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# MODEL DIGITAL TRANSFORMATION STRATEGIES

A comparative analysis report

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# 1 The StrategyHack project

StrategyHack is an E+ funded project which stands for “Hacking Institutional Strategies for Rapidly Deployed Digital Education”. It is intended to equip institutional leaders to maximise digital education, employing a capacity-building programme for mid-level institutional leaders to maximise digital education sustainably. As part of the main objectives, the project intends at:

- Accelerating the digital transformation of staff, programmes and institutional processes within HE.
- Promoting and contributing to high-quality personalised learning environments with a strong digital component.
- Mobilising the knowledge developed in the digital learning context during the COVID pandemic to promote more sustainable models of digital education.

The partnership is made by universities and education associations around Europe with relevant expertise in education, digital education strategies and open education.

The third output of the StrategyHack Project aims at supporting institutional leaders to consolidate gains in digitalisation achieved during the COVID crisis and move towards sustainable long-standing models of digital education provision framed as a Digital Educational Management System for institutions.

In the framework of the StrategyHack project, partners developed the StrategyHack framework, a digital transformation framework describing the foundation of the transformation composed of seven dimensions based on the ISO 21001 – Educational Organisation Management Systems (see annex 1). Education institutions included in the consortium assessed a sample of the model strategy elements and collected the feedback in a standardised form (that will allow comparative analysis and more solid conclusions). The two tools of the framework – the Strategy Matrix and the Strategy model template with a set of instructions on how to use both tools – served as a basis for institutional leaders to conduct the pilot.

# 2 Model Strategies

## 2.1 Context

It is relevant to explore the concept of digital transformation, as an ongoing process of using digital technology and strategy to shift the user experience, business, operating processes, or culture. The implementation of digital transformation aims at boosting the value and coordination of the institution through innovation, and frameworks support the mitigation of risks when leading to complex and structural glitches, making sure there is a guided logic and a mutual understanding of the problem and the desired outcome.

Digital transformation is understood as an ongoing journey of using digital technology and digital strategy to fundamentally change an organisation's customer experience, business, operating processes, or culture.”

*Digital Transformation Framework, StrategyHack, 2023.*

Alongside the knowledge about the areas of change we described in the capacity building course on Digital Education strategies, the hackathon results contributed to the StrategyHack Framework for transformation based on the ISO 21001 (Educational Organisation Management Systems), to set the model as a Digital Educational Management System for institutions (annex 1). It consists of a strategy-guidance document for institutional leaders to build their institutional strategies. A quality framework can impact digital transformation in educational institutions in several ways:

- Provides a **foundation for consistent and reliable processes**: A quality framework can ensure that digital initiatives and processes are designed, implemented and managed consistently, reducing the risk of errors and improving reliability.
- Supports **data-driven decision-making**: By providing a framework for collecting, analysing, and reporting on performance data, a quality framework can help educational institutions make informed, data-driven decisions about their digital transformation efforts.
- Promotes **continuous improvement**: A quality framework provides a basis for continuous improvement, enabling educational institutions to assess the impact of their digital initiatives, identify areas for improvement and implement changes to optimize their results.
- Ensures **compliance with standards and regulations**: In the education sector, there are often standards and regulations related to privacy, data security and accessibility that must be met. A quality framework can help to ensure that digital initiatives comply with these standards and regulations.
- **Enhances reputation**: A commitment to quality in digital transformation initiatives can enhance the reputation and credibility of educational institutions with stakeholders, including students, teachers, and parents.

Three elements constitute the framework:

- Strategy Matrix.
- Strategy Model Template.
- Instructions on How to use the Strategy framework – meaning how to use both tools.

The Strategy Matrix includes as rows the 5 areas of change - Pedagogical change, Organisational change, Technological change, Economic and Political Change, and Institutional change - (see diagram 1) and respective sub-areas, while its columns contain the 7 ISO 21001-based dimensions, namely Context of organisation, Leadership, Planning, Support, Doing/Operation, Performance evaluation, and Improvement (see diagram 2). Additionally, the Strategy model template is a second matrix that will serve as the template for digital strategies for all the areas of change using the information from the Strategy matrix (see diagram 1).



*Diagram 1 - Strategy Matrix & Model Template: areas of change*



*Diagram 2 - Strategy Matrix: dimensions of change*

The Strategy Matrix provides leaders with recommendations and questions related to the dimensions to take into consideration when defining new or up-to-date strategies for any of the areas of digital change. The Strategy model template rows are related to all areas and subareas of digital transformation, as defined in earlier stages of the project (see diagram 3).



*Diagram 3 - Strategy model template: sub-areas of change*



In the context of ISO (International Organization for Standardization) standards, input and output refers to the information and resources used and produced in the implementation of a process or system.

When defining strategies for digital transformations at educational organisations, it is recommended to make a copy of the Strategyhack framework document and proceed as follows:

- Familiarise yourself with the details of the Strategy Matrix and Strategy Framework.
- Determine the institutional context.
- Review which strategies are already in place.
- Select which area of change needs to be addressed.
- Select which stage and elements (columns) from the Strategy matrix apply to the institution.
- Complete the Strategy Model template using elements shown in Strategy Matrix.

Bearing these tools and steps in mind, the institutional partners conducted the webinars for consulting the model strategies, as well as piloted them in the institutional context, leading to the conclusions analysed in the following sections of this report. The piloting was supported by a video tutorial: <https://www.loom.com/share/82faf21f44f84cec9a3d1a08cd877dde>.

## 2.2 Model strategies in practice: analysis of the consultation exercise

In this sub-chapter, the contribution of StrategyHack to the consultation exercise will be explained and supported by testimonials from the various patterns involved<sup>1</sup>.

### 2.2.1 Selection of the areas

**POLITO** selected the area of Organisational Change. The focus on organisational change, and specifically privacy, was decided first and foremost based on the feedback and general success obtained in the previous StrategyHack event: the hackathon which took place in October. Moreover, the Nexa Center's staff has good knowledge regarding GPDR and Privacy issues and has been often involved in events open to the public where these matters are explained and analysed. Therefore, it was considered easy and effective to organise such a webinar. Generally speaking, the Polytechnic of Turin and the institutions from which the participants came have always been very active and interested in the matter of privacy, and GDPR compliance in general. Almost every job in these institutions has changed, by little or by much, because of these new privacy rules. Therefore, the public is very interested in keeping their knowledge and skills up to date, for example by participating in webinars such

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<sup>1</sup> See annex 2 for more details on the organisational context of each partner.

as the ones organized by StrategyHack. The previous event in October demonstrated that the public could be involved and kept attentive through the use of interactive software (such as online platforms like Miro) even when presenting topics usually considered “boring” or difficult to follow for a full hour, so POLITICO was sure about bringing an easy to understand but still useful content to the audience.

Bearing in mind the main facts about the Context of the organisation and Leadership for the selected sub-area, POLITICO described its stages as follows:

- **Leadership:** One of the main areas lacking in privacy matters is effective leadership. Employees and the general public are often not properly informed or educated about privacy issues, leading to resistance to change and a tendency to revert to old methods. This is compounded by a lack of digital literacy, which can hinder efforts to quickly and efficiently resolve privacy problems that may arise. Leaders must be proactive in their approach to privacy, championing the importance of protecting personal data and making sure that all employees are properly trained and equipped with the necessary skills and tools to do so.
- **Planning:** One of the biggest challenges in privacy planning is identifying and understanding the risks involved. Too often, these risks are either delegated to someone else or simply ignored, which can have serious consequences for both the organization and individuals. Privacy risks extend beyond the workplace and can impact personal lives as well. It is therefore critical for institutions to take a comprehensive approach to privacy planning, considering all possible scenarios and taking proactive steps to mitigate risks before they can cause harm.
- **Support:** Privacy training and education is key to ensuring that employees and stakeholders understand the importance of protecting personal data. Short courses that provide clear and concise explanations of privacy concepts, such as this webinar, can help achieve this goal. By offering such training, organizations can empower employees to take an active role in privacy protection and create a culture of privacy awareness that benefits everyone.
- **Doing:** There are many tools and resources available to help institutions assess and manage their privacy compliance. These include software solutions that can help organizations identify and address potential privacy violations, as well as best practices and guidelines provided by regulatory bodies. By utilizing these tools and resources, institutions can gain a better understanding of their privacy obligations and take the necessary steps to ensure compliance.
- **Performance Evaluation:** While it's important to have designated roles within an organization (such as data controller, data protection officer, and data processor), it's equally important to foster a culture of privacy awareness throughout the institution. This can be achieved through ongoing training and education, as well as regular performance evaluations that take privacy compliance into account. By making privacy a priority at all levels of the organization, institutions can reduce the risk of data breaches and other privacy violations and build a reputation for trustworthiness and responsibility.



UNIR selected the area of Technological change in previous discussions with invited speakers, where it was agreed that utilising technology is the initial step in implementing digital strategies. This approach is a convincing factor for both students and high-level organisers to kickstart the digitalisation process. Therefore, UNIR decided to focus on this aspect initially, using it as a tool to tackle other areas once stakeholders are on board with the transformation.

Bearing in mind the main facts about the Context of the organisation and Leadership for the selected sub-area, UNIR described its stages as follows:

One of the main concerns of mid-level leaders, professors, and students, is the tools they manage. They are all aware of the need to know about tools companies use, but they face two problems: 1) variability of tools and 2) license prices. In this regard, a high number of professors share some ideas, which UNIR will further develop:

- Join efforts with other institutions.
- Adaptability: concepts and processes need to be learnt. And skills to find a way to work in several technological environments.

One of the participants works for a medium-sized public university in Colombia, which has recently begun a digitalisation process. It is currently undertaken through cooperation networks with other universities in the region. E.g. access to databases. To choose the type of technology, they consider several aspects: it must be adaptive, highly accessible (at different economic levels), fast, simple and flexible. One barrier is marginalised indigenous communities, who have less access to networks and hardware and may need simpler low-cost tools.

Another participant also works at a medium-sized Spanish public university and has found herself in the situation addressed by StrategyHack, which focuses on middle management. In Industrial Engineering or Fine Arts, you must adapt the technologies to market demands. The university has acquired proprietary technologies. On the other hand, through educational innovation strategies, the university has trained students in open and proprietary technologies that allow them to have a broad vision of the options and adapt to different tools used by different companies. The strategic decision must align with the highest-level policies, which is sometimes complicated.

Both speakers agreed that collaboration with companies to study technological needs and achieve a team balance is required. The university-business relationship is fundamental. Choosing a single specific technology is a mistake. On the contrary, a range is needed, e.g., in the Video Game Master's degree, formal training is complemented by specific informal training that focuses on additional technologies. But it is a tricky process because you begin to compete with the university's courses, which will not be ideal.

In general, universities have a plan, a roadmap, in their programmes, although sometimes, with time or changing teams, they get diluted or not implemented fully. Greater commitment and a more concrete definition of the plan and an evaluation process is needed. Normally, whoever designs the strategy knows how to evaluate it, but the government teams are changing, and there may be confusion about how to address certain aspects or evaluate them.

Both managers and users of the institution should be responsible for evaluating the digitalisation strategy.

The roadmap for the digital strategy must be embedded in the institutional DNA. It does not mean having a physical space (office), “the innovation office”, but turning it into something cultural, a philosophy, directed by someone. They are evolving processes, and people need to be able to adapt to those changes. Roadmaps must be open to what both companies and society need, with high transparency and clear monitoring and evaluation processes.

**Coventry University** respondents focused mainly on the Pedagogical area given the nature of the consultation, however, different people also provided comments focused on different areas reflecting most closely their respective portfolios. Moreover, a sizable part of the comments and feedback are aimed at the general design approach and potential practical applications and usage of the overall strategy matrix, rather than focusing on specific areas. Following the nature of the consultation, which was composed of bespoke conversations with people in different roles, and to coordinate and link the different conversations, Coventry ensured that due attention was also given to the overarching structure of the framework, before focusing on specific areas. Still, most of the respondents focused on the pedagogical sub-area, as it hews more closely to their portfolios. Other specific comments, however, are provided concerning the pedagogical and organisational areas.

Bearing in mind the main facts about the Context of the organisation and Leadership for the selected sub-area, Coventry described its stages as follows:

Coventry University has strongly emphasised its digital portfolio in recent years, particularly as it experiences an ongoing shift from being a singular HEI institution to a group of globally oriented education services providers (Coventry University Group).

However, strategic decisions about this shift are, at the moment most often taken at the senior management level, sometimes leaving middle-management and front-line staff feeling a bit side-lined in decisional processes.

More specifically, Coventry University is, at the moment, experiencing a pervasive curriculum transformation process cutting across all units and departments. While in theory, this would have been a timely opportunity for people to consider strategic modelling processes such as engaging the Matrix Coventry proposed, in practice this was perceived as less-than-useful in the current situation, as not aligned or able to respond to current top-down management requests. Following this, the usefulness of the Strategy Matrix for middle management was questioned, though not in terms of its design per se, but rather in terms of the capacity of institutions with strongly top-down managerial structures to meaningfully adopt it and make use of it. This in turn prompted broader questions about the role the Strategy Matrix might have in reflecting upon the distribution of power and democracy in Higher Education institutions.

**MLA** selected the area of Organisational change. MLA is a member organisation with HEIs as members. Individuals from the different member organisations are working mainly as facilitators or middle management in the area of learning and teaching content preparation, support to teaching and tutoring staff, and content authors. This makes it less relevant for the participants to select an area of change that is hugely different between the participants, and the sub-area topic of intellectual property rights is in that respect one common area of interest where organisational differences are less obstructive to an open discussion.

Bearing in mind the main facts about the Context of the organisation and Leadership for the selected sub-area, MLA described its stages as follows:

Due to the diverse perspectives and interests of the participants in the area, MLA discussed all stages of the process in theory and gave concrete examples of how these stages would apply to the member organisations.

MLA took a lot of time to go through the process of evaluation of the issues and tried to frame it within the organisational context, which is expected to be highly diverse amongst HEIs. MLA concluded that the most important overarching issues were the following:

- Mid-level leaders in higher education institutions need to have a strong understanding of digital technologies and their applications in education. They should possess the skills to evaluate, adopt, and implement digital tools and platforms that enhance teaching, learning, and administrative processes.
- Effective leadership involves developing a clear strategic vision for digital education. Mid-level leaders should be able to align digital initiatives with the overall goals and mission of the institution, ensuring that they contribute to improved learning outcomes and student success.
- Higher Education Institutions should invest in providing professional development opportunities for mid-level leaders to enhance their digital competencies. Leaders have to stay updated on emerging technologies, pedagogical approaches, and best practices in digital education. StrategyHack can be a good tool for this amongst others.
- Both financial and technological resources are crucial for implementing sustainable models of digital education. (Middle) managers should have the ability to advocate for and allocate resources effectively to support digital transformation efforts.
- Collaboration and partnerships within and outside the institution are essential for successful digital transformation: partnerships with industry, other educational institutions, and relevant stakeholders to exchange knowledge, share resources, and co-develop innovative digital solutions.
- Focus on quality assurance mechanisms should ensure that digital education initiatives undergo rigorous evaluation processes to maintain and enhance their effectiveness, accessibility, and inclusivity.
- Mid-level managers should prioritise student needs and experiences when designing and implementing digital education models. They should provide an environment that promotes personalised learning, engagement, and student success in digital environments.

- Student data and ensuring privacy and security become more and more important. Relevant policies, regulations, and ethical considerations to safeguard sensitive information and maintain trust in digital education have to be in place.
- The middle management should possess change management skills to navigate resistance, foster buy-in from stakeholders, and effectively communicate the benefits and challenges associated with the transition to digital education models.
- Middle managers should have a basic understanding of what AI is, its capabilities, and its potential applications in education. This includes knowledge of machine learning, natural language processing, data analytics, and other AI techniques commonly used in educational settings. AI raises ethical concerns that middle managers should be mindful of. The management should understand issues related to data privacy, security, algorithmic bias, transparency, and fairness in AI systems. They should be aware of ethical guidelines and best practices to ensure that AI applications in education are developed and used responsibly.
- Establish mechanisms for ongoing evaluation and improvement of digital education initiatives. By gathering feedback, analysing data, and measuring outcomes, they can identify areas for enhancement and make data-informed decisions to drive continuous improvement.

**EURASHE** selected the area of Institutional change. The participants in the webinar were mainly from the HE context, representing Universities of Applied sciences, research departments and associations of colleges, most of them with a digital transformation strategy in place in their institution. The selected sub-area was “How to include alternative, innovative, open credentials”, as it is, according to participants, the sub-area that requires further attention in the institution, while is the one which is mostly being addressed in the institutions. The discussions about the institutional context allowed the understanding of several factors that influence the definition of the existing strategies for digital transformation, as follows:

- External factors: financial support, demanding progress, Ministry of Education, cultural, political, staff digital literacy, educational, demanding enhancement, constant tech development.
- Internal factors: generation gap, low digital mindset, leadership, financial resources, project, management recognition, process, management recognition, recognition of the needs, digital literacy, and staff shortages.
- Stakeholders’ needs: plan, time, highly skilled graduates, implementation.

Bearing in mind the main facts about the Context of the organisation and Leadership for the selected sub-area, EURASHE described its stages as follows:

Participants described the context of their institution as very formal, facing a generation gap, having an ageing staff, and having problems with the scale/bureaucracy when it comes to the selected sub-area (How to include alternative, innovative, open credentials). Regarding the leadership and its relation to the sub-area, participants describe it as decentralised, allocated to the Secretary-General, and an Education Policy Office. For this part, it was used an interactive tool for understanding which stage and elements (Planning, Support, Doing/Operation, Performance evaluation, and Improvement) from the Strategy Matrix apply to the institution. EURASHE concluded that, for the selected sub-area, “Planning” represented

60%, 40% for both “Support” and “Doing/Operation”, 20% for “Performance evaluation” and 0% for “Improvement” apply to their institutions.

## **2.2.2 Feedback about the StrategyHack framework**

### **POLITO**

The StrategyHack framework proved to be a useful tool that helped structure the webinar on privacy areas that institutions need to take care of, providing a systematic approach to problem-solving and planning, and therefore helping institutions to identify areas of weakness and opportunities for improvement.

The criteria of the framework have been of help, in the case of the webinar on privacy, to identify the main areas where institutions typically fall short and to develop specific strategies for improving performance in each of these areas.

By using the StrategyHack framework, we were able to create a more focused and effective webinar. The framework helped us to structure the content in a logical and easy-to-follow manner, which made it more engaging and informative for the audience. It also helped us to ensure that we covered all of the key areas of privacy that institutions need to be aware of and to provide effective suggestions on how to approach them.

The feedback suggests that participants would like to see more courses on privacy. This is a positive sign, as it points out that the webinar was able to generate interest in the topic and was successful in keeping the participants’ attention high, to the point that there is a demand for further learning opportunities. This represents yet another reason why it would probably be worthwhile to offer additional courses or webinars that delve deeper into specific areas of privacy, not only for what concerns Strategyhack but as well.

The feedback also indicates that some participants would like to see more practical guidance and suggestions. The webinar offered some practical advice in the form of methodologies and software that if used correctly may help in solving privacy-related problems. Practical advice can be more easily implemented and can help participants to address specific challenges or issues they may be facing.

### **UNIR**

The StrategyHack framework serves as a basis to adapt to each institution. These webinars are very important to raise awareness and to show that there is no single way of doing things. There are multiple digital transformation models. Participants highlighted how beneficial it is to have a designated person responsible for each action, evaluation process, and improvement opportunities. Based on their experience, they consider this aspect highly significant, and they have determined that the current set of elements is sufficient. Since descriptions of the framework are quite similar for each area, they suggest including some examples or some situations to increase the ease of using the framework.

## MLA

The StrategyHack framework is one of many interesting transformation models. It is interesting because it is well-designed, comprehensive, and user-friendly. The participants however also stated that to completely grasp the model and to apply it, a lot of time is required to adapt it to the local situation in the HEI, and it would require a wide buy-in from all levels of the management. It was also commented that there seems to be no concrete evidence yet of the efficiency and effectiveness of the model. It would be nice if there were experiences shared if available.

As far as the participants could evaluate in the relatively short time they had to get to know the framework, it seems to be more than complete enough and it was questioned if it was not too directive in its process. What seemed to be missing was a risk analysis scheme: what to do when certain processes fail? Is there guidance on how to design and integrate contingency plans? Some suggestions made by participants were around the need to share real-world examples and experiences of where and how the model has been applied in practice, and the explanation of the total cost of the implementation (order of scale is a good start, and connected to that is there evidence of ROI and impact on the HEIs that have used the model).

## EURASHE

The three elements (Strategy Matrix, Strategy Model Template, and How to use the Strategy framework) of the StrategyHack framework were key for the webinar preparation. Their combination allowed them to prepare the presentation of the strategic framework and the interaction with participants, for the consultation on model strategies, based on their experiences. According to participants, the StrategyHack framework and its three elements, seem to be useful and operational, considering it includes enough elements to successfully implement the strategy. As a positive aspect, it was also highlighted this serves as an opportunity for improvements in the institution. Nevertheless, half of the participants mentioned they would need to test it in their institutional context to understand better its operability. Participants suggested comprising a clearer vision and path, and a roadmap. Participants suggested it is added a support group, be shared with senior managers, as well as that it required piloting for a proper assessment.



## 2.3 Model strategies in practice: analysis of the piloting exercise

### 2.3.1 Contribution of the StrategyHack framework to guide the analysis

In this sub-chapter, the contribution of StrategyHack's framework in the piloting exercise will be explored, according to testimonials from the various partners involved<sup>2</sup>. The partners conducted the pilots by utilising different approaches.

POLITO conducted an internal event which was used as the pilot of the StrategyHack framework and matrix, recognising the benefits of the tools to structure the content around privacy and technologies. Regarding the StrategyHack framework, the pilot led POLITO to conclude that one of its key benefits is the “ability to visually represent the work through the use of the pentagon”. Such visual representation permits the identification of the areas to prioritise by their significance, assessing the institutional strengths and weaknesses. In this context, the pilot, the StrategyMatrix provided a systematic manner to evaluate the current state and desired outcomes, it enabled the identification of knowledge gaps, as well as to highlight areas where POLITO excelled. The assessment mentioned above was essential in determining the content and structure of the event, tailoring the presentations and discussions, and identifying specific areas that required attention, in a logic of constant adaptation to the digital changes in the educational context.

Coventry University concluded that, overall, the StrategyHack Matrix addresses pertinent questions, representing a relevant and useful tool for “analysing and developing a digital strategy, particularly:

- When new strategies (or aspects of them) have to be built from scratch.
- When (contrary to the contextual notes made above) power is more evenly distributed within the institution.
- In connection with the above, to help reflect on power distribution (though it would require some restructuring to fully address that).
- To scaffold and structure conversation that might otherwise remain unfocused.”

The same pilot conducted at Coventry University assessed that “the current division of the sub-areas is deemed sensible and useful, though there were queries and a need for clarification about the scoping of the organizational area, with its questions generally deemed less fitting”. On the other hand, suggestions to specify questions to each of the areas were consensual, as well as that, in the sub-areas, the “framework de-emphasises technological tools as only a partial element of digital transformation strategies”. Other respondents pointed out that an updated and improved version of the tools should consider the generation of debate on the strategy, avoiding structural considerations and linear plans.

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<sup>2</sup> See annex 2 for more details on the organisational context of each partner.

Particularly on the “Pedagogical” tab, there is a “breakdown of the perceived clarity, relevance and effectiveness of different questions:

The “Context’ questions are generally deemed to be clear and useful.

- The “Leadership” questions are deemed to be a bit too broad, particularly towards the end, as they might not lead to actionable decisions.
- The “Planning” questions are generally deemed to be clear and useful.
- The “Support” question about sub-areas appears confusing, as it might seem to mix departmental areas and the sub-areas of the matrix. It would be useful to rewrite to clarify.
- The “Operation” questions require further breakdown concerning the different stakeholders that might involve, and their relationships, roles, and respective power within the institution.
- The “Evaluation” questions should probably be foregrounded, to include and scaffold a preliminary need analysis and ongoing evaluation process, rather than coming at the end.”

Another aspect pointed out, that can be considered as a “tension”, particularly in the Strategy Matrix sub-areas “Operation, Performance evaluation and Improvement”, is the fact that questions might be addressing different management levels, while this can lead to a lack of responses/accurate responses, once respondents might be “unable to answer all of them (e.g., not influencing overall resourcing on the middle management side, or not having a clear picture of the practicalities on the senior management side)”.

MLA<sup>3</sup> managed to create a set of case scenarios to test the framework, combined with a limited discussion of the model and the outcome with practitioners from the HEIs. All in all, the model reveals its comprehensiveness and impressiveness at first acquaintance, possessing a “great potential to inspire HEI management”. The model strategies support the user in organising, structuring perceptions, evaluating and collecting ideas and actions. Again, the visual representation aspect was highlighted as one of the main strengths in allowing “comparative and longitudinal analysis over time”. One aspect that was underlined as a possible constraint was “the weight of each element in the spider’s web”, considering the differentiation of value given to each element, representing not-so-accurate analysis.

### **2.3.2 Elements to be added according to participants’ experience**

POLITO concluded that no other elements should be added to the model strategies, recognising the strengths to develop several strategies for digital education.

Coventry pointed out that some respondents felt the digital matrix was a very effective tool for scaffolding conversations, but could be misused. Therefore, it would be recommended to

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<sup>3</sup> MLA is a member organisation and as such not directly involved with operational change management in HEIs, therefore, only able to assess the framework on a theoretical basis.

include further guidance and more detailed instructions, considering the collective and never individual use of the matrix. Going back to the basics, participants concluded the need for clarification of the context of the use of the matrix, using practical examples, to mirror the usage by the various levels in the institution. “Respondents with a more technologically focused portfolio” suggested to include a “more adaptive iterative approach”, since they noticed the approach was not “quite in tune with modern agile methods of digital delivery”<sup>4</sup>.

MLA mentioned, as a result of the pilot, the following elements to be added:

- “Risk management planning or contingency planning”.
- Simplify and make “obvious how new areas or contexts can be added, in specific cases, institutions may want to add e.g., sustainability, (corporate) governance, and ethics as specific areas of change. That model can be applied but the tool seems rigid and hard to adapt”.
- “Reference points” that explain the relation between the scores, cases and examples, improved contextualisation to enhance attractiveness to the matrix.

### **2.3.3 Suggestions for adapting the strategy**

A few suggestions were done as a result of the piloting to adapt the strategy. A collection of case studies (even fictional) might support the StrategyHack model to be “more attractive and more practical”, simplifying its implementation and decreasing its complexity. Furthermore, the terminology used for the subareas “(particularly “Economic and Political”, but also “Institutional”) might not immediately clarify their scope”. Mid-institutional leaders who are more embedded in the technological areas suggested the development of the Strategy Matrix into a dynamic webpage or app, which could lead to online collaboration.

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<sup>4</sup> “In their view the Strategy Matrix, while asking the right questions, ultimately skews prescriptive by skewing towards establishing around timelines and concrete plans in a traditional waterfall model, rather than adopting an agile operating model based around continuous delivery improving digital products through dynamic prioritisation.

# 3 Annexes

## 3.1 Annex 1 – The StrategyHack framework

The StrategyHack digital transformation framework describes the cornerstones of the transformation along 7 dimensions based on the ISO 21001 - Educational Organisation Management Systems and combines them with

- the knowledge about the areas of change we described in **the capacity building course on Digital Education strategies** (IO1) and
- the information gathered from the **solutions proposed in the Hackathons** (IO2).

This framework aims at helping (mid-level) institutional leaders to consolidate gains in digital transformation achieved during the COVID-19 crisis and move forward to sustainable long-term models of digital education provision.

The proposed framework comprises a set of two tools: The **Strategy Matrix** and the **Strategy model template** as well as a set of **instructions** on how to use both tools which will serve as a reference for institutional leaders when defining strategies for digital transformations at their organisations.

### 3.1.1 The Strategy Matrix

The Strategy Matrix will provide leaders with recommendations and questions related to the dimensions to consider when defining new or up-to-date strategies for any of the areas of digital change. It includes as rows all areas of digital transformation and subareas as defined in the StrategyHack Outputs 1 and 2, while its columns contain the 7 ISO 21001-based dimensions, namely Context of organisation, Leadership, Planning, Support, Doing/Operation, Performance evaluation, and Improvement.

The next table presents an overview of the digital transformation areas (i.e. the Strategy matrix rows) as defined in the previous phase of the project along with some examples of content strategies defined in the Hackathons run by partners.

**Table 1**

Digital transformation areas defined by the StrategyHack project

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**Areas**

**Area 1: Pedagogical change**

Includes key aspects that any Digital Education Strategy should consider such as the self-awareness of digital competences among educators and students, the support to educators in developing digital education competences they will need to design and deliver suitable learning experiences, the support to students in developing digital skills they need to actively engage in digital education experiences, as well as the assessment implications of digital education.

Examples of strategies content proposed in the Hackathons:

- Improve the communication strategies to effectively inform about the opportunities offered by digitalisation to students and teachers for making more flexible their teaching and learning processes.
- Foster training and improve digital culture to ensure educators will carry out their tasks more efficiently.
- Ensure the availability of technical and organisational means to ensure learners can take advantage of the flexibility offered by digitalisation.

**Area 2: Organisational change**

Covers important elements to ensure the changes at the organisational level like the definition of strategy and best practices to outline a strategy; alternatives, and actions to encourage academics to embrace changes and new academic practices; actions to improve intellectual rights literacy as well as production and reuse of OER; measures and actions to enable safe location-independent work and how to face digital security and privacy challenges.

Examples of strategies content proposed in the Hackathons:

- Use of teaching innovation programmes where academics play a key role as trailblazers in a holistic strategy for implementing innovative practices at different academic levels.
  - Need for training related to IP rights, especially when creating digital content for learning.
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- Need for training related to remote work conditions, security, and privacy issues in particular DGPR, Reworking privacy-related documents to ensure they can be easily used and understood.
  - Case studies and success histories about how to implement strategies.

### **Area 3: Technology change**

Addresses relevant aspects to ensure a proper technology change like how to map the institutional Technology Enhanced Learning (TEL) ecosystem; decision-making elements to decide what tools to support and what not to support; the assessment of policies and practices around Human Resources management and staff professional development concerning technological change and how to access digital content and how to use data to support strategic decisions.

Examples of strategies content proposed in the Hackathons:

- Need for internal communication campaigns to ensure the awareness of the institution's technological potential.
- Efforts should be focused on maximising the ICT tools' performance to support hybrid learning settings.
- Attention should be paid to carefully select which type of licensed (or open source) software is used to support learning activities.
- Creation of a collaborative culture and a mix of formal and informal spaces to develop and evaluate the strategies implemented.

### **Area 4: Political and economic change**

Includes important elements to ensure HEI will be able to face the challenges derived from adjusting to the demands of a politically and economically changing society. Amongst them how to analyse costs to ensure sustainability when putting in place and maintaining the infrastructure to support digital transformation, how to get near to the work market by tackling the topic of digital talent, and how to tackle access to suitable equipment (so-called digital poverty).

Examples of strategies content proposed in the Hackathons:

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- Structural changes should be based on the implementation of new educational models centred on students should be in place.
  - Special attention should be paid to the budget and resource allocation to implement and foster changes at strategic levels.

### **Area 5: Institutional change**

Covers several actions to be adopted by HEI assimilating the digital perspective as part of its way of functioning. Those include how to include alternative, innovative, digital open credentials; strategies to use digital technologies to support the internationalisation of the curriculum, and how to set practices to improve institutions' Social responsibility or service mission in a digital world.

Examples of strategies content proposed in the Hackathons:

- The use, validity, and implementation of digital credentials are still a general concern. The solution could include offering a percentage of credits granted through international certification schemes, such as Europass.
- Establish a support hub for members of the academic community to exchange good practices in digital learning based on a holistic framework that combines didactic, technological, and cultural aspects to enable better ways for the internationalisation of the curriculum.
- Ensure the professors' participation in all stages of the Social Responsibility program implementation.

Furthermore, an overview of each of the 7 dimensions (i.e. the Strategy matrix columns) is presented:

#### **3.1.1.1 Context of organisation**

The context of an institution refers to the set of circumstances, conditions, and factors that surround and influence the operations, culture, and decision-making processes of an organisation. The context includes both internal factors, such as leadership, culture, resources, and organisational structure, and external factors, such as market conditions, competition,

regulatory environment, and stakeholder needs and expectations (learners, HEI staff, labour market, others).

In the case of educational institutions, the context can have a significant impact on the success of digital transformation initiatives, as it shapes the conditions that support or hinder the adoption of new technologies and processes. Understanding the context of the institution is important for effectively planning and executing a digital transformation effort that aligns with the institution's mission and goals.

By understanding the context of the organisation, institutional leaders, and stakeholders can better plan and execute a successful digital transformation, which can improve teaching and learning outcomes and support the overall mission of the educational institution.

### **3.1.1.2 Leadership**

Leadership and commitment play a critical role in digital transformation, as leaders set the direction, priorities, and tone for the entire organisation. A leader's role in digital transformation includes the following responsibilities: setting the vision (to be able to communicate a clear and compelling vision for the digital transformation; articulating the benefits and opportunities that the organisation aims to achieve); driving change (to drive change throughout the organisation, breaking down silos, overcoming resistance to change, and encouraging collaboration across departments and functions); building a digital culture (culture that values innovation, experimentation, and continuous improvement); developing digital talent (to attract, develop, and retain digital talent, building a workforce that is equipped to succeed in a rapidly changing digital environment); allocating resources (to assign resources to support digital initiatives, including technology, people, and budget) and managing risks (to manage the risks associated with digital transformation, balancing the need for innovation with the need to maintain business stability and continuity).

Leadership also plays a key role in ensuring that digital transformation is addressed on the policy level – during the development and communication of relevant policies.

### **3.1.1.3 Planning**

Planning for digital transformation involves a systematic approach to the design, implementation, and management of digital initiatives to achieve the desired outcomes. When planning a set of aspects should be considered like the stakeholders involved and their needs, which are the institutional goals about the stakeholders' needs and what areas require change, in addition to which will be the services or products relevant to the identified goals, and the availability of resources to carry out the required changes.

An important aspect of planning and decision-making in an institution is risk management. By considering risks as part of the planning process, institutions can ensure that they are making informed decisions that take into account the potential impact of risks on their operations and objectives with developing strategies to minimize the potential impact of these risks on the organisation's objectives. This can help organisations to make more effective use of their resources and to better manage the potential impact of risks on their operations and objectives.

### **3.1.1.4 Support**

While planning, the institution needs to have a clear overview of necessary support in terms of available resources (human resources, facilities, and infrastructure as the environment of the educational process, monitoring and measuring resources, organisational knowledge), the competence of the institution, awareness, and communication (purposes, arrangements, documented information, control of documentation).

### **3.1.1.5 Doing/Operation**

Operation in digital transformation refers to the ongoing actions, processes and activities that are necessary to deliver and support digital services and solutions. In the context of educational institutions, operations in digital transformation may include technology management (ensuring that technology infrastructure, platforms, and systems are configured, maintained, and updated), service delivery (delivering digital services to students and other stakeholders, including the use of digital tools and platforms to support teaching, learning, assessment, and research), service support (providing support and assistance to students and other stakeholders who are using digital services, including help with accessing and using technology and digital tools), data management (collecting, storing, and analysing data to support the delivery of digital services and to inform decision-making and continuous improvement), security management (ensuring that digital services and data are protected from threats such as cyber-attacks, data breaches, and unauthorized access).

### **3.1.1.6 Performance evaluation**

The evaluation process typically involves collecting and analysing data on key performance indicators, such as student satisfaction, learning outcomes, and resource utilisation. The results of the evaluation are then used to identify areas for improvement and make recommendations for optimising the design, delivery, and management of education services.

The added value of incorporating performance evaluation into a digital transformation framework is that evaluation provides a basis for continuous improvement and helps educational organisations to optimise their digital initiatives and achieve better outcomes for students. By regularly assessing and improving the performance of their digital services, educational organisations can ensure that they are using technology most effectively and efficiently to support student learning.

Additionally, incorporating performance evaluation into a digital transformation framework can help educational organisations to comply with relevant standards and regulations, demonstrate their commitment to quality and accountability, and enhance their reputation with stakeholders.

The framework also acknowledges the importance of the scope (what needs to be monitored and measured), the monitoring methods, the acceptance criteria, and the timeline. It also reflects monitoring satisfaction and handling complaints and appeals.

### 3.1.1.7 Improvement

Improvement implies a systematic assessment of the effectiveness and efficiency of education services and processes in meeting the needs and expectations of all stakeholders, including students, teachers, staff, and parents in the case of schools. The institution shall continually improve the suitability, adequacy, and effectiveness of digital processes, taking into account relevant research and best practices. It shall consider the results of analysis and evaluation, and the outputs review, to determine if some needs or opportunities shall be addressed as part of continual improvement.

### 3.1.2 The Strategy model template

The second tool of the proposed StrategyHack Framework is the Strategy model template, a second matrix that will serve as the template for creating digital strategies for any of the areas of change using the information from the Strategy matrix. Please see its contents in the second tab of the [StrategyHack framework document](#).

The Strategy model template rows are related to all areas of digital transformation and subareas, as defined in StrategyHack Outputs 1 and 2. While column B contains the Call to action with tasks to be performed by the institutions regarding the selected area or areas of change and the rest of the columns (C-J) include the possible checkpoints to reflect on when creating strategies for any of the 7 ISO 21001-based dimensions of the Strategy matrix.

The possible controls or checkpoints (contents of columns C-J), the institution has to reflect<sup>5</sup> on when defining strategies are presented in the following figure and include:

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<sup>5</sup> In the context of ISO (International Organization for Standardization) standards, input and output refer to the information and resources that are used and produced in the implementation of a process or system.

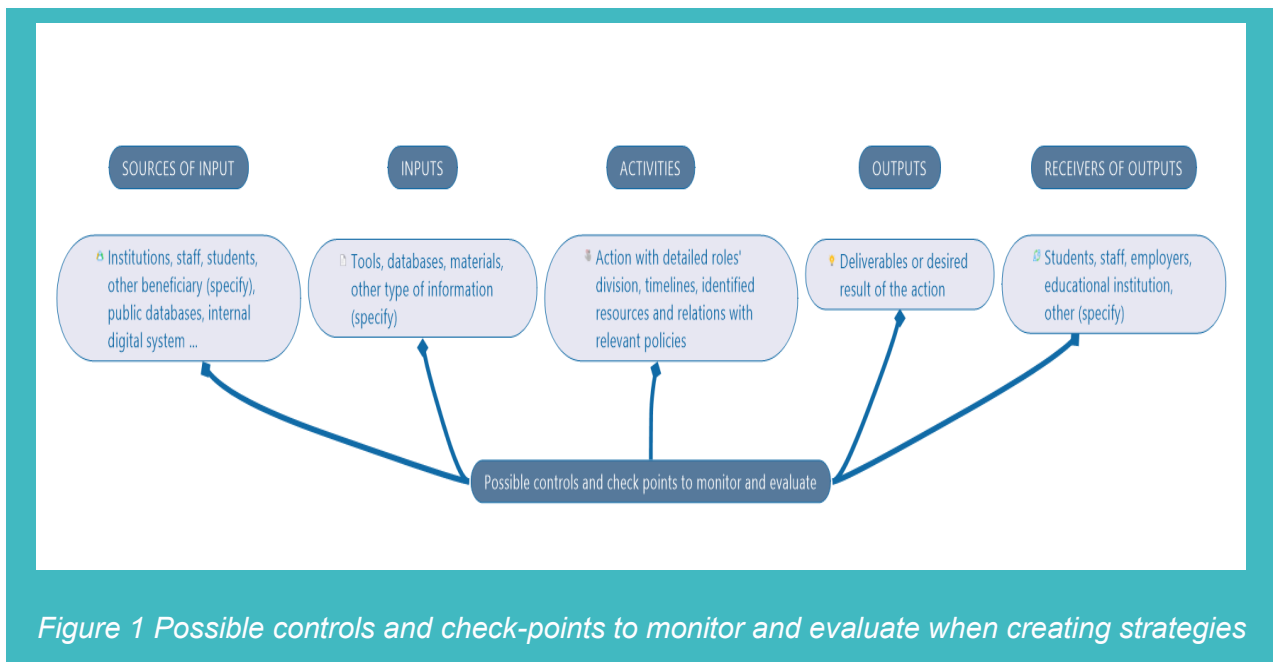


Figure 1 Possible controls and check-points to monitor and evaluate when creating strategies

#### Legend:

- Sources of input (for example institutions, staff, leadership, internal digital system ...).
- Inputs - input refers to the information, resources and materials that are used in a process or system to produce the desired output. Input may include beneficiary requirements, policies, procedures, and data.
- Activities – not only set of actions, but also taking into account responsibility and role division, resources needed, timeline, and relationship with policies.
- Outputs - output refers to the results or products that are produced by a process or system, using the inputs. Output may include products or services, beneficiary satisfaction, and performance data.
- Receivers of outputs (for example learners, institution, staff, leadership, labour market ...).

### 3.1.3 How to use the Strategy framework

When defining strategies for digital transformations at educational organisations, it is recommended to make a copy of the StrategyHack framework document and proceed as follows:

- Familiarise yourself with the details of the Strategy Matrix and Strategy Framework.
- Determine the institutional context.
- Review which strategies are already in place.
- Select which area of change needs to be addressed.
- Select which stage and elements (columns) from the Strategy matrix apply to the institution.
- Complete the Strategy Model template using elements shown in Strategy Matrix.

## 3.2 Annex 2 – Organisational Contexts

### 3.2.1 POLITO

The Polytechnic of Turin is the first engineering school in Italy, founded on the wave of renewal in technical and scientific culture that saw the birth of Europe's most prestigious polytechnics in the mid-19th century. Founded in 1859 as the School of Application for Engineers, it became the Royal Polytechnic of Turin in 1906. For more than 160 years, the Politecnico di Torino has with rigour, integrity and according to high-quality standards-trained professionals in the fields of engineering, architecture, design and land use planning.

The Nexa Center for Internet & Society, in particular, is born from the activities of an initially informal interdisciplinary group – with expertise in technology, law and economics - that grew up in Torino in 2003 and was officially founded as a research centre inside the DAUIN department at the Polytechnic of Turin in November 2006 as an independent research centre, focusing on quantitative and interdisciplinary analysis of the force of the Internet and its impact on society, and cooperating with international partners for the development of joint interdisciplinary research projects and initiatives.

Based on such experiences, the Nexa Center wishes to become a point of reference for Internet research in Europe (and beyond), interacting with the European Commission, regulators, local and national governments, as well as with business and other institutions – careful at preserving its academic and intellectual independence and with special attention to the policy implications of its activities.

### 3.2.2 MLA

The Media & Learning Association (MLA) or to give it its full name the MEDEA: MEDIA & LEARNING ivzw is an international, not-for-profit association set up in 2012 under Belgian law to promote and stimulate the use of media as a way to enhance innovation and creativity in teaching and learning across all levels of education in Europe. Members include national and regional agencies charged with the promotion of innovation in teaching and learning as well as universities, ministries of education and schools' networks.

At present the most important activities of the association are:

- The organisation of the annual Media & Learning Conference which is run each year in collaboration with partners who have included in the past the Flemish Ministry of Education and Training and KU Leuven. These conferences attract on average 300 participants mostly from Europe.
- The organisation of online events including the Online Media & Learning Conference series focused largely on Higher Education, the Media Literacy webinar series and Media & Learning Workshops aimed at MLA members and others in specific areas, e.g. meeting the requirements of the new EU Accessibility guidelines, sharing best practice during the pandemic, working with 360-degree video, etc.



- The organisation of the annual MEDEA Awards, which recognises excellence in the use of media to support learning.

The main governing body of the Media & Learning Association is the Management Board which meets every month and which is responsible for all major decisions including the approval of new members. This board is elected on an annual basis at the Association's AGM. Day-to-day management of the association is the responsibility of Sally Reynolds, the Association's Chief Operating Officer.

The work of the association is organised through Special Interest Groups (SIGs). These are standing committees that include different members of the association and which both direct and provide input and support the work of the association in different areas.

The association's main communication channel is the Media and Learning News site which highlights general news and information about the use of media and film in education and training across all sectors. It also carries news about the various events and initiatives organised by the Media & Learning Association. A monthly Media and Learning Newsletter is published which includes a digest of current items from the news site, this newsletter is sent out to more than 10,000 readers.

The association provides a European project facilitation and knowledge-sharing service for its members including network facilitation. This includes participation in European-supported projects and SIGs on topics related to the innovative use of media in teaching and learning.

The association is represented in several European-wide initiatives and expert communities such as EDMO, EMIL – the Media and Information Literacy Taskforce of EPRA, the European Commission expert group to tackle disinformation and promote digital literacy through education and training and the Media Literacy Experts Group of the European Commission.

### **3.2.3 Coventry**

Coventry University is a public research university based in Coventry, England. It is a modern, fast-growing university with a strong emphasis on diversity, internationalisation, technological innovation, and strong links with industry, heading a global network of hubs and transnational education partnerships.

Through Coventry's worldwide network of collaborators in academia and industry, the 50,000 learners studying its degrees in different countries enjoy access to global opportunities which ensure their employment prospects are enhanced. The university is recognised internationally for its expertise in health, peacebuilding and agroecology, and the world-leading calibre of its engineering and design graduates – particularly in the automotive field.

### **3.2.4 UNIR**

The Mission of the International University of La Rioja consists of the integral training of the student, to train new graduates with the knowledge, skills and competences demanded by today's society.

To fulfil this mission, the quality policy is defined, through which the Management undertakes to develop the corresponding actions to comply with the needs and expectations of stakeholders: students, teaching and research staff, management and administration staff, public administrations and society in general, ensuring quality training that seeks continuous improvement and excellence.

This policy includes a special sensitivity to attend to those who, for various reasons, cannot access face-to-face centres or those who, if they can, prefer to opt for more open and innovative solutions that emerging technologies open on the network.

It also aims to promote ethical behaviour, the fight against academic fraud, the defence of academic freedom, and the prevention of intolerance and discrimination of any kind of student or their staff.

The deployment of the quality policy is evidenced by the implementation of an Internal Quality Assurance System (SAIC), which is applied in each Center and Department responsible for the degrees.

The key principles that guide UNIR policy are:

- Make possible access to university studies to anyone who with the appropriate previous training wants to do so, and eliminate the barriers of distance, schedules, place, culture and social, that prevent it.
- Implement teaching and research resources through the development of emerging technologies, so that it is possible to offer high-level teaching, especially attentive to cultural, technical and social changes.

Following all of the above, the International University of La Rioja wants to be recognized as the best online university in Spanish.

UNIR Values:

- Commitment to student success.
- Personalization of teaching tasks with the accompaniment of the student throughout their learning process.
- Constant attention to innovation in teaching and learning methodology.
- Ability to respond to the expectations of stakeholders (students, teaching and research staff, management and administration staff, public administrations and society in general).
- Offer of degrees and programs that meet the needs of society.
- Careful attention to the quality of teaching and resources.
- Approach open to the international dimensions of university education.
- A firm commitment to transparency to all stakeholders (students, teachers, workers, employers, authorities and society in general).

### **3.2.5 EURASHE**

EURASHE is the European Association of Institutions in Higher Education that offers professionally-orientated programmes and is engaged in applied and profession-related research within the Bologna cycles. Currently, EURASHE has 55 members and represents 547 education institutions in 31 countries within and outside the European Higher Education Area (EHEA) that are affiliated with EURASHE.

Members of EURASHE are national associations of Higher Education Institutions (HEIs) and individual institutions, such as universities, (university) colleges and universities of applied sciences (UAS), as well as other professional associations and stakeholder organisations active in the field of higher education.

The mission of EURASHE is to promote the interests of Professional Higher Education (PHE) in the EHEA. EURASHE aims to: position PHE in the Higher Education (HE) spectrum and by this contribute to the recognition of its qualifications throughout the EHEA; provide a platform for institutions for an exchange of good practices and capacity building on the priorities in HE reform, including internships and work-based learning; enhance cooperation of PHE and members of EURASHE with other stakeholders in HE and in particular with the world of work; diversify the profile of membership to span all relevant levels of the overarching qualifications framework of the EHEA, from higher Vocational Education to UAS; guarantee the quality of education provided by EURASHE members and ensure that this contributes to the employability of their graduates at levels 5 through 8 of the European Qualifications Framework.

EURASHE has set a trio of Communities of Practice (CoP) which consist of informal peer learning for exchanging good practices and contributing to capacity-building. Research, Quality Assurance and Skills are the three topics of the current EURASHE CoP that gather staff in HEIs as well as professionals from various stakeholders, from interested to expert level. It intends to be a learning and exchanging space for putting forward recommendations and contributing to those areas from a PHE perspective.

### **About the StrategyHack Project**

A resilient digital transformation in higher education requires strengthening the connecting tissue between the high-level management strategy level and the digital-pedagogy level, which is provided by mid-level institutional leaders.

The aim of the StrategyHack project is to support these mid-level institutional leaders by providing tools that will contribute to accelerate digital transformation of staff, study programmes and institutional processes within higher education. The project builds on the gains made to perceptions of digital learning during the COVID-19 crisis and uses these to promote more sustainable models of digital education. It thereby encourages and nourishes high quality self-directed personalised learning environments with a strong digital component.



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