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Survey |
The digital future of higher education –
What does it look like and how can it be shaped?

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1 Management Summary

The digital future of higher education involves many different facets. The results of the survey provide important insights into how it will look and how it can be shaped. The following aspects emerged as the central insights.

The future of higher education is digital

It is indisputable that digitalisation processes are shaping the future of higher education. 'Digitalisation' has already left its mark and will continue to have a major and highly dynamic impact on the higher education context. Institutions of higher education therefore have a strong interest in shaping the digital transformation. The transition will also bring structural and cultural changes and offers many opportunities and options for higher education institutions as organisations.

Expandability and the great potential of digital capabilities

Digital capabilities are not used as extensively in core higher education activities as might be expected in spite of the fact that the potential utility of such applications is rated as very high for all areas of activity. The gap between use and potential points to an urgent need for action. One central challenge is therefore to identify the potential of digital solutions in order to enable the higher education institution to react sufficiently quickly to digital changes.

'Digitalisation' as a strategic means to an end

'Digitalisation' should not be an end in itself, but rather a means to an end. There is no need for a digitalisation strategy, but rather an answer to this question: How can 'digitalisation' help us achieve the strategic objectives of our higher education institution? The key here is to anchor digital development in the strategy and use it beneficially in that context.

The digitalisation process as an instrument and 'vehicle'

Higher education institutions that grapple with the questions of the digital transformation necessarily reflect on their existing and future processes and structures. In doing so, they enable themselves to use 'digitalisation' as an instrument of organisational and structural progress and a means to enhance their image. 'Digitalisation' thus becomes a 'vehicle' with which to innovate the higher education institution as an organisation as well as its processes. The actual added values of 'digitalisation' is therefore reflected in the structures and the (digitally) elaborated 'end-to-end processes' of an institution.

Shaping higher education (digitalisation) processes with greater agility

The rapid emergence and transience of digital developments require higher education institutions to be highly agile to enable flexible and dynamic handling of projects and simplify decision-making processes. A corresponding project methodology enables digitalisation efforts to be implemented more quickly and efficiently. The institution enhances its ability to act and can pursue (digital) developments in a more targeted manner.

Enabling digitalisation processes together

Targeted change management that enables adequate involvement of the 'affected' people minimises any resistance and increases acceptance of digitalisation efforts. At the same time, it is important to focus recruiting processes in accordance with digitalisation requirements. Furthermore, training existing staff for digital work is a key element in designing digitalisation processes.

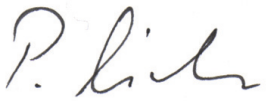
2 Introduction

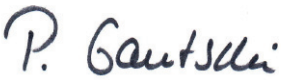
Digitalisation, digital transformation, University 4.0 – these buzzwords and trends are the object of much discussion in the world of higher education. But what do these terms actually mean? What does 'digitalisation' mean for the development of a higher education institution? What opportunities and risks are associated with this 'megatrend'? What challenges do higher education institutions face in shaping their digital futures as they adopt digital innovations and integrate them into their existing processes?

The concept of digitalisation implies change processes. Higher education institutions act and react differently to the requirements of the digital transformation. They utilise the opportunities of 'digitalisation' in different areas, which in turn leads to developments and changes in existing structures. The goal of this year's Berinfor survey was to assess the extent to which institutions of higher education have already initiated the digital transformation process and make use of digital capabilities, and what potential the survey respondents see in the digitalisation of higher education institutions for the future. The survey also asked and discussed what challenges were expected and what approaches were regarded as suitable.

The questions formed the basis for the online survey, which was completed by 455 executives and employees from Swiss and German institutions of higher education between March and May 2017. We would like to thank the participants for completing the short questionnaire and providing so much insight with their open answers and comments. We would also like to thank the participants in the round table that took place in June 2017. You availed us of your valuable time and illuminated the diversity and complexity of the topic through a very engaging discussion. The results of the survey and the round table make a major contribution to identifying the potential approaches to the digital future of higher education and drawing salient conclusions.

The present report is divided into four chapters. Following the Management Summary and the Introduction, the third chapter presents the quantitative and qualitative results of the online survey and the round table and examines other analysis results. The fourth chapter provides a summation of the survey and the expert discussion at the round table in order to facilitate an in-depth discussion and an initial presentation of conclusions.





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3 Results

'The digital future of higher education – What does it look like and how can it be shaped?'. In response to two seemingly simple questions, we received many interesting and multifaceted answers in this year's survey. It became clear how complex and far-reaching the topic is, and how widely it is discussed in its many facets. The diversity of (more in-depth) questions that emerged from the online survey and the round table demonstrate both the magnitude and the challenges of 'digitalisation' that confront higher education institutions.

Profile of those surveyed

The participants in the online survey provided information about their type of higher education institution, 'country of origin' (Switzerland or Germany) and language region (German- or French-speaking Switzerland) as well as their professional position and membership in a centralised or decentralised organisational unit. The data can accordingly be looked at in a differentiated manner.

455 people completed the questionnaire. Traditional universities accounted for 35% of participants, universities of applied sciences for 53% and universities of teacher education for 9%. 3% of respondents were from other, non-university organisations. 59% of participants work for Swiss institutions of higher education, 41% for German institutions of higher education. The response from Germany was high for the first time. Just under three-quarters of respondents from Germany work for universities of applied sciences (74%), 23% for traditional universities and 3% for universities of teacher education. In Switzerland, 43% of respondents are from universities of applied sciences, 42% from traditional universities and 12% from universities of teacher education.

Figure 1: 'Country of origin' of online survey participants

Participants	Switzerland	Germany	Total
Traditional universities	42%	23%	35%
Universities of applied sciences	43%	74%*	53%
Universities of teacher education	12%	3%	9%
Other organisations	3%	0%	3%

**incl. music and art schools as well as religious higher education institutions*

Among respondents from Switzerland, 24% of participants come from French-speaking Switzerland and 76% from German-speaking Switzerland. Of all respondents, 35% work in a decentralised unit and 65% in a centralised unit of a higher education institution. 93% of respondents from Germany indicated that they work in a centralised unit of a higher education institution.

The hierarchical and functional classification of professional positions is divided into four groups: 44% of respondents are members of the higher education council, 21% of respondents hold an academic leadership position (department head, dean, institute director, professor), 27% belong to the category 'staff director, infrastructure units, service units, managing director of faculty, institute, department' and 8% stated that they did not occupy a leadership position.

Evaluation of the results – methodology

The following summarises the most important (quantitative) results and in-depth analyses whose results demonstrate relevant significance[1]. It also examines the open questions as well as the discussions and insights from the round table. The various data sources were interpreted in an initial step and serve as a basis for a summation of key insights which, in turn, provide an outlook of the digital future of higher education and the ways of shaping it.

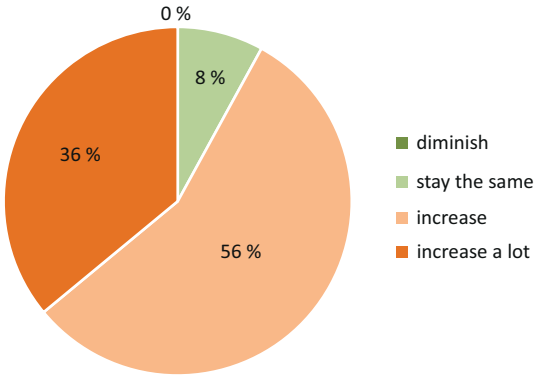
3.1 The transformative effect of 'digitalisation' on higher education

The term 'digitalisation' implies a technical and a cultural shift that is reflected in all areas of a higher education institution. 'Digitalisation' as a development and transformation process both promotes and defines new ways and opportunities to shape institutions of higher education. Avoiding the digital transformation appears all but impossible.

The introduction to the online survey posed the question of the extent to which digitalisation processes will impact higher education over the next five years compared to the development to date. 92% of respondents expect the transformative effects of 'digitalisation' to increase 'significantly' (56%) to 'very significantly' (36%), thus indicating a clear trend, notwithstanding the 8% of respondents who expect the development to remain the same. No one expects the development to slacken.

1 Where it is possible to extrapolate the results calculated in the sample to the underlying totality (population), the result is deemed 'significant'. This means that the reported findings occurred by chance alone with a probability of no higher than α%. With a significance level of $\alpha = 5\%$, which is typical for social sciences, the reported findings therefore have a probability of error of 5% or lower.

Figure 2: In your opinion, how will digitalisation affect your higher education institution over the next 5 years? The impact of digitalisation on the higher education institution compared to the previous development will ...



Thus it appears indisputable that 'digitalisation' is already having an impact on higher education and that there is a high probability that the development will continue to pick up steam in the years to come. It will continually set development processes in motion, which in turn make their presence felt in changed structures and processes as well as in the organisation-specific culture of the higher education institution. In this context, one particular challenge lies in the rapidity of developments, as well as the sheer volume of digital developments and the need to keep pace with the headlong rush of changes. Establishing a reflection process is therefore undoubtedly a way to approach the topic of 'digitalisation' in all its breadth and depth.

3.2 Current use and future potential of digital opportunities in the higher education context

The following results provide a sketch of the status quo of the current use of digital capabilities in the three central areas of activity of higher education institutions:

- Instruction and studies
- Research
- Administration and higher education management

Each of the defined areas of activity subsume various fields that together characterise the respective area.

The respondents were also asked to assess the development potential of 'digitalisation' for the individual areas. This made it possible to compare current use with the development potential and determine the 'gaps' between them. At the same time, the evaluation of development potential offered indications as to where the need for digital development might be greatest.

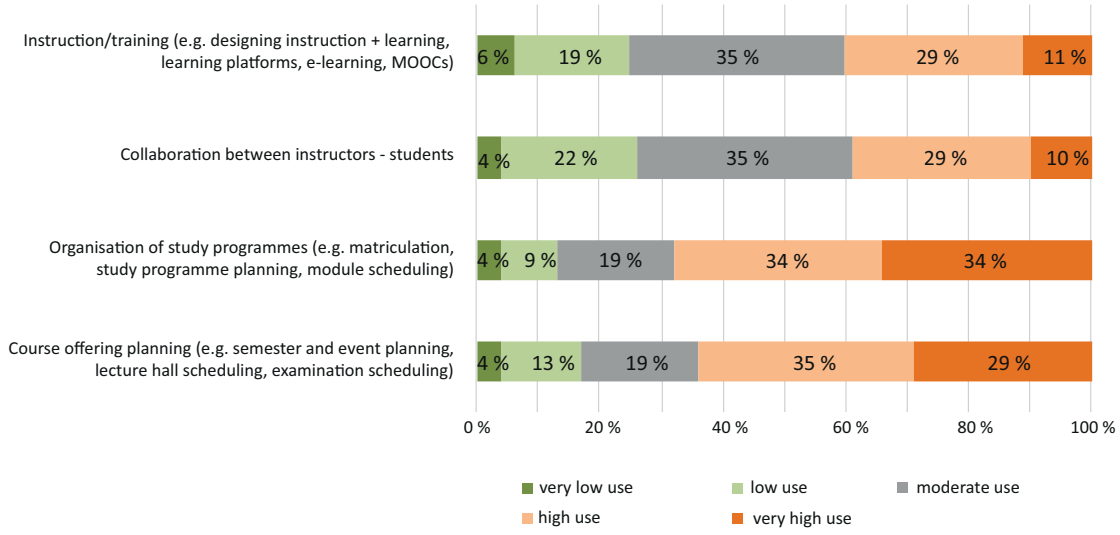
3.2.1 Current use and development potential of digital capabilities in 'instruction and studies'

In many cases, the 'digitalisation' of higher education is equated with digital developments in the area of instruction. And indeed, higher education instruction and learning are the object of much digital development and a focus of funding initiatives. Subtopics like e-learning or MOOCs are widely discussed and in some case strategically implemented by higher education institutions. Yet there are many more areas in the field of 'instruction and studies' that are experiencing digital developments.

Current use of digital capabilities in 'instruction and studies'

The results of the online survey show that the establishment and thus the use of digital capabilities are found primarily in the administrative area for the 'organisation of study programmes' and 'course offering planning'. Two-thirds of respondents reported 'high' or 'very high' levels of use of digital capabilities in the aforementioned two areas. On the other hand, well over half of respondents indicated 'moderate' or 'low' levels of use of digital capabilities for the development of instructional content and learning purposes in 'instruction/training' and the 'collaboration between instructors and students'.

Figure 3: To what extent does your higher education institution use current digital capabilities in the field of instruction and studies?

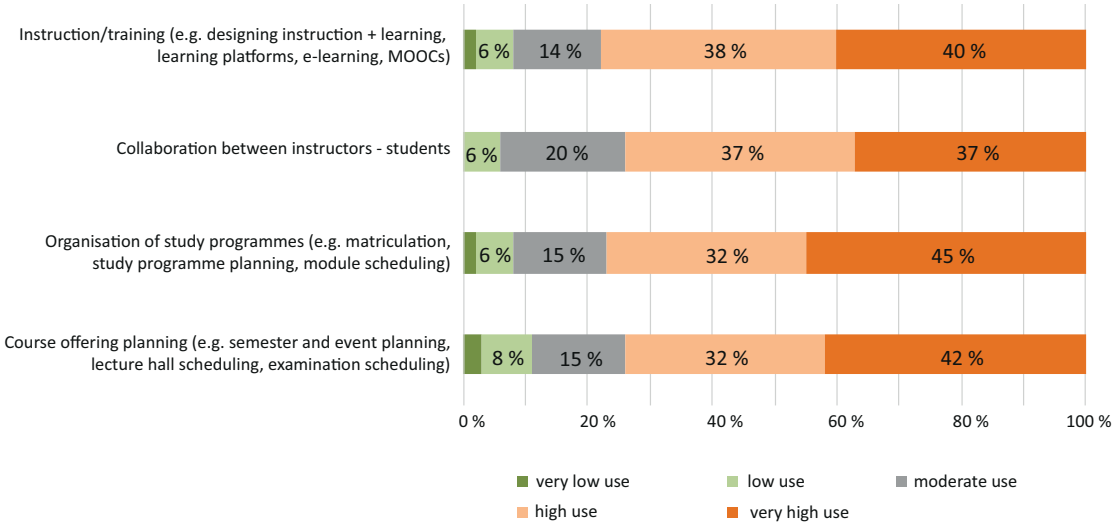


The 'organisation of study programmes' and 'course offering planning' therefore benefit significantly from digital developments and processes seem to have been adapted accordingly in many places. One interesting finding is that 80% of respondents from traditional universities indicated 'very high' or 'high' levels of use of digital capabilities for all areas of the 'instruction and studies' field, whereas respondents from the two other types of universities indicated somewhat lower levels of use.

Development potential of digital capabilities in 'instruction and studies'

In spite of the different levels of use of digital capabilities in the field of 'instruction and studies' between the four different areas, respondents rated all four areas as having significant development potential. Respondents indicated a 'very high potential' for 'organisation of study programmes' and 'course offering planning' somewhat more frequently than for the fields 'instruction/training' and 'collaboration', but the differences were marginal and insignificant, also between the different types of university. Overall, roughly three-quarters of those surveyed indicated a 'high' or 'very high' development potential in all areas.

Figure 4: How would you rate the development potential of digitalisation for your higher education institution in the field of instruction and studies for the next 5 years?



In-depth results and interpretations

The open questions from the online survey and the round table discussion underscore the interesting dynamic that characterises the field of 'instruction/training' in particular. Digital capabilities in the field of 'instruction/training' are vast, yet usage is comparably low.

Various assessments by respondents suggested that both instructors and students were not adequately aware of the benefits of digital formats in many places and that resistance to them was frequently great. In particular, respondents pointed to the challenge of communicating with instructors in order to counter reservations against digital implementation of instructional content, leading to the impression that a transition to digitalised instruction would be difficult to achieve.

Potential users also find it difficult to assess the impact of digital capabilities in instruction in terms of workload, quality and sustainability aspects. It was also noted that technical factors were the primary focus in some cases rather than instructional and learning objectives, which impeded the acceptance and use of digital capabilities in instruction all the more.

Another challenge noted by respondents was the existing framework. In many cases, there is no suitable infrastructure in place for digitally aided instruction or a lack of qualified staff to press ahead with developments in the field. In response to a governance question, participants also indicated that it is not always clear who is responsible for initiating, controlling and strategically implementing digital development processes. Another point of discussion was whether appropriate incentive systems or the recognition of digital projects in instruction contribute to promoting the 'digitalisation' of instruction in terms of methodology, structure and the conceptual basis.

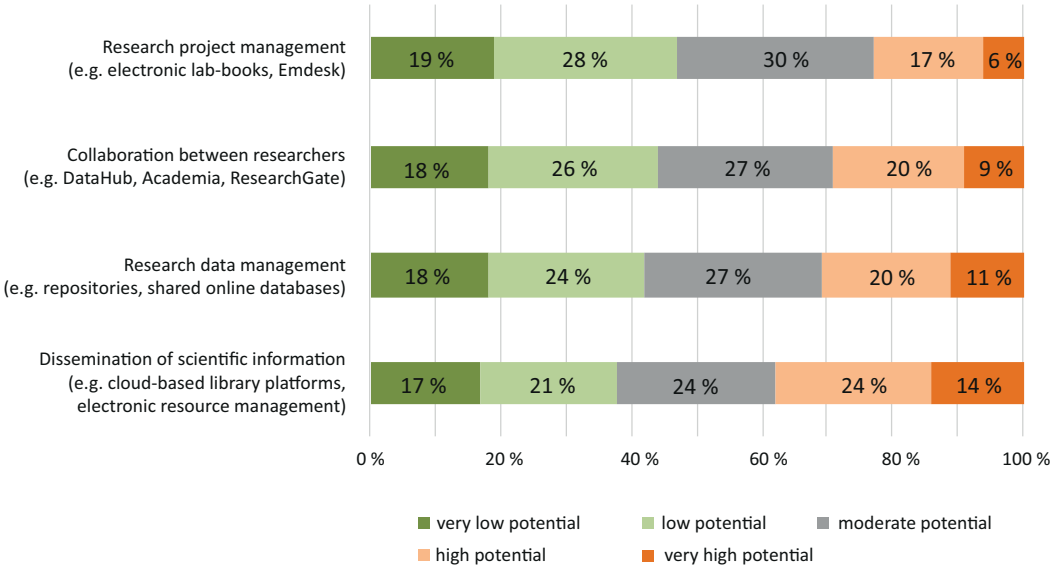
3.2.2 Current use and development potential of digital capabilities in 'research'

Digitalisation processes would appear to be useful and self-evident in the context of research. For example, digital solutions can facilitate collaboration between researchers at different locations or foster new developments in science, such as the topic of 'Big Data'.

Current use of digital capabilities in 'research'

The use of digital capabilities seems to be considerably lower in the field of 'research' than in the aforementioned area of 'instruction and studies'. For all four areas, 'moderate' to 'low' levels of use were reported. Participants indicated 'high' or 'very high' levels of use only for the field of 'dissemination of scientific information'. Digital solutions for 'research project management' seem not to have been widely applied to date in spite of rising requirements in terms of project handling. Even 'research data management', which is a hotly debated topic in many places, appears not to enjoy much popularity in higher education institutions at the present time.

Figure 5: To what extent does your higher education institution use current digital capabilities in the field of research?

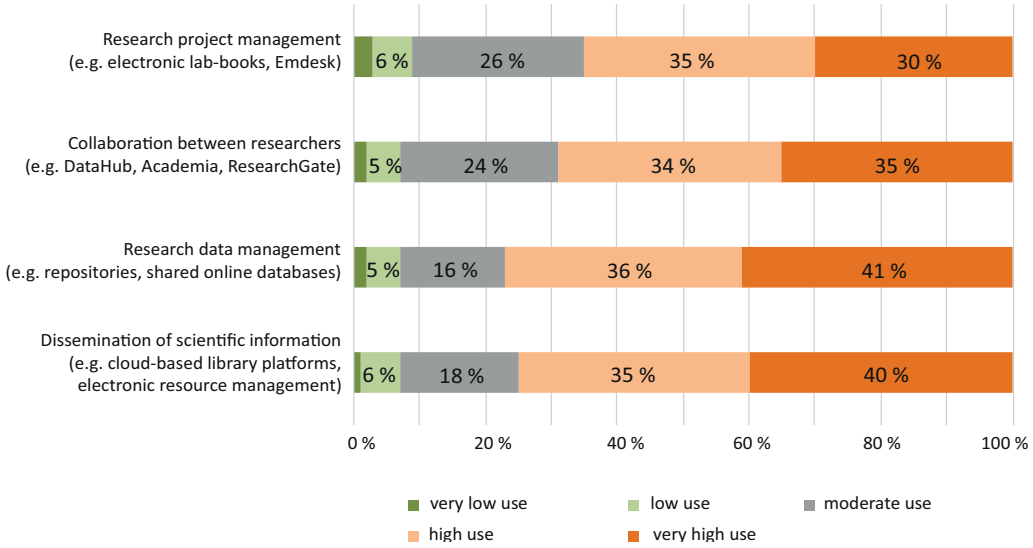


A differentiated look at the data showed that respondents from traditional universities more frequently reported use of digital capabilities in the field of 'research' than the other groups due to traditional universities' greater focus on research activities. Professors also indicated 'high' to 'very high' levels of use. Members of higher education administrations, in contrast, tended to report 'moderate' to 'low' levels of use of digital capabilities in the field of 'research'.

Development potential of digital capabilities in ‘research’

The results of the online survey regarding the development potential of the four dimensions of ‘research’ are therefore all the more exciting. Interestingly, a ‘high’ to ‘very high’ development potential was claimed for all four aspects, and in particular for the fields of ‘research data management’ and ‘dissemination of scientific information’. Concerning the field of ‘research project management’, respondents also rated the potential somewhat lower.

Figure 6: How would you rate the development potential of digitalisation for your higher education institution in the field of research for the next 5 years?



Differentiation by university type also showed that respondents from traditional universities more frequently selected a ‘high’ or ‘very high’ development potential for all four aspects than did respondents from universities of applied sciences and universities of teacher education.

In-depth results and interpretations

The topic of 'research data management' seems to be a very attentively observed area of activity and was ascribed a very high level of potential in the online survey. Noteworthy in this regard is the fact that subjects such as data security, data privacy and so on were not mentioned one single time in the open response sections of the online survey.

In sum, it can be stated that the discrepancy between the use and the estimated development potential in the field of 'research' is notable, but not entirely unexpected. As in the 'instruction and studies' field, it seems reasonable to assume that the culture of the research field tends to generate some degree of scepticism regarding digitalisation processes among researchers. Digital capabilities generate transparency, which is not always a desirable characteristic when it comes to scientific data and results. Sharing and making research results accessible to others is often a ticklish subject in the research context, associated with discussions of data rights and questions of privacy as mentioned above. This could be one explanation for why digitalisation processes are comparatively underdeveloped in the research context although digital capabilities are undeniably of great potential usefulness in facilitating international and cross-institutional research collaborations.

Developments in the field of 'dissemination of scientific information', in contrast, are currently developing apace. Libraries are in a time of transition and face the need to make major developmental strides. Digital capabilities are shaping the scientific library landscape more than ever before. The 'digitalisation' of books and journals has become a commonplace, if still challenging, development step. Digital solutions are developed and innovated accordingly. At the same time, Switzerland in particular is showing signs of structural rethinking in the field of libraries. The planning and implementation of national association structures could lead to the collective use of a joint digital infrastructure. The association context seems to make it easier to 'think big', optimally meet digital requirements and achieve comprehensive implementation.

Measured against the ultimate potential, 'research' is an important area of activity that can be advanced through the application of digital solutions in many areas. The (digital) requirements in the fields of 'research data management' and 'dissemination of scientific information' are high and appropriate solutions are needed in order to ensure compliance with (new) standards.

3.2.3 Current use and development potential of digital capabilities in the fields 'higher education management' and 'administration'

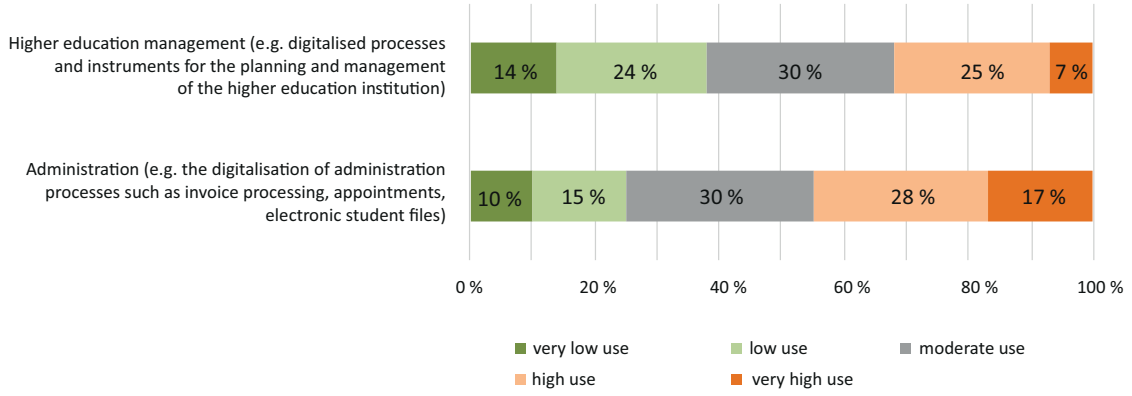
The survey also examined the use of digital capabilities in the fields of 'higher education management' and 'administration'. Management processes in higher education institutions can be supported by digital technologies and experience gains in terms of efficiency and professionalism. Many processes in 'administration' go through digitalisation processes in order to handle rising demands in the field of higher education administration.

Current use of digital capabilities in 'higher education management' and 'administration'

Concerning 'higher education management', slightly less than one-third of those surveyed reported 'high' or 'very high' levels of use of digital capabilities. It must therefore be presumed that digitally aided management processes (e.g. meeting and committee management, reporting, management cockpits, elections) have yet to become widely established in the higher education context.

For the field of 'administration', in contrast, 45% of respondents reported 'high' to 'very high' levels of use of digital capabilities. The results provide an indication that important developments have taken place in this field in recent years. Many administrative processes have been digitalised in the pursuit of efficiency gains. The objective is to optimise administrative processes, which can improve working efficiency through the use of digital solutions.

Figure 7: To what extent does your higher education institution use current digital capabilities in the fields of administration and higher education management?



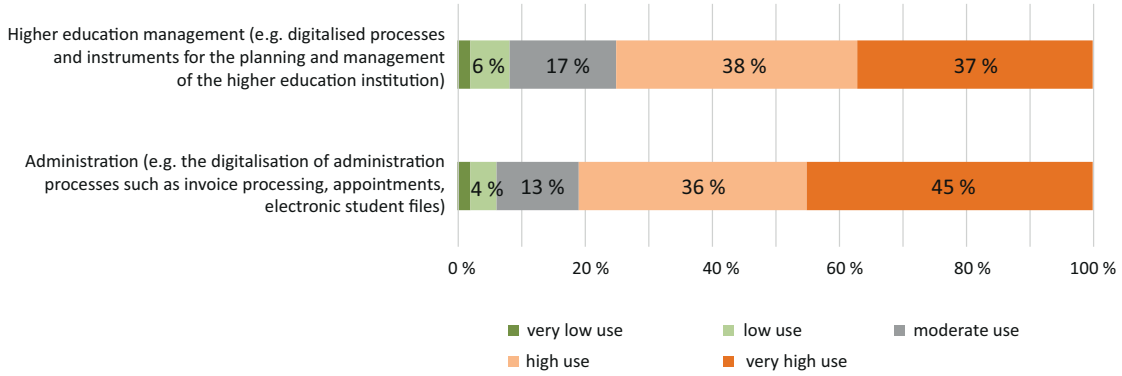
A differentiated view of the data revealed other interesting nuances. There were no differences between the different university types; the results were notably homogeneous. What was interesting is the distinction between the responses based on their membership in a centralised or decentralised unit of a higher education institution. 39% of those surveyed who belong to a centralised unit of a higher education institution indicated 'high' to 'very high' levels of use of digital capabilities in the administration. On the decentralised side, however, 56% of respondents said the same.

Other differences were found between the respondents depending on their positions and roles within the higher education institution. 25% of those surveyed who belong to the higher education administration indicated 'high' to 'very high' levels of use of digital capabilities. However, the combined 'high' and 'very high' figure was 45% for department heads and professors, 50% for staff directors and 55% for respondents without leadership positions.

Development potential of digital capabilities in 'higher education management' and 'administration'

Against the backdrop of the use of digital capabilities described above, it is scarcely surprising that 81% of respondents see 'high' to 'very high' development potential with regard to digitalisation in the field of 'administration'. 75% of respondents also indicated 'high' to 'very high' development potential for 'higher education management'. For both fields, however, the use and the development potential are quite far apart, suggesting that the need for action is significant.

Figure 8: How would you rate the development potential of digitalisation for your higher education institution in the fields of administration and higher education management for the next 5 years?



In the assessment of development potential, 86% of respondents at the higher education administration level saw 'high' to 'very high' development potential for 'administration' with regard to digitalisation. The other groups of respondents provided similar, if somewhat lower, figures (75% of department heads and professors, 83% of staff directors and 73% of respondents without a leadership position).

It also emerged that 84% of those surveyed from centralised units and 77% of respondents from decentralised units saw a 'high' to 'very high' development potential with regard to digital capabilities.

In-depth results and interpretations

Overall, participants found 'administration' to have the highest development potential of all the specified areas. At the same time, both the open response sections of the online survey and the round table discussion indicated that the situation in the 'administration' field is complex. Digitalisation endeavours are sophisticated development projects that require both well-considered process management ('thinking in end-to-end processes') and targeted and strategic planning of the desired development process for the organisation as a whole.

At the same time, such developments also bring changes that are not always equally suited to implementation in the existing structures, although digitalisation processes in general pursue the objective of enabling simplified procedures and optimised cost structures. Culture-based reservations and, above all, poor experiences with digitalisation processes can generate resistance and uncertainty. The tendency of some involved parties to think in more of a problem-focussed than solution-oriented way can also make the digital transformation more difficult. Moreover, beyond the inevitable question of funding, there is also a plethora of other issues such as recruiting and training personnel, technical issues relating to digital solutions or governance questions that pose the actual challenges in the change process. They become a central (additional) theatre of digitalisation efforts and generate a high degree of complexity.

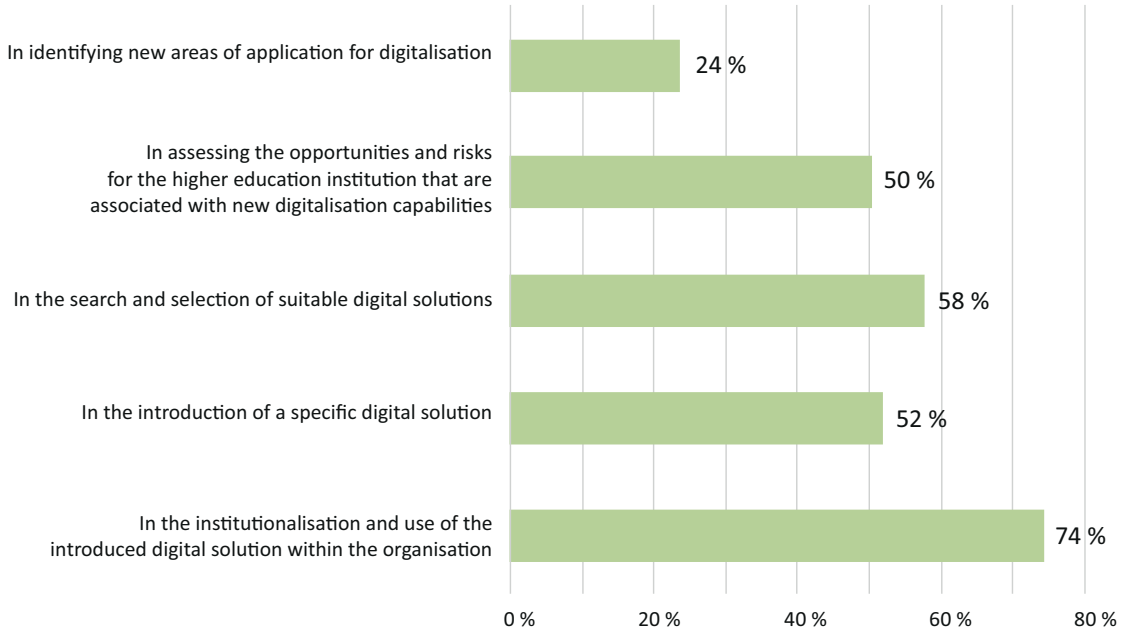
3.2.4 Other areas of higher education institutions in which digital capabilities play a role

In the online survey, a number of remarks highlighted the fact that there are also other areas of activity in institutions of higher education in which the use of digital solutions play an important role. The fields of 'higher education marketing', 'social media' and 'higher education communications' rated numerous mentions as areas strongly impacted by digital developments. They make intensive use of digital capabilities in order to convey the image of the higher education institution both inwardly and outwardly. At the same time, it has become easier to position the higher education institution nationally and internationally via digital channels.

3.3 Challenges of the digitalisation process

Participants in the online survey were asked which three of the total of five defined process steps they saw as posing the greatest challenge to their higher education institution with respect to 'digitalisation'. The answers represent a 'ranking' of the 'smallest' to 'largest' challenges in the digitalisation processes from the perspective of the respondents. Respondents rated identification of new fields of application for 'digitalisation' as the least challenging task. The greatest plainly lies in the organisational institutionalisation and use of the introduced digital solution. The three additional challenges were also rated as formidable in roughly equal measure.

Figure 9: What do you see as the three greatest challenges facing your higher education institution with regard to digitalisation?



The identification of new areas of application in the sense of 'trend-scouting' appeared to be the simplest process step for most respondents. Just 24% of those surveyed regarded it as one of the biggest challenges. It may be assumed that the identification process is amply addressed by the different target groups within the core areas of higher education, as well as in the fields of administration and higher education management, and possible in both centralised and decentralised scenarios. This is all the more clear in view of the fact that access to information regarding which digital developments are available 'on the market' has become rather simple and the providers themselves often tout their wares directly to the institutions. All stakeholders are able to identify digital capabilities, weigh their merits and discuss their suitability.

Assessing the opportunities and risks presented by new digitalisation capabilities was regarded as a challenge by 50% of all respondents. In various discussions, it emerged that this process step, in particular with large investments in digital solutions, is not always well considered and structured in a way that enables a decision on the basis of salient criteria.

The search and selection of digital solutions was regarded as challenge by 58% of respondents. Thus, the path to a concrete decision process seems to be a rather exacting process step, not least due to the fact that a digital solution may not be compatible with existing structures under certain circumstances, resulting in follow-on costs in addition to the original investment and limitations with regard to usefulness that are difficult to estimate going in. As briefly mentioned above, the round table discussion highlighted that the rapid cycling of digital developments and digital products represents a particular challenge. In some cases, the rapid sequence in which new digital solutions come to market is so fast that the time between the beginning of the search and the introduction of the solution is relatively very long by comparison, which can create the sensation of continuously being behind the ball in this process step. 'Becoming faster' is therefore the motto when it comes searching for and selecting a digital solution.

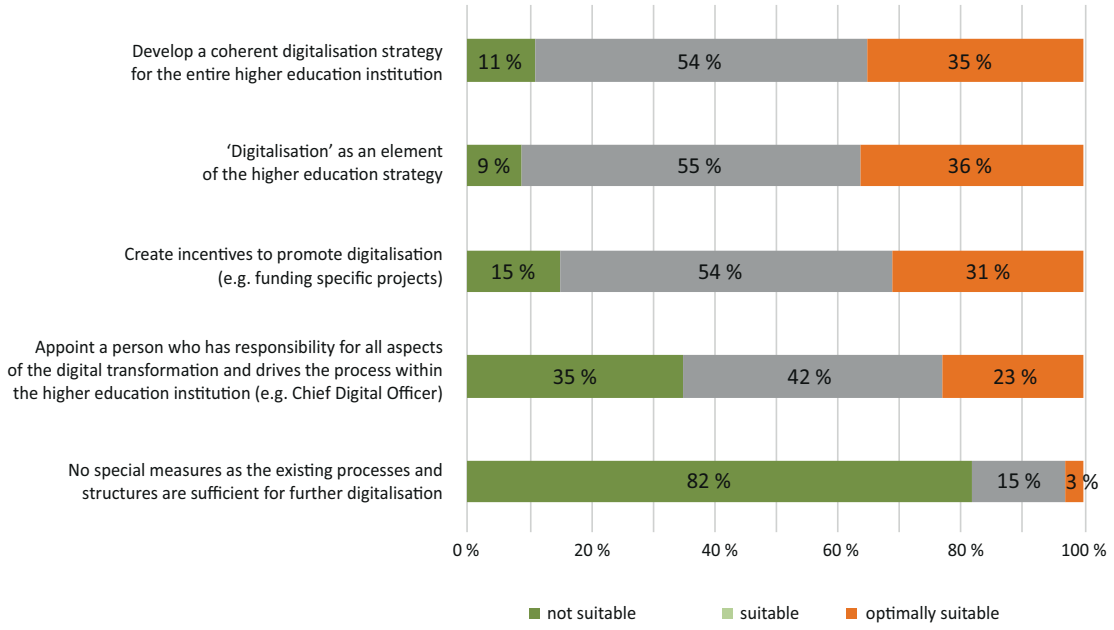
The introduction of the respective digital solution is regarded as somewhat less critical. Nevertheless, this process step has many stumbling blocks and ancillary issues in store that can complicate the launch in some cases. The primary obstacles are potential resistance on the part of users and the adaptation of existing structures.

For almost three-quarters of respondents (74%), the institutionalisation and use of the digital solution within the organisation is one of the biggest challenges. This is presumably due to the fact that all of the challenges from the other process steps coalesce and potentially have an impact in this process step. Moreover, it is in this phase that the digital solution has to manifest its added value, demonstrating that the process is enhanced by the digital solution and establishing itself in practice. This suggests that, beyond the purely technical introduction, digitalisation processes also have to address the transformative aspects to be successful.

3.4 Ways and means of shaping digitalisation processes

Respondents to the online survey were asked to assess various ways of conducting the 'digitalisation' of their respective higher education institutions. The great majority of those surveyed saw both the integration of the topic of 'digitalisation' in the higher education strategy (91%) and the developments of a coherent digitalisation strategy (89%) as 'suitable' to 'optimally suitable' ways of advancing the 'digitalisation' of their institutions of higher education. 85% of respondents also regarded the establishment of incentives to promote 'digitalisation' as 'suitable' to 'optimally suitable' ways of pursuing further 'digitalisation'.

Figure 10: In your view, how suitable are the following approaches for the further digitalisation of your higher education institution?



The appointment of a person to assume responsibility for all aspects of 'digitalisation' was rated as 'unsuitable' by more than one-third of respondents. In various open responses and in the round table discussion, however, it became clear that a minor trend can be detected in this variant approach: a rising number of higher education institutions have established such positions, placing responsibility for 'digitalisation' matters in the hands of a 'Chief Digital Officer'. However, the discussion also highlighted the necessity of having additional people with decision-making powers in the operational levels who can implement projects and measures and have the requisite authority to do so.

Also interesting in this regard was the result that 19% of respondents in Switzerland regarded the appointment of a person as a suitable approach, while 29% of respondents from Germany did. Moreover, some 89% of respondents without a leadership position viewed this approach as 'suitable' to 'optimally suitable', in contrast to just over one-third of respondents from the other groups who regarded the approach as 'unsuitable'.

82% of respondents also regarded it ‘unsuitable’ to refrain from introducing special measures on the grounds that existing processes and structures were sufficient to ensure further ‘digitalisation’. Consequently, a passive stance of retaining existing structures was not regarded as an appropriate approach to shaping the digital future of an institution of higher education by the great majority of respondents.

Strategy? Incentives? People? What is the ‘right’ way to proceed?

The results concerning the approach to ‘digitalising’ higher education were underscored by various aspects addressed in the round table and the feedback from respondents. The first point to emerge was that ‘searching for and finding’ the ‘right’ approach is an important, though not easy, development step that is regarded as complex by many participants. It requires reflection about the organisation and the definition of a suitable approach to shaping digitalisation processes. It may be assumed that there is no ‘one’ right way, but that the aforementioned approaches overlap and combine with each other.

Stumbling blocks of a coherent digitalisation strategy

The results clearly indicated that the topic of ‘digitalisation’ fundamentally requires strategic planning and that it should be anchored in the higher education institution’s overall strategy. A coherent digitalisation strategy was viewed critically by some respondents and round table participants. Against the backdrop of the heterogeneity of the individual areas of activity and fields in higher education described above, it appears useful to approach the issues not solely from the perspective of higher education institutions as a whole. Instead, approaches that define digitalisation strategies for the individual areas of activity can be an appropriate way forward, not least because the requirements in the fields of instruction and studies, research, administration and higher education management are different and complex and require specific solution approaches. A ‘pure’ digitalisation strategy could also carry the risk of failing to take account of existing processes and structures and result in a clumsily conducted implementation phase.

4 Summation

In broad terms, the results presented above demonstrate that ...

- the future of higher education will also indisputably be digital
- the current use of digital capabilities is not sufficiently developed
- the untapped development potential for all areas is regarded as being very high
- the greatest challenge lies in introducing a digital solution and institutionalising it in the institution, so that
- the topic of 'digitalisation' should be planned and developed with a strategic orientation.

The results therefore provide an (exploratory) sketch of the 'digitalisation' status quo for institutions of higher education in Switzerland and Germany. The current digital situation of higher education institutions is a decidedly mixed picture. The gap between the effective use and future potential of digital capabilities is rather large in the case of some institutions. In sum, the results clearly showed that ...

- in the field of 'instruction and studies', the organisational administration has benefited significantly from digitalisation processes
- in the 'research' field, all specified areas are comparatively underdeveloped in digital terms
- for the 'administration' field, digitalisation processes are regarded as being relatively advanced
- higher education management is marked by a pronounced degree of development potential with regard to digital solutions.

The topic of 'digitalisation' is regarded as wide ranging and complex that can engender excitement and euphoria but also scepticism and reluctance to engage. It emerged that digitalisation processes are frequently associated with large and multifarious challenges that need to be overcome.

The following aspects of this summation elucidates why the topic of 'digitalisation' is regarded as so challenging and presents possible courses of action through which 'digitalisation' in higher education can be shaped and implemented.

Digital speed requires resolute action

The tight lifecycles of digital solutions increase the pace of digitalisation efforts. The rapidity with which new digital solutions come to market as well as the desire for fast, visible successes drives a need for short project cycles in implementation.

The pace of development means that higher education institutions continually have to identify and assess digital innovations, which in turn results in a multitude of potential projects. This requires a fundamental familiarity with the relevant actors in the field of 'digitalisation' and their specific solutions and capabilities. This is the only way to prioritise the potential projects and thus enable targeted decision-making.

Agile structures and defined process steps for quick decisions

As organisations, institutions of higher education need to be highly agile in order to react more quickly to digital innovations and developments. However, they are often characterised by long decision-making processes that are particularly prohibitive in the context of fast-moving digitalisation efforts. Common causes of this include existing governance structures and university-specific cultures that render the organisations slow and resistant to change. In this context, a strategic framework and lean and agile structures, as well as a defined process (from the idea to the decision, approval and implementation), can enable institutions of higher education to respond more flexibly to digital transformation processes.

Strategic planning and implementation of 'digitalisation'? Yes and no!

Strategic planning of the digital future of higher education is a major challenge in the eyes of many. The development of a comprehensive digitalisation strategy and the integration of the topic in a higher education strategy are regarded as means to an end which are, however, simultaneously viewed as an obstacle and an all-encompassing endeavour. The challenge could be mitigated, however, by turning the focus to this question: How can 'digitalisation' help us achieve the strategic objectives of a higher education institution?

'Digitalisation' as a means to an end

This question was posed in various discussions and a possible answer confirmed: the 'digitalisation' of a higher education institution does not need a strategy in the strictest sense. Rather, it should be a means to an end and not an end in itself. This approach was very well received by many of the participants in discussions – not least because it disarms the dominance of the topic. The seeming necessity of a broad-based digitalisation strategy thus takes on a different character. From this perspective, 'digitalisation' appears as a helpful aid and no longer as a sprawling 'construction site' to be tackled. It seems easier to anchor the topic of 'digitalisation' in the higher education institution's strategy in this way and put it to good use.

Strategic institutionalisation of the topic of 'digitalisation' in the higher education institution

The institutionalisation of digital development processes in the higher education strategy could be a promising middle course to incorporate digitalisation efforts into the strategic planning of the higher education institution in a fundamental and lasting way. Results showed that many members of higher education institutions see the need for action here and that most are cognisant of the reality that an integrative solution can be complex. The challenge here lies in making 'digitalisation' a matter of course that is firmly anchored in the strategy and influential in the strategic areas of activity, but is not treated as an individual issue in itself.

Understanding 'digitalisation' as an instrument and creating the prerequisites

The actual challenge is therefore not 'digitalisation' in itself, but rather the conceptualisation of the innovation and organisational development process of a higher education institution that uses digital capabilities to advance the development of the institution. Thus 'digitalisation' becomes an instrument that serves to burnish the image and further the development of a higher education institution. To achieve this, digital solutions and developments must be identified and evaluated as part of a 'trend-scouting' process. In order to shape the future of higher education through digital means, various prerequisites have to be put in place.

«Reflecting on 'digitalisation' and the specific needs of higher education institutions

Reflecting on the topic and grappling with the questions of 'digitalisation' with relevant stakeholders within the institutes of higher education is a worthwhile investment that pays dividends in the long run. A fundamental familiarity with the topic of 'digitalisation' is an important step in developing a sense of the inevitability of digitalisation as an ongoing and indispensable process. Taking and allowing the time for this in order to ascertain the significance and purpose, and test the capabilities and limits, of digital developments for the respective institution yields long-term benefits.

The discourse helps clarify issues and pave the way for the structured planning of subsequent steps. All this fosters a familiarity with the topic by illuminating its breadth and depth and providing a framework for contemplating simple solution approaches.

Efficient decision-making processes

The short cycles in which new digital solutions come to market, as well as the desire for rapid implementation periods, pose different requirements for the decision-making processes of institutions of higher education. For one thing, the acceleration of these processes requires shorter decision-making cycles (decision-making committees and meeting rhythms). Moreover, decision-makers are placed under extraordinary pressure with regard to assessing the subject matter related to the digitalisation process and the opportunities and risks associated with it (relation to the strategic objectives of the higher education institution, complexity of the solutions, technological issues, aspects of change management, etc.).

Another factor that has to be considered in the context of digitalisation efforts is business processes. In order to achieve the expected benefits of 'digitalisation', there is a fundamental need to think in terms of 'end-to-end processes'. This is the only way in which digital solutions can reach fruition, i.e. through rethinking and optimising existing processes in order to enable the actual added value of 'digitalisation' to shine through.

Multi-project management and agile project handling

Digitalisation projects are very complex both in terms of content and structure. The application of agile project management reduces the generation of 'mammoth projects' whose implementation is complex and time-sensitive and which can be susceptible to malfunctions. In the context of multi-project management, it appears to be sensible for individual organisational units to independently launch and implement smaller projects whose goals are realistic and achievable. This also ensures that the different projects are borne in mind and are not implemented in an unplanned or incoherent manner.

The definition of project goals enables target-oriented planning of the further project, which can be implemented relatively quickly through agile methods. Agile project implementation supports the flow of the project, which is planned iteratively, with short cycles in which intermediate results underscore the progress of the project. The agile methodology fosters dynamism and flexibility in order to be able to respond to unplanned changes within the project or related to the digital solution. The inclusion of users in the projects increases acceptance on the user side.

Promoting openness to changes among the workforce and minimising resistance

Digitalisation projects often trigger far-reaching changes that are not always equally well received by 'affected' users. For many actors in the higher education context, they may be more likely to elicit scepticism or even dismay than excitement and innovative drive. Targeted change management helps assuage resistance and increase acceptance.

It is essential, yet challenging, to craft the 'appropriate' communication of foreseeable changes to the employees involved. The challenge lies in transparently communicating both the advantages and drawbacks, as well as the potential effects, of digital developments and projects. To do this, it is essential to have the right people in place to 'translate' the message for colleagues. It is likewise important to ensure proper balance in the involvement of stakeholders in decision -making and change processes, treading a middle course between 'needs assessment' and 'co-determination'.

Recruiting and training personnel

In order to conduct digitalisation processes successfully, recruiting qualified personnel is indispensable. The challenge lies in finding people who boast the ideal combination of IT-, process- and higher education-related thinking. Equally important is the 'digital training' of existing personnel. Irrespective of the particular field of higher education, personnel must be equipped to interact and work with digital solutions.

Using 'digitalisation' as an engine for the ongoing development of the higher education institution

Institutions of higher education face a bevy of open 'digitalisation' questions today that will increasingly occupy them for many years to come. The results of the survey as well as the intensive deliberations and discussions with various actors in higher education demonstrate just how wide-ranging the topic of 'digitalisation' is. Institutions of higher education have a responsibility to find their own path to using and benefiting from the capabilities of digitalisation in a purposeful manner. The prerequisites for this are thorough and multifaceted processes of reflection initiated in the various different fields and areas of activity. This will enable 'digitalisation' to function as an engine that both powers and shapes the further development of higher education institutions.

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