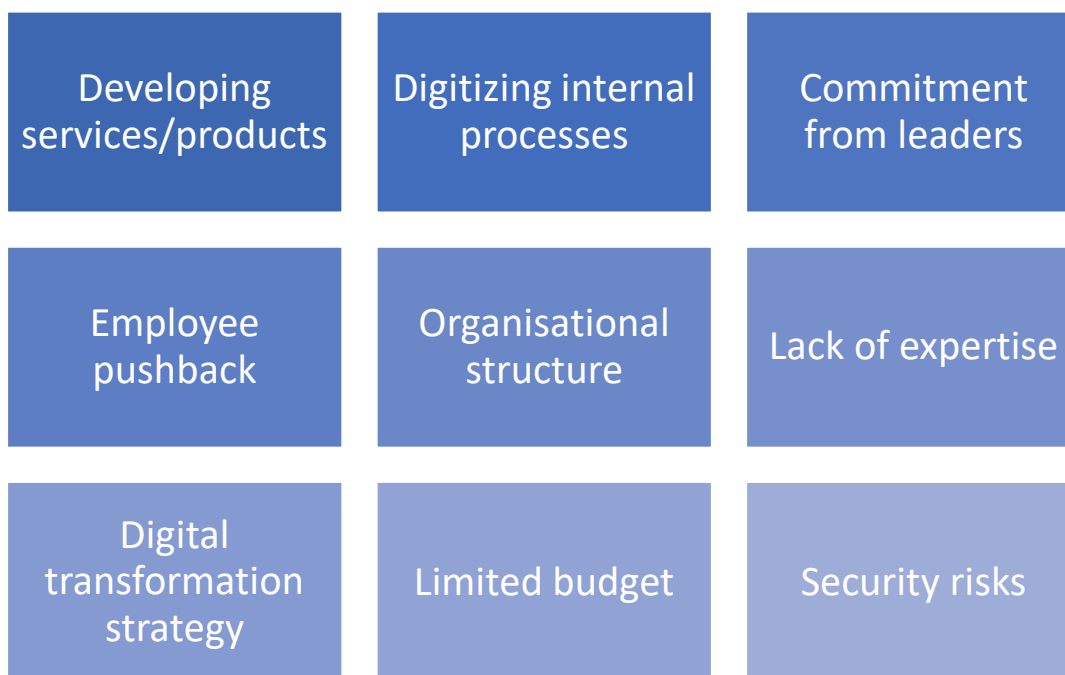


Figure 4. Challenges of digital transformation for organisations, educators and learners



2. DIGITAL TRANSFORMATION PLAN

Digital transformation is an exciting journey but has its own fair of challenges. A well-structured, data-driven and measurable plan is the roadmap to digital transformation success. Essentially, a digital transformation plan helps the organisation to answer the following questions for their business:

- Where are you now?
- Where do you want to be?
- How are you going to get there?
- How do you know if you got there?

A well-designed digital transformation plan can bring many good outcomes, such as increased revenue, optimised operational costs, improved productivity, increased agility and more. Thus, careful and thoughtful planning is a must. Below you can find steps to take to prepare a digital transformation strategy.

STEP 1. DETERMINE THE MEANING OF DIGITAL TRANSFORMATION TO YOUR ORGANISATION

The first step in creating a digital plan is determining what digital transformation means to the organisation. As discussed before, there is no universally accepted definition of digital transformation – it can differ from organisation to organisation.

Moreover, it is essential to discuss what type of digital transformation the organisation wants to achieve – it will be the foundation of the digital transformation plan. This helps an organisation to prioritise the areas that require the most attention. It is vital to focus on the areas that will impact the organisation the most.

STEP 2: ASSESS YOUR CURRENT STATE AND CAPABILITIES

The second step is assessing the organisation's current state and capabilities. This includes evaluating the organisation's digital maturity state and making an analysis of every component of the business, from a website and social media presence to a customer relationship management (CRM) system. Only when an organisation has a clear understanding of where it stands, it can start asking itself where it wants to be and what changes are needed to reach that.

ASSESSING THE ORGANISATION'S STATE WITH THE DIGITAL MATURITY MODEL

To understand what an organisation has already achieved and decide what it wants to achieve with digital transformation, it is necessary to understand where it currently stands. This is where the digital maturity model (DMM) can come in handy.

Digital maturity, in general, refers to an organisation's ability to respond quickly to the developments and trends of technology. The aim is to create value through new technologies,



capabilities and consumer interests fast enough to gain a competitive advantage and help businesses grow. Digital maturity, however, requires investment in digital tools and technologies, as well as human resources⁷.

The digital maturity model is used to help organisations assess their current digital maturity level. There are four stages in the digital maturity model, which act as a framework to help organisations assess their status⁸.

1) Stage 1. The incidental stage

The Incidental stage is the earliest stage, during which organisations are still establishing trust in the data available and trying to improve organisational collaboration. At this stage, organisations could face a lack of data available or distrust the quality of the data available and a lack of awareness of the importance of digital transformation. Any implementation and use of digital tools happen incidentally.

It is advised at this stage to focus on enhancing employees, especially top management, understanding the importance of digital transformation and use of technologies, improving data availability and quality, as well as increasing collaboration between the departments or teams.

2) Stage 2. The intentional stage

Organisations at this stage are trying to implement digital solutions intentionally. However, the implementation is still uncoordinated and individual, with no specific plan in mind. On the other hand, organisations already have a better quality of data and focus more on aligning KPIs⁹ across the organisational processes and learning about new technologies. Furthermore, organisations already understand the importance of digital transformation, data sharing and collaboration among departments and teams.

It is advised at this stage to focus more on strengthening collaboration among departments and improving the current digital processes that are now more measurable and well-documented.

3) Stage 3. The integrated stage.

Organisations can implement data-driven digital processes and achieve improvements in revenue and productivity as a result. The implementation of digital tools is strategic and coordinated. The top manager considers digital transformation vital to organisational survival. Digital platforms are integrated, and data is shared across the teams and departments.

⁷ Stefan F.Dieffenbacher (2022). What is Digital Maturity, How to Measure, Tools & Models. URL: <https://digitalleadership.com/blog/digital-maturity/>

⁸ Shehmir Javaid (2022). 4 Stages of Digital Maturity for Business Acceleration. URL: <https://research.aimultiple.com/digital-maturity-model/>

⁹ KPI - a key performance indicator



It is advised at this stage to focus on enhancing the organisation's cybersecurity as with the increased implementation of new technologies, security threats and vulnerabilities also increase. Moreover, organisations should invest in employees' reskilling and upskilling to avoid any pushback and ensure the smooth integration of new technologies.

4) Stage 4. The optimised stage

At this stage, digital transformation has become an inseparable part of organisational culture and core values. All initiatives towards digital transformation are implemented strategically, and the digital processes are automated. Any new digital tools can be relatively easily integrated into the existing processes and systems. Since digital maturity is a continuous process, organisations are advised to keep working on their digital maturity.

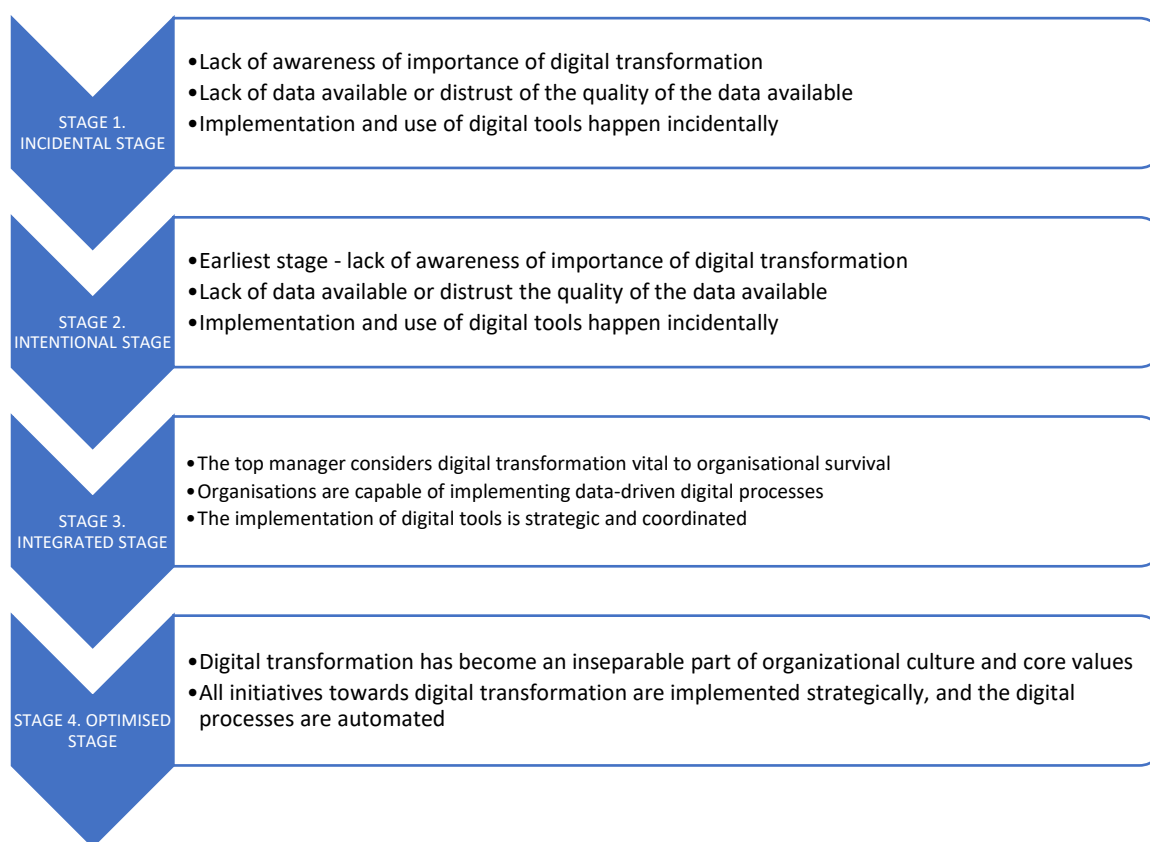


Figure 5. Four stages in the digital maturity model

Assessing an organisation's digital maturity can be challenging, but it is worth it. It is a necessary step to take in the digital transformation journey. The assessment of digital maturity takes place on two different dimensions:

1) Measuring the use of digital technologies in the organisation's operations. Key points include:

- the use of digital tools to interact with customers, partners or suppliers
- the collection and use of data to make decisions



- the digitisation and integration of business processes

2) Measuring digital culture - the ability to implement change in the company. Key points include:

- a strong digital strategy and vision
- support from leaders
- appropriate planning
- establishing an environment where risk-taking and collaboration
- a focus on training and continuous learning

Here are some questions organisations can use to evaluate their digital maturity as well¹⁰:

- Do we have a clear strategic direction, vision, and objectives?
- Where are we in our digital discovery journey?
- Do we have buy-in across the organisation?
- What disruptive forces drive the digital transformation in our organisation, e. g. market competition, customer demands, & technology disruption?
- What trends do we see emerging that will impact us as an organisation?
- Compared to the market, are we among the leaders, laggards, or mediocre?
- How consistent is our digital experience across different channels?
- How are we going to transform digitally?
- How shall we measure the success of our initiatives?

There are also tools that can assist the organisation in evaluating its digital maturity, such as the digital maturity framework¹¹, online evaluation tests and many more. It is essential to emphasise that these tools are there to provide direction and guidelines. Still, the data collection and analysis have to be conducted within the organisation or, if there is a lack of expertise, by a third-party organisation. Digital maturity analysis is essential for creating the plan as it provides valuable input on where the organisation stands at the current moment and assists in identifying existing gaps. However, it is important to emphasise that this evaluation does not replace the plan or strategy itself.

FINDING EXISTING GAPS

Most organisations are looking into digital transformation because there are inefficiencies in the business or opportunities they have not tapped into. Before starting the digital transformation journey, organisations should conduct research to answer what gaps need to

¹⁰ Stefan F. Dieffenbacher (2022). What is Digital Maturity, How to Measure, Tools & Models. URL: <https://digitalleadership.com/blog/digital-maturity/>

¹¹ Digital Leadership Ltd. Digital Maturity Framework. URL: <https://digitalmaturity.org/digital-maturity-framework/>



be filled. For example, is the organisation using available customer data to create added value? Does the organisation have a way to engage and retain leads that come into the business?

ASSESSING IN-HOUSE CAPABILITIES

Digital transformation cannot happen if there are no necessary digital skills in the organisation. Organisations should ask themselves what digital skills are needed to drive transformation and do they have any in the organisation. If there is a lack of digital skills, does the organisation have or can create a training program to upskill existing employees so they have the required digital skills? Depending on the changes the organisation wants to make, it may need to invest in training or hiring new personnel.

Once an organisation has a clear vision of where it stands, it can focus on closing the gaps and improving its maturity levels - outlining processes, defining new opportunities and goals, strategies to minimise the gaps, as well as key processes.

STEP 3. SETTING SMART GOALS

Once there is a clear understanding of where things stand, the organisation should answer the question why? (Why do you need new technology, and what's the objective of your digital transformation?).

This is where the Golden circle framework¹², designed by Simon Sinek, can be helpful. The framework is used in many areas, including designing value propositions. It suggests answering three questions before developing any new projects, programmes, products or services:

- Why or the purpose
- How or the process
- What or the result.

The same principle and three questions could be applied to digital transformation. The organisation should answer these questions¹³:

- Why do you need to transform?
- How is digital transformation achieved?
- What will digital transformation mean to your organisation?

By answering these questions, organisations will have a better understanding of why the organisation needs digital transformation, how it should be achieved and what it will bring to

¹² David Gousset (2022). The Golden Circle by Simon Sinek and the 3 pillars of the powerful tool. URL: <https://humanskills.blog/the-golden-circle-by-simon-sinek/>

¹³ Digital transformation hub. 10 steps to create a digital transformation strategy roadmap. URL: <https://digitaltransformation.org.au/guides/it-management/10-steps-create-digital-transformation-strategy-roadmap>



the organisation. This will help organisations to start mapping out the plan for change and set SMART (Specific, Measurable, Achievable, Relevant, and Time-Bound) goals:

1. Specific

The goal should be clear and specific. Otherwise, the organisation will not be able to focus efforts or feel motivated enough to achieve it. When drafting the goal, try answering the five "W" questions:

- What do I want to accomplish?
- Why is this goal important?
- Who is involved?
- Where is it located?
- Which resources or limits are involved?

2. Measurable

It's important to have measurable goals for an organisation to be able to track progress, stay motivated and understand when the goal is reached. A measurable goal should address questions such as:

- How much?
- How many?
- How will I know when it is accomplished?
- What are indicators of progress?

3. Achievable

The goal also needs to be realistic and attainable to succeed – something that an organisation can accomplish with the resources, tools and skills available. If the organisation does not currently possess the resources, skills and tools needed, it should consider what it would take to attain them. An achievable goal will usually answer questions such as:

- How can I accomplish this goal?
- Do I have the resources and capabilities to achieve the goal? If not, what am I missing?
- Has this goal ever been accomplished before?

4. Relevant

The goal should matter to the organisation and align with other relevant business goals. For example, if the goal is to launch a new product, it should align with the overall business objectives. A relevant goal should answer "yes" to these questions:

- Does this seem worthwhile?
- Is this the right time?
- Does this match our other efforts/needs?



- Does it match other relevant business goals?
- Is it applicable in the current socio-economic environment?

5. Time-bound

Every goal needs a target date so that you have a deadline to focus on and something to work toward. This part of the SMART goal criteria helps to prevent everyday tasks from taking priority over longer-term goals. A time-bound goal will usually answer these questions:

- Does the goal have a deadline?
- By when do you want to achieve your goal?

Some professors have suggested the update the goal criteria by adding two additional criteria to the list – **Evaluated** and **Readjusted**, making it SMARTER goals.

6. Evaluated

Successful goals have to be constantly evaluated. Goals are more likely to be achieved if continuously evaluated, especially for medium- and long-term goals. However, due to their time framework, such goals can be easily forgotten or ignored. Thus, it is vital to set up an evaluation system and make the evaluation of goals a habit, helping organisations stay focused throughout the process. Questions like these should be answered:

- At what point(s) should progress be evaluated? Daily? Weekly? Monthly?
- Do any countermeasures need to be taken to help achieve success?

7. Readjusted

Readjustment is an important part of the process. If the goal is not being achieved after putting in time and effort, it is a good time to re-adjust the approach, choosing different methods and techniques.

Readjust doesn't mean you have to throw your goal out and establish a new one. Instead, it means trying different approaches until finding the one that works. This is why constant evaluation is so crucial. Without the evaluation, there is no way to measure progress and make necessary adjustments.

	FOCUS	DEFINITION
S	Specific	Make goals clear and specific
M	Measurable	Make sure goals are trackable
A	Achievable	Confirm that your goals are attainable



R	Relevant	Verify that your goals are relevant
T	Time-Bound	Set up a time-based plan
E	Evaluated	Set up an evaluation plan
R	Readjusted	Re-adjust the approach if necessary

Table 1. SMARTER goals

Establishing an organisation's goals and objectives at the beginning and then building a strategy on that foundation is the key step toward digital transformation success.

There are many goals of digital transformation organisations can have. However, if an organisation concentrates on the underlying intent of digital transformation, there is a higher chance of digital transformation succeeding. Here are some most common goals of digital transformation¹⁴:

- 1) *Improving services.* Service improvement is one of the cornerstones of digital transformation. Improving services allow organisations to meet customer needs better and do so more quickly, resulting in a positive effect on revenue.
- 2) *Better customer experience.* The customer experience is essential to a thriving business, especially in competitive markets. Digital transformation can help organisations to improve the customer experience, customer care and satisfaction dramatically.
- 3) *Increasing internal collaboration.* Depending on the scale of digital transformation, it can affect the whole organisation leading to better internal collaborations among departments and teams.
- 4) *Optimising processes.* Digital transformation allows competencies to be refined to improve processes (e.g., manufacturing, marketing, etc.). With continuous improvement, operating models get better, bringing positive results to the organisation.
- 5) *Increasing efficiency.* Using the technology available leads to improved processes that can result in improved work efficiency, making it more productive and less repetitive. Automating repetitive, time-consuming tasks reduces costs and allows employees to dedicate more time to develop ideas and innovations.
- 6) *Becoming more agile.* In a fast-moving business environment, agility is needed to survive. Organisations have to be seen as adaptable organisms, as opposed to rigid, autocratic bodies, to thrive. Organisations have to be able to adapt to trends and customers' needs, and, in most cases, technology allows them to do so.

¹⁴ Digital adoption (2022). 7 Audacious Digital Transformation Goals. URL: <https://www.digital-adoption.com/digital-transformation-goals/>



- 7) *Creating new business models.* Improvements in technology mean that old business models can become irrelevant in no time. The digital revolution has brought new business models and opportunities for traditional organisations willing and able to take advantage of them. Organisations can now adapt and use the following digital-first business models:
- The subscription model, e.g., Netflix, Spotify
 - The "free" model, e.g., Facebook, Google, Instagram
 - The access-over-ownership model, e.g., Airbnb, Upwork
 - The on-demand model, e.g., Airtasker, Fiverr
 - The freemium model, e.g., Hubspot, LinkedIn
- 8) *Reducing costs.* Cost reduction is highly desired in any business as it sometimes can be the difference between business survival and failure. Today, powerful AI allow businesses to reduce labour costs in call centres, administration, market research, etc.
- 9) *Keeping competitive advantage.* As some of the major wins of digital transformation are process enhancement and improved efficiency, it holds that businesses that do this best will reap the rewards. Organisations that can use and employ digital tools and innovations can give themselves a significant competitive advantage.
- 10) *Complying with data security.* Data security is one of the major concerns for organisations nowadays. With so many traditional tools and processes now having a digital interface, security becomes paramount, as almost anything can be hacked. This means that organisations need to make data security compliance one of their digital transformation goals.

Digital transformation goals are not limited to the ones mentioned above. The examples above only represent some of the most common goals, but they can be many others, depending on organisations, the business market, customers' needs, technologies available, etc.

It is essential to understand that goals are a necessity in digital transformation. Organisations have to set specific, measurable and realistic goals to motivate employees, achieve success, and make valuable changes needed to survive, gain competitive advantage or both.

STEP 4. RETHINKING THE TARGET MARKET

As mentioned earlier, one of the benefits of digital transformation, especially in the education sector, is accessibility. Organisations can reach new learners in different parts of the world as they are no longer confined to specific geographical positions. New products or services created as a part of digital transformation can also attract new learners.

Digital transformation can also help to attract digital learners. The new digital technologies have caused a shift in learners' expectations, resulting in a new kind of e-learner. Today's e-



learners are constantly connected, app-native, and aware of what they can do with technology.

To sum up, digital transformation cannot only help to improve the service and keep existing learners but also attract new ones, which the organisation was unable to do before due to various geographical, economic and other barriers.

Thus, with this in mind, organisations should go back and revise their current target market and see if it needs to be redefined or expanded. For example, offering online courses instead of face-to-face ones allows the organisation to expand their target market by targeting learners from different parts of the world. It also helps to attract e-learners, who are comfortable with and prefer to learn online instead of attending face-to-face learning activities.

STEP 5. DESIGNING OR RETHINKING THE SERVICE CATALOGUE

Depending on the digital transformation goals set by the organisation, the organisation may need to design or redesign the already existing service catalogue. Changing customer and organisation needs and goals means that even the best service catalogues must be frequently redesigned or updated.

A service catalogue provides a structured and consumable view of available services and products offered by an organisation. It helps manage what services a user has access to and is the entry point for users to request products and services (from the catalogue) from the organisation.

Having a well-defined service catalogue is an important step in designing an organisation's overall service strategy. It creates value for customers and encourages them to follow due process, improving efficiency in the organisation.

A well-designed service catalogue should:

- Be visually appealing to users and easy to navigate through
- All the attributes of service offerings, such as costs, availability, implementation date, description, etc., should be displayed upfront
- Use simple, customer-focused language

STEP 6. CHOOSING THE RIGHT TECHNOLOGY

Once you set goals and engage the right people, it is time to choose the technology to support your digital transformation. There are many available vendors, platforms, and solutions that can help organisations to reach their digital transformation goals. It is important to dedicate time to evaluate what the organisation needs and has the capability of using before choosing technological solutions. This allows organisations to save time and money. Before choosing digital solutions, organisations should answer a couple of questions:



- Does the technology you're investing in align with your digital transformation strategy?
- Does it fill a gap in your organisation?

It is advised to pair technology implementation with new and/or updated processes. There is no point in implementing new technologies if your internal processes are outdated and not functional. Ideally, organisations, together with new technologies implementation, also establish new processes that allow employees to use the latest technologies smoothly, ensuring the effective implementation of a digital transformation plan.

Technology solutions chosen should streamline processes, facilitate seamless collaboration, and allow analytics for better-informed decisions. Some commonly used technologies that may prove to be fundamental in achieving successful digital transformation are cloud computing, the internet of things (IoT), artificial intelligence (AI), robotics and augmented reality/virtual reality (AR/VR) and others¹⁵:

Internet of Things¹⁶ (IoT)

Innovative IoT devices (e.g., software, computer devices, smartboards, sensors, etc.) allow educational organisations to keep track of and manage core resources and significantly simplify access to information in the learning environment.

The education sector is one of the most adaptive and effective in terms of deploying IoT devices, allowing education to become more collaborative, interactive, and accessible to all. In addition, IoT enables the shift in teaching methodology from traditional to digital, bringing additional benefits and increased efficiency.

IoT devices give learners reliable access to everything from learning materials to communication channels to good understanding, while educators are provided with the ability to measure student learning progress in real-time.

Overall, IoT in education enables modern learning methodologies, automatic attendance recording, increased safety, distance learning, and monitoring, among others.

The most common example of IoT implementation in education is the design and implementation of smart classrooms. A smart classroom is a technology-enhanced classroom that fosters opportunities for teaching and learning by integrating learning technology, such as computers, specialised software, audience response technology, assistive listening devices, networking, and audio/visual capabilities¹⁷.

¹⁵PixelPlex (2022). Overview of Digital Transformation in Education. URL: <https://pixelplex.io/blog/what-is-digital-transformation-in-education/>

¹⁶ Internet of Things (IoT) is a complex wireless network of thousands of devices hence generated to share, collect, create and receive all kinds of information.

¹⁷ IGI Global. What is a smart classroom? URL: <https://www.igi-global.com/dictionary/smart-education-using-internet-of-things-technology/42914>



Some IoT uses besides the ones directly related to learning processes are, for example, smart thermostats that regulate classroom temperature and smart physical access cards allowing learners and teachers access to classrooms tracking the learners' attendance while also increasing security.

Artificial intelligence (AI)

Artificial intelligence has been used in a wide range of educational processes and is expected to grow. This sophisticated technology has been successfully used to change how educators do their job, and learners acquire new skills and knowledge.

AI contributes enormously to the promotion of personalised learning, enabling learners to make the most of adaptive learning software and different gamification techniques. It also identifies and highlights the learning gaps and helps educators automate grading for multiple-choice and fill-in-the-blank tests, leaving time for educators to focus on activities that require creativity and personal interaction with students.

Overall, AI in education is used in many ways, most commonly for task automation, personalised learning, enhancing accessibility, smart content creation, grading, feedback, plagiarism detection identifying learning gaps, providing 24/7 assistance and many others.

The most known example of using AI in education can be the Duolingo language learning tool¹⁸. It uses AI to deliver a placement exam. The test is adaptive, meaning it will alter the questions based on the responses you've provided before. As such, it would offer a more straightforward query if you failed and a more challenging one if you gave the correct answer. The complexity of the phrases and grammar used also influences the nature of the test you are given.

Duolingo also leverages AI in optimising and personalising sessions. For example, it has a feature that assesses mistake patterns that many language students make when practising newly learned words. With this information, this tool can determine when you forget a specific term. This feature also factors in the complexity of phrases. All these details help in determining the best time to practice languages.

Augmented (AR) and Virtual (VR) reality

Augmented and virtual reality in education represents by far the most outstanding technologies that can be applied to a variety of educational activities. Both offer immersive experiences, such as the ability to present information in innovative and captivating ways, as learners can easily interact with virtual objects and their surroundings and other individuals.

Furthermore, augmented and virtual reality also allows extended access to educational opportunities catering for the needs of learners with disabilities. AR and VR technologies also

¹⁸ Jyotsana Gupta (2020). 7 Real-Life Examples of AI in Education. URL: <https://wire19.com/real-life-examples-of-ai-in-education/>



enable access to educational opportunities that would otherwise be limited by cost or physical distance.

There are plenty of AR/VR initiatives that have been launched to assist learners and make educational activities more accessible. For example, the SkyView app¹⁹ allows students to explore the universe using AR overlays of the night sky, HoloAnatomy²⁰ or Microsoft HoloLens²¹, which enables medical students to have a better understanding of the human body using VR and AR simulations. Training companies can also use extended reality in professional situations to offer their customers the best products and services. For example, police departments are using VR to train officers to deal with riots or arrest people in specific situations. For example, companies use VR to train their employees in health and safety area and others.

Learning management systems (LMS)

If an organisation is looking to move educational activities online, e.g., provide online courses to its learners, LMS is a must.

A learning management system (LMS) is a software application or web-based technology used to plan, implement and assess a specific learning process. It is used for eLearning practices and, in its most common form, consists of two elements: a server that performs the base functionality and a user interface that instructors, students and administrators operate²².

Learning management systems are used to deploy various learning strategies across different formats, such as formal, experiential, and social learning.

Besides the "traditional" LMS usage (offering online courses to learners), it can also be used for customer training, partner training, member training, employee onboarding and development, compliance training and others.

Learning management system allows organisations to:

- deliver and manage knowledge within one platform
- manage online courses centrally and deliver them to selected learners
- distribute supplementary materials
- engage in active communication with learners
- ensure communication and discussion between learners (social learning)
- evaluate learning outcomes and easily create reports

¹⁹ <https://apps.apple.com/us/app/skyview-lite/id413936865>

²⁰ <https://case.edu/holoanatomy/why-holoanatomyr>

²¹ <https://www.microsoft.com/en-us/hololens/industry-healthcare>

²² Tech target. Learning management system (LMS). URL:
<https://www.techtarget.com/searchcio/definition/learning-management-system>



The most known LMS systems used in education are Blackboard, Canvas, Moodle, and Google classroom, among many others.

To help to choose the right learning management system, the organisation should consider these criteria:

- User interface (UI) – A UI must be neat and visually appealing. Course creators and learners must be able to adapt to an LMS interface quickly. Grades, lists, and analytics must also be easy to locate and interpret on an LMS.
- Usability – An LMS must be easy to set up, have good customer service, and provide tutorials and training. It should work on all devices (laptops, tablets, smartphones, etc.). It should also be compatible with other systems, such as the CRM organisation is using.
- Integrations – An LMS must be easy to integrate with other platforms for media development, teleconferencing, content management system (CMS), and other necessary online learning content development tools.
- Value for money – An LMS must be worth its cost, which means that it must include pre-made programs and the necessary tools for content creation.

Chatbots

AI-enabled chatbots have become very popular in the education sector. In addition, many organisations employ AI chatbots in eCommerce to improve customer service and engage more audiences to stay relevant and visible.

Chatbot makers in education utilise artificial intelligence and the latest conversational design to create bots that can communicate with learners. However, AI cannot replace an educator. Instead, it can serve as a helper to educators.

Among many other benefits, chatbot technologies can perform various tasks 24/7. Among the most popular tasks chatbots can deal with are answering routine questions, providing feedback to learners, and counselling potential learners.



Below you can see an example Botsify chatbot helping prospective students to enrol in a university through a consultancy.

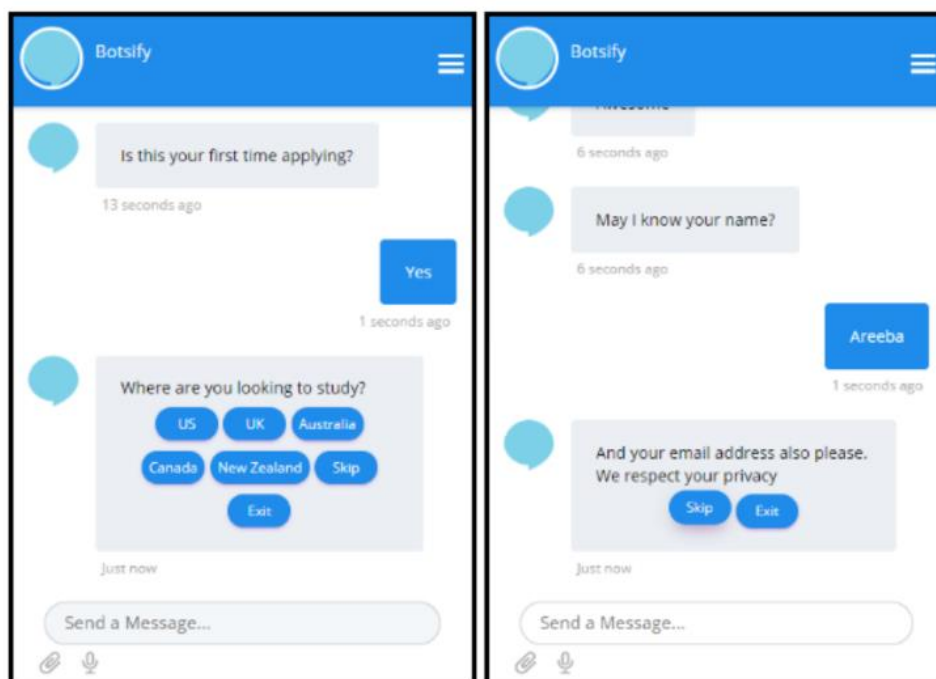


Figure 6. Example of Botsify chatbot interacting with a potential student. Source: <https://botsify.com/>

Educational chatbots can be used to provide student support and deliver instant solutions to learners' questions.

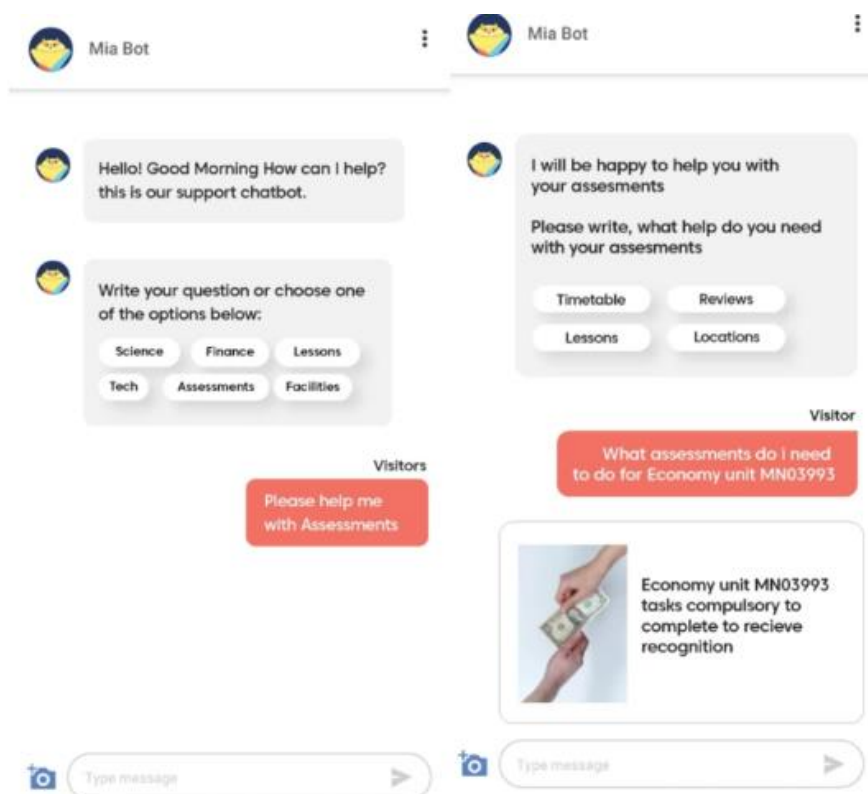


Figure 7. Example of Mia chatbot assisting student. Source: [Yeallow.ai](https://yeallow.ai/)

Corporations such as IBM, Amazon, and Drift have developed solutions that can be customised to address different educational aspects. In addition, many smaller organisations also offer chatbots to be used in the education sector.

Metaverse

The advances in AR/VR have laid the foundations for the development of the metaverse in the education sector. Many education professionals and analysts believe that usage of the metaverse will continue to grow in the upcoming years.

Simply put, the metaverse is a virtual version of the real world. It lives in a network of interconnected computers and includes a range of free, accessible, and decentralised games, communities, and venues for interaction.

The metaverse leverages artificial intelligence, augmented reality, virtual reality, and "Web3" to create immersive, 3D, real-time, and interactive social environments. In these environments, metaverse users can interact with each other, build things (in groups or alone), play games and interact with avatars and 3D digital objects.²³

Metaverse allows learners to explore extraordinary opportunities by immersing themselves in highly realistic environments. Metaverse can also contribute to the development of safer learning environments by allowing educators to establish a degree of control over learners' interactions, reducing bullying along the way.

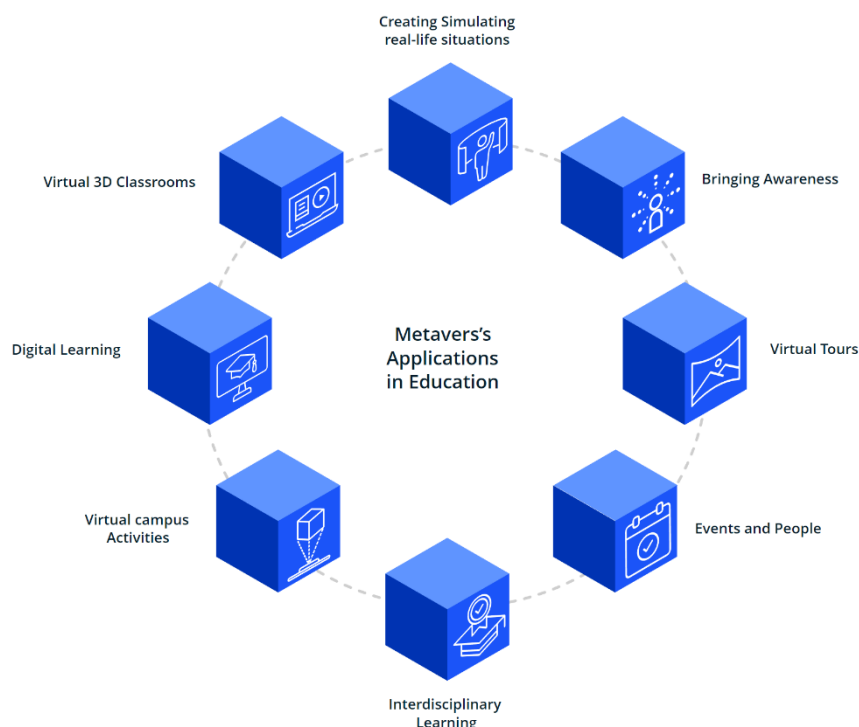


Figure 8. Metaverse's application in Education. Source: Leeway Hertz

²³ Tom Driscoll (2022). Making Sense of the Metaverse in Education. URL: <https://edtechteacher.org/making-sense-of-the-metaverse-in-education/>



The most recognisable metaverse forms are games such as Minecraft, Fortnite, and Roblox. Roblox has introduced easy-to-install virtual classrooms where students can find historical roleplays, physics simulations, and creative building games.

Another example is Eduverse²⁴ - a revolutionary online learning environment providing schools with a safe and secure "metaverse ". Eduverse allows you and your students to harness the power of the metaverse and explore immersive virtual worlds in a safe and inclusive environment. Eduverse offers a new way to learn, enabling students to collaborate in engaging virtual spaces where the impossible becomes a reality.

Blockchain

Blockchain is just beginning to make a mark in education, with only a handful of institutions adopting the technology. However, the usage of blockchain technologies is expected to grow in the upcoming years, transforming the education landscape by opening up new, more affordable pathways to learning.

Blockchain can benefit education by increasing transparency and accountability through smart contracts and incentivising learning.

Blockchain technologies can safely store and keep student records containing authentic information about attendance, completed courses, and results of particular exams or tests. Once the student's data has been entered into the blockchain, falsifying or tampering with it will be impossible, and only authorised parties can access it.

Many world-famous universities have used blockchain technologies to develop a reliable shared infrastructure for issuing, storing, displaying, and verifying academic credentials. Example of such technology is Disciplina²⁵, Blockcerts²⁶, and Parchment²⁷.

In addition, educators can also benefit from blockchain-powered smart contracts²⁸ to assist them in organising their work. For example, they can record a lesson in a blockchain, provide tasks for learners, specify assignment parameters, and enable smart contracts to automatically verify the completion of a task and allow the learner to proceed to the next one. On the other hand, educational organisations can use such smart contracts to deploy student loan payments.

²⁴ <https://eduverse.com/>

²⁵ <https://www.disciplina.io/>

²⁶ <https://www.blockcerts.org/>

²⁷ <https://www.parchment.com/>

²⁸ Smart contracts are digital contracts stored on a blockchain that are automatically executed when predetermined terms and conditions are met. URL: <https://www.ibm.com/topics/smart-contracts>



STEP 7. IDENTIFYING COURSES OF ACTION AND FORMULATING INITIATIVES

After the organisation has completed assessing its current state, capabilities, and existing gaps and set up goals, it needs to build a list of actions to reach these goals and bridge existing gaps. These actions need to consider the people, process, and platform/technology change.

In this stage, you need to identify potential future capabilities. For example, for improving customer relationship management, a 'people' course of action could be to appoint a customer relationship support person; a 'process' course of action could be to enhance the gathering and systemising data about current and potential clients, and a 'platform/technology' course of action could be to implement a customer relationship management system (CRM).

Once key actions are identified, the related ones should be grouped into work packages. Depending on their scope and complexity, these work packages could be called initiatives, projects or programs.

These initiatives could range from external changes, such as changes to products or services, or improvements to client experiences, to internal transformation, such as cloud and technology infrastructure. Or it might be a combination of the two.

The initiatives should be prioritised based on their impact and estimated effort. The organisation should start with simple initiatives that are essential first.

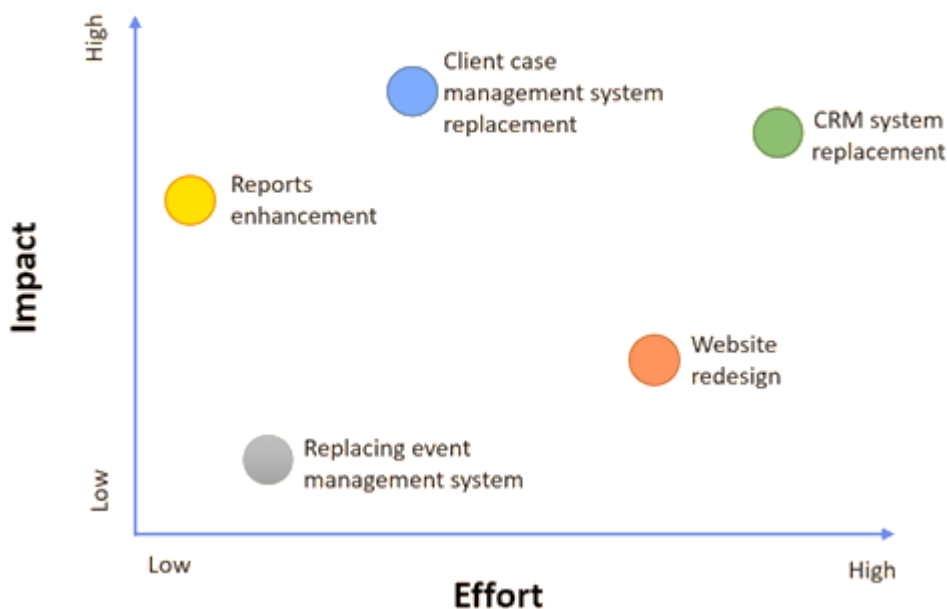


Figure 9. Example of impact effort matrix. Source: <https://digitaltransformation.org.au/>



STEP 8. GATHERING RESOURCES AND EXPERTISE

Digital transformation requires expertise and, often, a team of people to keep the organisation on track. Organisations can either appoint people within the organisation or, if the expertise needed is unavailable within the organisation, outsource it by cooperating with a technology partner. The choice, in most cases, depends on the costs. Sometimes, it is more cost-efficient to cooperate with external technological partners than to retrain and upskill existing employees and vice versa.

The best candidates for such roles within an organisation are people with a certain level of expertise who are willing to learn about new technologies, be open to new ideas and adapt to evolving organisations. Involving the most suitable employees, external technological partners, or both can be the difference between success and failure.

Some roles that could play a vital part in the implementation of the strategy include²⁹:

- Project managers – to ensure that the project is adequately resourced and completed on time and within budget.
- Security and compliance specialists – to identify and resolve any potential security issues.
- Technologists – to advise on the best applications, services, platforms, and products for implementation.
- Implementation leads – to focus on the new technologies organisation will use and change management.
- Financial advisors – to oversee the project's financial status and ensure that it stays within budget.

When choosing an external technological partner to assist in the digital transformation process, it is advised for an organisation to select a partner that has a similar vision, has proven results, understands the needs of the organisation and can offer a solution(s) that improves the whole operation, not just some part of it.

STEP 9. DEVELOP A DIGITAL TRANSFORMATION ROADMAP

A digital transformation plan should consist of a series of tasks or mini-projects, and each of these projects will have its timeline and sub-tasks. It is advised to implement, review and make changes, if necessary, to each task by one rather than doing everything at once. This allows organisations to track progress better and make changes required to successfully implement all the tasks, avoiding any significant disruptions and failures.

²⁹ vFunction (2022). Guide to Developing a Successful 2022 Digital Transformation Strategy. URL: <https://vfunction.com/resources/guides/guide-to-developing-a-successful-2022-digital-transformation-strategy/>

Thus, once an organisation has established goals they want to achieve and the opportunities they want to take advantage of, it should create a digital transformation roadmap that will determine precisely how the organisation will get from where it is to where it wants it to be³⁰.

It is essential to map out precisely what steps the organisation will take during the digital transformation process, including how the organisation's infrastructure will change. '

The roadmap should set out your key priorities and the milestones that need to be reached along the way. It should also provide detailed information on the key stakeholders/ team involved in the process and the possible technology solutions needed.

The key benefit of the road map is that it can be used as a guide to show exactly what needs to be done, when, and by whom. However, it is important to emphasise that the roadmap should be adaptable and flexible to allow changes if customer needs evolve and the business climate changes.

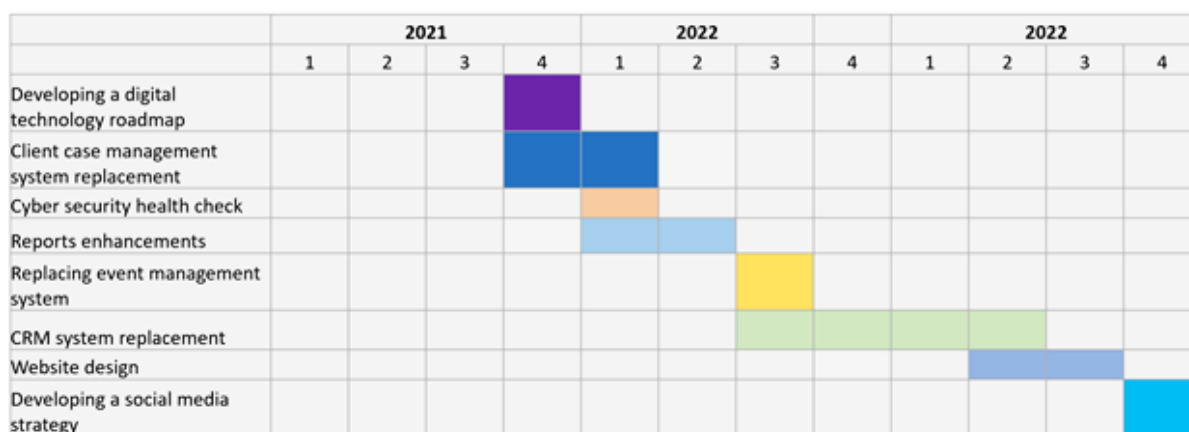


Figure 10. Example of a digital transformation roadmap. Source: <https://digitaltransformation.org.au/>

STEP 10. ESTABLISHING COST

This is a very important step. First, the costs need to be established, and the budget needs to be allocated before any work takes place.

With clear goals and actions identified, organisations will have a clearer view of the required budget. At this step, it is also vital to calculate ROI and ensure that each action/initiative can bring sufficient returns to justify the costs.

The planned budget also needs to be flexible or agile to accommodate unforeseen needs and issues. In a flexible budget model, organisation needs to keep enough scope for contingencies.

Some costs that are important but often are underestimated while planning a budget are:

³⁰ vFunction (2022). Guide to Developing a Successful 2022 Digital Transformation Strategy.URL: <https://vfunction.com/resources/guides/guide-to-developing-a-successful-2022-digital-transformation-strategy/>



- Data migration costs. In most cases, when implementing digital transformation, the data needs to be migrated from the existing setup to the new system to some extent. This can be costly as it must be done in the best possible manner to ensure no data damage or loss.
- Additional employee costs for the personnel involved in the digital transformation process.
- Employee training costs. Digital transformation may require additional training for the employees. For the best usage of the digital tools, the workforce must be well-versed in the tools. Training may require outsourcing to specialised training companies or authorised trainers.
- Cost related to consultancy from industry experts (if needed). The experience of such experts can reduce risks and make the digital transformation smoother. Thus, considering consultancy costs in the budget is a good idea.
- Cost related to compliance and security requirements.

It is also advised to establish procedures for communicating changes in allocated budgets and time resources to the dedicated employees and external personnel who the digital transformation actions and initiatives might impact.

STEP 11. FOCUSING ON CULTURAL CHANGE

Successful digital transformation also relies on creating a culture that supports digital innovation within the organisation. Quite often, an organisation's culture and pushback from employees are one of the biggest hurdles to effective digital transformation. Getting the right team to lead digital transformation is a good first step. However, ensuring that everyone in the organisation understands the need for digital transformation, is open to changes and sees the bigger picture is a must.

Essentially, cultural change cannot be avoided as it is an inevitable by-product of digital transformation. Cultural change brings change to the traditional and established way of working, thus naturally causing some resistance along the way. The degree of resistance to cultural change may vary from one organisation to another, but it is always present to some extent. To effectively manage the resistance requires frequent communication, such as³¹:

- Explaining the why, what and how of the process
- Articulating the potential benefits and the potential positive impact on the organisation
- Establishing a culture of collaboration and innovation

³¹ Sanjay Jupudi (2022). How to implement a digital transformation plan in five steps. URL: <https://www.bizjournals.com/dallas/news/2022/03/24/how-to-implement-a-digital-transformation-plan-in-five-steps.html>



- Developing a team mindset among the workforce

Organisation culture that embraces changes, focuses on collaboration and motivates employees for digital transformation is of the keys to success.

DIGITAL TRANSFORMATION PLAN AT EDUCATIONAL INSTITUTION – PRACTICAL ASPECTS

In the previous stage of the project “Digital transformation: from adult-education institution to Digital Education Enterprise”, we developed the product “[IO1 Digital Education Enterprise business model and processes](#)”.

We identified:

- 20 customer segments which fall into four categories: Students, Corporate sector, Individuals and Specific groups,
- 18 typical categories of education/training and match them to the customer segments,
- 12 typical forms of education/training.

Based on the Digital enterprise concept, we designed value propositions for these customer segments, and we designed the correspondent business models, which produce and deliver these value propositions.

In Chapter 7, you can find core process designs that implement specific Digital Education Enterprise activities. Specifically, in Chapter 7 of IO1, we designed a lean process to implement any of the Digital Education Enterprise’s business models designed in IO1. This process is in accordance with the guidelines provided in this IO2 product.

Thus, any educational institution can use it for its own purposes.



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