

Digitalisation strategy¹ for the higher education sector 2017-2021

¹ Digitalisation refers to the use of technology to innovate, simplify, and improve. It is about offering new and better services that are easy to use, efficient, and reliable. (Digitalisation circular no. H-17/15).

1 Where are we?

Digitalisation has changed all sectors of society and is dramatically changing the way we work, live, communicate, and interact. The opportunities brought about by technological change are affecting everything from infrastructure and administration, learning materials and research data, methods of teaching, learning and assessment in the education sector, and research methods to the very content of education and research, and the way that the higher education sector interacts with society and business. Currently digitalisation and new platforms are of powerful and growing importance for the sector, and in the coming years ICT solutions will have a great impact on education and research. Through digitalisation it will be created opportunities for new and different learning and teaching processes, as well as new forms of organisation and communication. The use of learning analysis, such as to understand students' learning patterns and improve learning processes, is only in its infancy². Research on artificial intelligence and machine learning is continuing to break new ground and may lead to fundamental changes for better or worse. The new and complex information landscape, together with its extensive use of data and technology, poses extensive challenges in terms of ethics, law, and security. Furthermore it places increased demands on ICT skills, accountability, digital judgement, and the ability to source criticism at all levels. In line with the main principles of the government's digitalisation policy, the primary starting point will be the needs of the users.

In order for higher education and research in Norway to leverage the potential of technology to improve student learning, make the range of study options available on a wide scale, and support outstanding research, the focus on use of technology for learning and new knowledge must be elevated to a strategic level at institutions and integrated into all academic and administrative activities. Leveraging the power of digitalisation to bring about change requires governance and management at all levels. The development and use of technology in the sector must therefore be rooted in strategies at both the national and institutional levels.

Higher education institutions (HEIs) possesses academic freedom when it comes to education, research and innovation, and have been given more administrative and organisational autonomy than other state bodies. A digitalisation strategy for the sector must take into account that it will apply to academically independent institutions that must be able to brand themselves academically and always have real opportunities to develop and innovate. The digitalisation strategy must clarify how to organise, and promote measures that put the sector in a position to react swiftly to the opportunities and challenges posed by the use of ICT.

² The MOOC Committee's proposal to establish an environment for research-based knowledge development, development work, and knowledge-sharing related to learning analysis was followed up through the establishment of the Centre for the Science of Learning & Technology (SLATE) in 2016 by the Norwegian Ministry of Education and Research with the University of Bergen as the host institution.

The Norwegian higher education sector is at the forefront of co-operation on digital solutions. The sector has effective infrastructure solutions and has developed a number of joint services for administrative tasks, education, and research. Nevertheless, there is significant potential for further efficiencies and improvement in quality by exploiting existing and new ICT solutions.

Studies³ on digitalisation in the education sector that have been conducted at Norwegian universities and university colleges show that digitalisation has been largely governed by individuals and enthusiasts, rather than being rooted in management and in cohesive institutional strategies. Studies also indicate that newly trained teachers have not been given sufficient academic digital skills as part of their basic training⁴. Academic staff in the higher education sector have called for improved skills and support in the use of digital tools. A stronger rooting in management, more shared solutions, and more efficient governance and organisation have also been called for. These challenges were also pointed out by the MOOC Committee⁵. The appointment of a public committee in 2014 to advise on how Norway should approach the rapid emergence of MOOC helped to raise awareness of the potential of digital media and learning methods from a Norwegian perspective, with particular emphasis on increased quality in learning and pedagogical practice. There is reason to believe this situation has changed since 2014. More institutions have adopted their own strategies for digitalisation or incorporated digitalisation goals in new institutional strategies. Digitalisation is being increasingly linked to education quality. There has been an especially high level of activity with regard to the digitalisation of exams. In addition, new digital assessment methods are being developed⁶. With the support of the Norwegian Agency for Digital Learning in Higher Education, several institutions have developed various versions of MOOC – cf. www.mooc.no.

Although effective solutions have been established with regard to the management of the sector's support services and data, there are still many challenges yet to be resolved and opportunities yet to be leveraged. The institutions in the sector continue to perform many tasks in parallel, and the sector has a relatively large number of insourced service providers who do not operate with adequate co-ordination. The sector has long been calling for a cohesive ICT strategy and key decision-making structures that ensure the better and more efficient management of services, data, and related ICT solutions.

³ Norwegian Agency for Digital Learning in Higher Education, *Digital tilstand 2014*, which follows on from corresponding surveys from 2008 and 2011.

⁴ cf. Norwegian Ministry of Education and Research's digitalisation strategy for basic education (2017-2021)

⁵ NOU 2014:5 *MOOC for Norway. New digital learning methods in higher education...* MOOC means "Massive Open Online Courses".

⁶ Both the Norwegian Agency for Digital Learning in Higher Education and SLATE are central to these development efforts.

2 Why a strategy?

In its perspective report,⁷ the government maintains that exploiting the opportunities brought about by technology is a key element of a sustainable public sector. The public sector must facilitate the utilisation of new tools, including digitalisation and the automation of tasks. State enterprises must work systematically to ensure that investments in new digital solutions provide the results expected of them and the realisation of benefits.

Improvements within an individual public sector service will always be the responsibility of the individual institution and sectoral ministry. There is a similar responsibility to embark upon digitalisation measures, decide on the internal prioritisation of competing initiatives, and implement the measures. The sectoral ministries and their underlying entities are also responsible for ensuring that the benefits resulting from digitalisation are followed up and capitalised on.

Similarly, each sector is responsible for using the shared solutions and complying with common frameworks and requirements. The individual institution and sector have a responsibility to create solutions that can be shared with other enterprises and sectors. Consequently, the government expects institutions to endeavour to find solutions together. This requires effective co-ordination and management. State-owned enterprises will be the drivers and adopt a co-ordinating role in efforts to create effective digital solutions across state and municipal sectors.

Even within the higher education sector there is a need to focus more heavily on digitalisation and ICT as key tools in improving interaction, quality, and the relevance of research and higher education, as well as contributing to a more efficient, robust, and well-functioning higher education and research sector. Furthermore there is a need to ensure that the higher education sector is equipped to face the digital challenges of the future, such as those related to the processing of research data.

Digitalisation is not a goal in itself, but it may contribute to achieving the objectives of education and research in a better and more efficient way. Achieving these requires management-rooted organisational development and cultural shift. The institutions' management must, to a greater extent acknowledge the importance of digitalisation in reaching institutional and sectoral goals and take responsibility for seizing opportunities and exploiting the benefits of co-operation both between the institutions themselves/within the sector and together with the various new administrative agencies to ensure effective solutions that benefit students, the labour market, and society.

Well thought-out and well-structured digitalisation strategies are necessary at all levels for ensuring effective interaction of changes in technology, organisation, and practice coherent

⁷ Storting White Paper 29 (2016–2017)

with the objectives of the institution as well as the sector as a whole. Both institutions and administrative agencies should have their own digitalisation strategies. Furthermore, the Norwegian Ministry of Education and Research needs to provide an overall strategic direction for higher education sector efforts relating to digitalisation, by providing clear expectations and visions, by clarifying the distribution of tasks and responsibilities, and by initiating joint measures and initiatives.

Higher education and research is a complex and diverse area, so it is necessary to place the more operational aspects of ICT and digitalisation efforts in the higher education sector in the subordinate administrative agencies and the institutions themselves, individually and jointly. In the ministry's overall digitalisation strategy for the higher education sector, emphasis is placed on defining overall goals and stating the desired direction of development. The strategy must be seen as the first step on the journey and as a basis to be built on as external and internal conditions change. The overall objectives of the sector are stated in the annual budget proposition to the Storting, Prop1 S, and the primary goal of the digitalisation strategy is that digitalisation should help to achieve the primary objectives of the sector. In addition, some of the objectives indicating the direction in which the ministry wants development to head are described. This is followed by a description of the measures considered the most important at the ministerial level for progressing with digitalisation efforts within the higher education sector. Finally, the most important stakeholders and their responsibility for further follow-up and work are described. These tasks and responsibilities are intended to constitute a framework for managing digitalisation in the sector. The development of solutions that meet user needs and utilises available resources in the best possible way requires adequate proximity to users at all levels.

The Norwegian Ministry of Education and Research's overall digitalisation strategy is based on a comprehensive proposal for an ICT strategy, with sub-strategies for education, research, infrastructure, information security, administrative functions, and the organisation of ICT management, prepared by a working group set up by the ministry consisting of representatives from the higher education sector. The Norwegian Ministry of Education and Research's digitalisation strategy for the higher education sector must also be seen in the context of the requirements, guidelines, and recommendations of a number of different reports, white papers, strategies, circulars, and action plans. The most important of these are: NOU 2014:5 *MOOCs for Norway. New digital learning methods in higher education*, Report No. 18 to the Storting (2014-2015) *Konsentrasjon for kvalitet – Strukturreform i universitets- og høyskolesektoren* (structure report), Report No. 16 to the Storting (2016-2017) *Quality Culture in Higher Education* (quality report), Report No. 27 to the Storting (2015-2016) *Digital agenda for Norway – ICT for a simpler everyday life and increased productivity*, Digitalisation circular no. H-17/15, *Nasjonal strategi for informasjonssikkerhet* and *Kunnskapsdepartementets digitaliseringsstrategi for grunnopplæringen 2017-2021*.

The digitalisation strategy for the higher education sector does not include measures aimed directly at the content and design of courses and research ventures. This will be followed up