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Readiness of digital transformation in Vietnamese universities

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Foreword

I am delighted to present the scoping study report entitled 'Readiness of digital transformation in Vietnamese universities and partnership opportunities with UK universities.'

The impact of Covid-19 has accelerated the need for digital transformation in higher education globally more than ever. Viet Nam is no exception to this. Given the closure of universities due to Covid-19, the Vietnamese government acted promptly to support higher education institutions in their transition to online delivery through policies and guidance. Vietnamese universities also responded promptly to accommodate the needs of the universities, lecturers, and students to ensure limited disruption in access to learning and teaching, despite many challenges.

As part of our commitment to support Viet Nam higher education development through sharing UK higher education knowledge and expertise, British Council Viet Nam, in consultation with the Ministry of Education and Training's Department of Higher Education, commissioned The Open University UK and Hanoi University of Science and Technology to conduct a scoping study to identify the readiness for digital transformation among Vietnamese universities. The study also explored partnership opportunities with UK universities with an aim to enhance the digital capacity of Vietnamese universities and support the Ministry's digital transformation strategy in higher education.

It is our hope that the report will provide a comprehensive overview of the digital context of the UK and Viet Nam higher education sector, identify the gaps that Vietnamese universities need to address to digitalise successfully, suggest recommendations for policy makers and universities, and indicate partnership opportunities to support digital transformation in Viet Nam.

On behalf of the British Council, I would like to thank the Department of Higher Education, Ministry of Education and Training Viet Nam for their advice, inputs, and support to the British Council's higher education agenda in general and this research report in particular; The Open University UK and Hanoi University of Science and Technology for their work on the report; and all the UK and Vietnamese universities who contributed to the research.

I trust that the report proves useful and that it supports the Vietnamese higher education sector in general, and universities in particular, with their digital transformation plans.

Donna McGowan
Country Director, British Council in Viet Nam

I am delighted to introduce this report entitled 'Readiness of digital transformation in Vietnamese universities and partnership opportunities with UK universities.'

The Programme for National Digital Transformation to 2025, with a vision towards 2030 outlined the Vietnamese Government's commitment to transforming the country digitally, providing a digital environment for everything from Government operation to economic activities, in order to support the way people live and work in Viet Nam. Education plays an integral part in this digital eco-system.

Decision no. 131/QĐ-TTg in 2022 approved the Project 'Increasing the application of information technology and digital transformation in education and training in 2022-2025, with a vision towards 2030.' The overall aim is to use technology to promote innovation in teaching and learning, to enhance the quality of and opportunities to access education, to strengthen education management efficiency, to build an education system that is open and adaptable to digital platforms; all of which will contribute to the development of a digital Government, digital economy and digital society. The Decision proposes many responsibilities and solutions for the education sector, one of which is about mobilising resources such as working in partnership with industry, national and international organisations and consultants for education technology solutions and digital transformation in education and training.

As part of the Memorandum of Collaboration between the Ministry of Education and Training and British Council on a wide range of priorities for higher education reform, together with other national and international partners, we co-organised a conference on 'Preparing higher education for digital transformation in Viet Nam' in September 2021 as a platform to share the context of digital transformation in higher education in the UK and Vietnam. This report helps identify tangible areas for partnership between UK and Vietnamese universities in pursuit of the digital transformation agenda.

As a result of this report, I hope that future partnerships will help Vietnamese universities to identify their existing gaps and develop a comprehensive roadmap to digital transformation, to build organisational culture and to be able to develop a strategy for digital transformation for their universities, and to enhance capacity to digitalise successfully. This will contribute to the implementation and achievement of the Government and Ministry's strategy in digital transformation, bringing values to learners, and ensuring innovation in higher education.

I would like to thank British Council for initiating and funding this report; The Open University UK and Hanoi University of Science and Technology for their research; and all the UK and Vietnamese universities and organisations who have contributed to this research.

Assoc Prof Dr Nguyen Thu Thuy
Director General, Department of Higher Education, Ministry of Education and Training

Executive summary

The impact of the Covid-19 pandemic on Viet Nam higher education has both highlighted and accelerated the digital transformation agenda at universities. National level policy has also shaped and driven forward the digital transformation agenda. Positive and rapid progress has been made to date. Some universities were actively engaged in this process prior to Covid-19 through the transformation of institutional processes and systems, engaging in a range of collaborative partnerships focused on digital transformation nationally, regionally and internationally and providing a range of support for students and staff. However, a range of challenges remain both nationally and in particular for those institutions that have only recently embarked on digital transformation.

The report presents a snapshot of the current state, and potential, of digital transformation in Viet Nam higher education and current collaboration with UK universities to support the digital transformation agenda. A holistic approach to address national issues accompanied by increased support to ensure that all HEIs, and their staff and students, are actively involved and supported appropriately in this process is key. Ensuring that support is equitably distributed is also key to ensure that all universities are able to effectively embark on their own digital transformation journey and participate in a range of collaborations.

This report makes a series of recommendations and also suggests a series of recommendations for collaboration to support different types of activity between UK and Viet Nam universities:

- Increasing familiarity with, and practical support for, policy implementation should be considered including frameworks, guidance, support for developing institutional policies and staff development opportunities at all levels

- National level barriers to digital transformation, such as the need for increased investment or connectivity, should be addressed and supported

- Government and universities should actively identify, understand and engage with all stakeholders regarding the digital transformation agenda to identify and address concerns, share progress, foster conversation and share benefits

- Support for a range of informal and formal activities between Viet Nam, regional and international universities, industry partners, the private sector and business to address challenges, share experiences and work together on the digital transformation agenda should be developed and supported

- Identifying and supporting different student needs and barriers to engaging with online learning and digital transformation should be prioritised

- Increasing awareness and active use of platforms that support research and collaboration.

1. Key findings and recommendations

This report examines the current and potential of Viet Nam universities to engage effectively with digital transformation and presents opportunities and models for collaboration, in particular with UK higher education institutions (HEIs), to further this agenda. The report begins by examining UK policies and strategies before moving to explore digital transformation in Viet Nam and more specifically, higher education (HE). The latter section includes a review of policies that have been issued to support digital transformation in higher education.

The scope and approach for original research into the current practices, policies and support for digital transformation are then outlined. The scope and results of each activity, including a survey of HEIs and interviews with key stakeholders, are reported on and concluded with a set of recommendations. The report concludes with a set of themed recommendations and suggested models for collaboration between UK and Viet Nam HEIs.

The following presents section five's findings and recommendations:

Policy: Recommendations

Whilst Viet Nam policies promoting digital transformation in HE provide a solid foundation and focus for the pace and scope of digital transformation in universities, awareness of the detail of these and active engagement appears siloed. Further support could be considered in the following ways:

- Whilst policy provides a "top down" steer and driver for change, how this is implemented at individual HEIs will vary as each institution has its own systems, processes, educators and learners to consider. Frameworks and other tools will provide a common

starting point for thinking about different facets and stakeholders in the digital transformation process at HEIs, whilst recognising institutional differences

- To enable HEIs to effectively embark on digital transformation and provide practical support for policy implementation, the Ministry of Education and Training (MOET) could provide clear related guidance, criteria and evaluation frameworks, as appropriate

- To increase familiarity with, and disseminate effectively, policies and supporting resources related to digital transformation policy, MOET could co-ordinate and promote national level training, webinars and other activities.

National Level Support: Recommendations

A range of non-policy related national level support is needed to enable all Viet Nam HEIs, and their staff and students, to take full advantage of the affordances of digital technologies and participate fully in the digital transformation process. Whilst some HEIs had explored online or blended models prior to Covid-19, invested in infrastructure, systems or are actively engaged in a range of international partnerships to support digital transformation, other HEIs may need focused, enhanced support. Similarly, whilst HEIs appear largely formally or informally committed to staff development, availability and the range of topics covered may be limited at some HEIs. Further support could be considered in the following ways:

- Increase awareness and active use of VinaREN (Viet Nam Research and Education Network), Vietnamese Knowledge System and other platforms that support collaboration and the showcasing research. MOET has a potentially critical role through the promotion of these platforms and ensuring that engagement with, and use of, these platforms is considered essential by HEIs

- Issues related to bandwidth, cost-effective data, connectivity and the cost of technology are institutional and national level concerns. MOET could examine how best to address these challenges at the national level, perhaps through national agreements with providers, brokering conversations between HEIs and firms and working with private and technology companies, as appropriate. Centralised cost negotiation and support for hardware, software and cost-effective data for HEIs could be considered by MOET

- Similarly, recognition of and directly addressing concerns and challenges for HEIs, such as the issue of cost, standardised systems and infrastructure are vital to ensure that HEIs feel fully supported in the digital transformation journey and that challenges are recognised

- Actively promote distance learning as a positive choice to a range of stakeholders, including learners and their parents/caregivers, educators, business and industry and institutions. MOET could play a key role in highlighting good examples and case studies and promoting new attitudes to

online distance learning, as well as providing practical support. Viet Nam, UK and other international HEIs could also contribute to this type of initiative and knowledge exchange with support from British Council in Viet Nam

- Similar support and knowledge exchange activities could also be used to share innovative pedagogical models and practices. MOET and British Council in Viet Nam could broker and provide regular opportunities for this kind of knowledge sharing activity between Viet Nam, UK and other international HEIs

- Increased investment and support for universities at all stages of the digital transformation journey should be considered by both individual HEIs and at a nationwide level. Training to understand the benefits of digital transformation, develop digital literacies and more advanced modules should be considered, as well as specific training for senior team and leadership to understand the scope and requirements of digital transformation. Support and development of training programmes could be led by MOET

- Staff capacity development currently covers a wide range of relevant topics but key areas such as data protection, privacy and cyber security should be prioritised. Centring access and inclusion is also critical. Ensuring that all universities can access training relevant to digital transformation is vital to ensure all institutions can engage with the digital transformation agenda

- Some university processes and systems may require significant

resource and activity to become fully integrated and/or online. MOET could review and support, as appropriate.

Collaboration: Recommendations

Whilst many Viet Nam HEIs collaborate with national, regional and international colleagues and institutions, as well as private companies, on digital transformation, ensuring that all Viet Nam HEIs have opportunities to benefit from knowledge sharing activities, as well as increasing the opportunities for these, will be important going forward. There is also a role for leading, flagship HEIs to support other universities and for international universities to share their experiences of digital transformation as well as for a range of collaboration with businesses and EdTech. Further support could be considered in the following ways:

- Ensure and actively support further opportunities for collaboration between regional, national and international HEIs on digital transformation. MOET and British Council in Viet Nam could increase support and activity in brokering these relationships and providing a range of collaboration opportunities, including funded collaborative projects or the opportunity to converse and connect

- More informal opportunities for sharing experiences between both domestic and/or international HEIs could be beneficial. MOET and British Council in Viet Nam could play an enhanced role in facilitating and enabling these conversations and collaborations, including visits between universities or opportunities for educators to share

their experiences and advice on online teaching and learning

- Encouraging collaboration and conversation between Viet Nam HEIs around challenges such as quality assurance of online examinations and online learning, authentication and the scope of digitalisation etc. could help reach consensus and ensure that lessons learnt are shared effectively to benefit all. This type of activity could be supported by key Viet Nam HEIs and/or MOET

- The private sector is an active partner with Viet Nam HEIs to increase capacity for digital transformation. Supporting Viet Nam HEIs in their engagement with the private sector, and brokering conversations could be one role that MOET could explore going forward

- Support from the private sector could take a variety of forms and lead to ongoing partnerships or research partnerships between industry and HEIs. Working with students to address real world problems together or develop more direct links between HEIs and business may also impact positively on graduate employability and research output as well as on the ongoing digital transformation process. MOET could coordinate these opportunities, in particular to ensure that all HEIs have the opportunity to participate in initiatives, different learners can participate, and that research and lessons learnt are shared widely across the sector

- In some instances, private sector organisations are actively engaging with MOET policy in order to inform

their approach. MOET could provide EdTech and industry specific guidance or briefings in relation to policies issued. This would recognise, coordinate and help support further collaboration, as appropriate

A number of suggestions for different types of models for collaboration between Viet Nam and UK HEIs conclude section five. These have been categorised as small, medium and large to reflect a range of time allocation and resource. Small projects, which are up to 6 months and have a suggested £50,000 budget limit focus on knowledge exchange, study on online accessibility and quality standards, development of HEI digital transformation strategy and implementation roadmaps, student digital literacy (core skills) and student digital capabilities (additional skills). Medium projects of up to two year duration and suggested £500,000 budget limit focus on digital literacy skills and capabilities, supporting change management and a digital transformation hub. Finally large projects of up to five year duration and a suggested £1,000,000 budget focus on system wide digital transformation and capacity development.

Staff and Students: Recommendations

For students and staff to actively engage with, and champion, digital transformation they should be supported appropriately. As noted above, whilst some HEIs appear to offer a range of training for staff and students, other HEIs may need further support to offer relevant and timely resources and training. Further support could be considered in the following ways:

- More support could be provided to ensure that all universities are able to develop relevant and up-to-date policies to support all facets of digital transformation appropriately. In particular, policies related to quality assurance, accessibility and inclusion should be considered a priority

- Whilst some universities have provided extensive resource to support students and educators in the pivot to online learning, addressing the barriers students face in accessing online learning (e.g. connectivity) is critical to ensure equitable access to education

- Active identification and support for low income and geographically diverse learners through resource provision (e.g. data packages and digital devices) as well as scholarships and English language support should be considered by HEIs. Outreach programmes to potential students should be considered. Opportunities for students working in the arts, humanities and social sciences could also be considered. In particular, examples of innovative digital practices in these disciplines should be actively sought out and engaged with, providing the basis for potential international partnerships. MOET and British Council in Viet Nam could play a role in fostering and championing these discipline specific collaborations or providing scholarship or visiting opportunities for students, early career researchers or doctoral students. In particular these could focus on increasing research collaboration and therefore developing capacity, whilst providing funding to individual HEIs to support activities

- HEIs should consider further training and support for educator digital literacy, and encourage conversation within individual departments, to ensure that no discipline is excluded or marginalised in the digital transformation process. In particular training should focus on key areas such as copyright, intellectual property and cyber security and privacy; essential topics for digital transformation. MOET could support training on these topics at the national level

- Individual HEIs should consider how best to understand the resource and training needs of their staff and students, so they can be better supported in their engagement with digital technologies. As noted earlier, key training topics such as data protection, privacy and cyber security should be prioritised. Providing support for appropriate pedagogical practices for effective online learning and teaching, as well as centring access and inclusion, will also be vital going forward

- In addition to supporting conversations between staff, students and management, and providing information on the impact and benefits of digital transformation on campuses, HEIs should directly address concerns and ally any concerns about the potential impact of digital transformation. HEIs could work with industry, for example, to identify new career paths for students and raise awareness of these. Keeping staff and students informed and engaged with what is happening will foster active engagement and may also encourage educator and student led activity to support the digital transformation process. This work could be supported by MOET, as appropriate

- Increasing the confidence and knowledge of senior team members with regard to digital technologies and transformation is important. MOET could consider a nationwide training programme for senior team members, for example

- Provide comprehensive training for students, including web search skills, to ensure learners are able to make the most of online learning opportunities. Identification of existing resources to support MOET to develop these could be considered
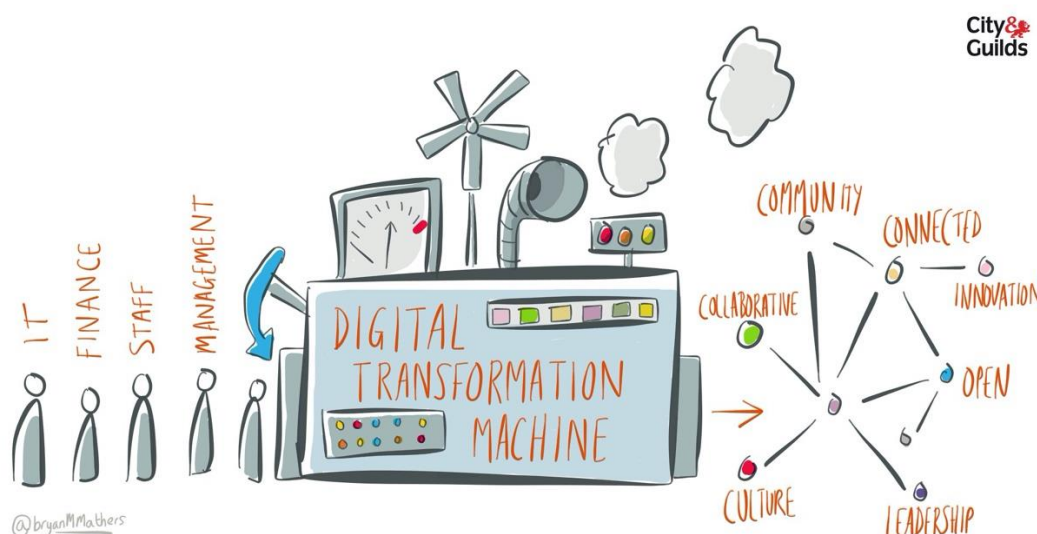
2. Digital transformation

Definitions of digital transformation focus primarily not on the type of technologies, but how, why and when technologies are utilised, and by whom. The *Digital at the Core: A 2030 Strategy Framework for University Leaders* report by Universities UK, JISC and Emerge Education, which examines digital transformation in UK higher education (HE), defines digital transformation as:

> "…the **cultural, organisational** and **operational** change of an organisation, industry or ecosystem through a **smart integration of digital technologies**, processes and competencies across all levels and in a staged way." (Iosad, 2020, p. 12. bold text authors own).

Crucially, digital transformation is flexible and reflects organisation needs and strategic aims, engages with and supports different stakeholder needs to ensure these are met and is an ongoing, planned process (Iosad, 2020). This report utilises the above definition of digital transformation as it can be applied within a range of different contexts to both frame, support and focus discussions.

As the above definition suggests digital transformation can take place in all kinds of organisations and industries, and bring various benefits including increased productivity, market delivery, market competitiveness and employee productivity as well as driving revenue growth and expanding ability to attract and retain customers (ISSI, n.d.). Within the HE context digital transformation involves and engages with all stakeholders (students, educators, management, wider society, external partners) to make use of digital technologies to improve the practices, processes and structures that enable and support teaching and learning.

3. The current UK and Viet Nam HE landscapes

The following sections give an overview of both the UK and Viet Nam Higher Education landscapes.

3.1. UK Higher Education

3.1.1. Overview

During the 2018/2019 academic year there were 164 UK public HEIs with a further one private university returning data to HESA (see Universities UK, 2021b & Clark, 2021). Over the past three years there has been an increase in students studying at UK HEIs with 2.38 million and 2.4 million students studying full or part-time at undergraduate or postgraduate level during the 2018-2019 and 2019-2020 academic years, respectively (Universities UK, 2021b & Castell & Wake, 2021, respectively). This has increased to 2.66 million students during the 2020/2021 academic year (Bolton, 2022), which averages to just over 16,000 students per institution.

There are approximately 175 HEIs which are "legally recognised degree-awarding bod[ies] … known by the UK government as 'recognised bodies'." (QAA, 2018). Consequently, although there are a growing number of private HEIs, reportedly 813 in 2017, there remains a small number with independent degree awarding powers, with the remainder needing to partner with 'recognised bodies' to be able to award degrees (see Hunt & Boliver, 2019).

The composition of students in the UK is also changing. Bolton (2022) reports a 40% drop in EU students applying to study in the UK in 2021 as a result of Brexit, for example. However, the number of students from elsewhere in the world reportedly increased during the pandemic, with "proportionally more overseas students studying postgraduate courses" during the 2020-2021 academic year (Bolton, 2022, p.8).

In England alone, universities employ more than 815,000 people and contribute £95billion to the economy (Universities UK, 2021a).

3.1.2. Policies and Strategies

The UK is committed to the use of technology in education, developing a strategy (DfE, 2019) to enable the effective use of technology in education, aimed at the technology industry as well as education providers within this they proposed a three step 'framework for change' (figure 1).
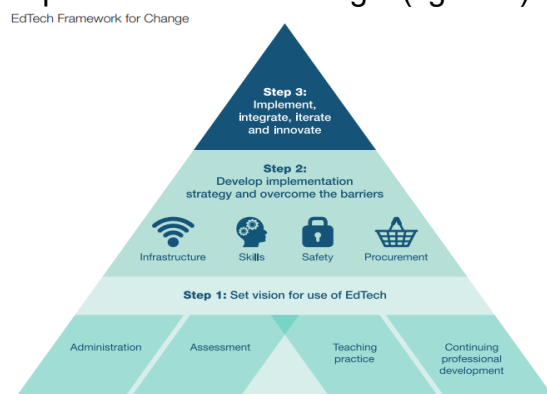

Figure 1: EdTech Framework for Change. Source DfE, 2019 *p. 8* Open Government License v3.0

In 2020 the government through the Office of Students (an executive non-departmental public body, sponsored by the Department for Education) commissioned a review into digital teaching and learning (Barber, 2021). The review provided a set of practical actions for educational providers and as such exemplar the UK Government commitment to the use of digital technologies in education.

Significant within this review is the change and the speed of the change to which education providers switched to more digital focussed delivery mainly in the form of online or distance teaching. Alongside this is an increased confidence in both students and teachers in their ability to engage in this medium. Further policies and strategies have emerged during or to reflect the pivot to online learning during the pandemic are discussed below.

3.1.3. The Covid-19 pandemic and UK HE

In their study of 31 countries K12 and Higher Education responses to the pandemic, Bozkurt et al (2020) describe the rapid move to online learning and learning by many institutions as "emergency remote education" which highlighted and increased existing inequalities.

In the UK, where the majority of universities deliver face-to-face lectures, there was limited experience of successful online teaching and pedagogies (JISC, 2020, p.12). In addition, "many universities start[ed] from a low digital base" when pivoting to online teaching and learning during the pandemic (JISC, 2020, p.5). Several research studies highlight the challenges faced by educators and

students. Zhou & Wolstencroft (2020) for example, note the gaps between the expectancy and perception of different staff and undergraduate student groups, both with regard to what constitutes digital readiness and their varied level of skills and knowledge. Barnes et al. (2021) research with Welsh HE educators highlighted the need for further support to develop appropriate, supportive and engaging pedagogical practice. Established online distance universities, such as The Open University (UK) provided support to other HEIs to help the transition to online teaching during the pandemic (see e.g. Bozkurt et al, 2020; Grace, 2021) alongside other organisations such as JISC (2020) and the Office for Students (2020) who facilitated the sharing of different university and college responses to supporting learning and teaching. At the global level, UNESCO's *Global Education Coalition* supports the sharing of resources, information and research on the pandemic and its impact on education.[1]

As JISC (2020) notes, it is key to distinguish between the "emergency remote education" response so that clarity on what good teaching and learning online looks like is vital:

> "We cannot expect students to understand automatically the potential richness of the technology-enhanced learning landscape without explicitly describing what they can expect from it." (JISC, 2020, p.14).

Frameworks to support future thinking around digital transformation have emerged as a result of this accelerated move to online teaching and learning. For example, Universities UK, JISC, Emerge Education

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[1] https://en.unesco.org/covid19/educationresponse/

and Salesforce's work on a digital strategy framework spans the pre- and current Covid-19 period. Their proposed long-term framework for digital transformation in HEIs focuses on *leadership, staff, business model* and *investment* and has been designed for use by senior team members to support long-term thinking about digital transformation in their university (Iosad, 2020, p.6). Similarly, a number of case studies presented in *Gravity assist: Propelling higher education towards a brighter future – Digital teaching and learning review* (Barber, 2021) exemplify the ways in which educators are now using digital technologies for teaching and assessment as well as the ways in which administration systems have had to follow suit, for example:

- WhatsApp video for assessed tutorials

- MS Teams to deliver smaller 'chunked' lectures

- Learning analytics to track student progress

- Text based conversations in online lectures

- Audio and imagery embedded in Microsoft PowerPoint and Blackboard Collaborate

- 24-hour time slots for exams

- Online assignment submission and digital feedback

- Multiple formats for assessment (student chosen)

- Providing technology and internet connectivity

- Administrative systems to track students access to resources and study environment.

3.1.4. Educators

Educators have long been supported in the development of digital literacies and the use of digital teaching methodologies through organisations such as JISC, who provide Universities and Colleges with infrastructure network (JANET) as well as research and training into digital capabilities. Professional bodies such as ALT (The Association for Learning Technologies), support the development of teaching practice through continuing professional development (CPD) as well as publishing research in this area. Through the support of organisations like these, and other universities, the academics within them have been able to develop their own and their institution's skills and offerings in terms of the use of digital technologies. For example, The Open University (UK) has been leading the field in the use of technology in education for over 50 years with beginnings in the use of TV and radio to running the first fully online credit bearing course.

3.1.5. Students

The move to a more digitally dominant approach has implications for students not least in their own digital capabilities but also in ensuring that barriers to access are not re-enforced or new barriers created within this approach. Technology can be used to increase access, for example online texts can be manipulated to help with reading and can be embedded with interactive activities to increase understanding. However, the use of technology can also decrease access. For example by providing texts in one format, or as an image, this diminishes learners abilities to engage with the text, screen readers cannot be used, texts become difficult to search and use of traditional print layouts mean it can be

difficult to read on screen. Additionally, considerations around access to technology and costs of connectivity can disadvantage those from low socio-economic backgrounds.

The UK government does have a scheme in response to the pandemic to provide laptops to children and schools (ESFA, 2022). Inclusion and equity of experience have been key challenges and recommendations in recent reviews and strategies as mentioned previously (Barber, 2021, DfE, 2019). highlight the use of assistive technology for supporting students with additional needs. Students within the UK do show high levels of confidence in having the digital skills necessary to successfully engage with the digital teaching and learning they are receiving; 91% reporting being 'somewhat confident' or 'very confident' (42% and 49%, respectively). However, the need to increase the digital literacy of all students is key in to enabling better access.

3.1.6. Trends

Aside from the sector's response to the Covid-19 pandemic, three other key trends are worth highlighting. The first is the significant shift to the delivery of learning online (WEF, 2020) and within this the development of highly focussed online short courses offering small amounts of university credit often referred to as micro credentials (Horton, 2020). FutureLearn, which since 2012 has worked with universities and other partners to offer Massive Open Online Courses (MOOC), currently offers 48 microcredentials, for example.[2]

Second, an understanding of more flexible approaches to learning that are not only campus based but a relevant blend (AdvanceHE, n.d.). These ideas have been around for a while with concepts such as flipped learning, where activities take place outside of the classroom and reflection and discussion is facilitated in the classroom to aid understanding. This has gained more traction over the past two years, when there has been a particular focus on when and whether students need to be on campus and what the value of that interaction is. The final trend to note is one that has been around for a while but again in response to the pandemic and due to advances in technology has become a potentially viable option; the use of more immersive technologies (Calvet et al, 2019) to support education. This has mainly been in the form of simulation as can be seen in the application for the medical sciences but also in the use of things such as augmented reality which allow learners to interact with objects and spaces in ways that have not been possible before.

3.1.7 Impact

There have been many studies globally on the use of educational technologies and the comparative values they have over more traditional methods of classroom-based education, particularly with a focus on the development of and access to digital resources. Alongside this has been a huge leap in the use of digital technologies to support those with specific access needs. However, there is little to date that highlights the value placed at a whole institution level particularly around the efficiencies afforded for student support, assessment and administrative functions. This has begun to

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[2] https://www.futurelearn.com/microcredentials

change with the recent publication of *Digital at the core: A 2030 strategy framework for university leaders* (Iosad, 2020) which focuses on four key themes; leadership, staff, business model and investment, and takes a more holistic approach to digital transformation away from a focus on resource development and access.

An increased use of digital technologies has been seen in the UK due to the pandemic with a large number of case studies reported in the recent digital teaching and learning review (Barber, 2020). Equally one of the most significant impacts from the use of digital technologies has been the reduction in attainment gaps by deprivation, gender, disability and ethnicity (Universities UK, 2021) and that "Many universities reported increased engagement of students with online teaching, learning and assessment and innovative approaches to course design and delivery" (Universities UK, 2021).

Overall, the impact of digital transformation in the UK has been generally positive. There is significant progress being made towards tackling digital poverty (LGA, 2021) and that the use of digital practices and technologies do not increase or create new barriers to learning.

3.2. Digital transformation in Viet Nam

3.2.1. A regional snapshot

Late 2018 to early 2019, the International Association of Universities (IAU) carried out a survey of HEIs around the world, to better understand the landscape for current and future digital transformation activities. The report provides a useful regional snapshot

pre-Covid-19. In the Asia and Pacific region, Jensen (2020) reports:

- 76% of respondents saw digital transformation as "high priority" for their institution

- 39% of respondents reported "an institutional or national strategy with a clear vision for the institution"

- 77% of respondents reported that digital transformation was in their university's strategic plan. 55% reported that institutional funding was allocated to support digital transformation with 73% of institutions reporting that there were specific persons assigned to digital transformation at their HEI

- A large number of respondents were looking to innovate as part of this process. Whilst 21% of respondents reported that they were looking to "doing the same with technology", 45% of respondents aspired to "doing differently with technology"

- Funding was a concern regionally with almost a third of respondents reporting funding limitations impacting on their aspirations

- Reflecting this concern, the top three barriers to digital transformation reported in the region were financial costs, cultural change within the institution to adapt to and use new technologies and lack of interest of faculty/staff to change

- 79% of respondents also "strongly agreed" that "digital transformation and new technologies are essential to improving higher education" with 77% agreeing that "technology can enhance the quality of higher education".

Although Jensen's report is at a regional level, the responses and issues raised give useful insights and benchmarking for a country specific analysis.

3.2.2. Viet Nam and Digital infrastructure

According to statistics from Ministry of Information and Communications, in 2019 the whole country had about 125.7 million mobile subscribers. With a total population of about 96.2 million people, on average each citizen has 1.30 mobile subscribers, nearly equal to developed countries such as South Korea and Japan. However, as some citizens may have more than one subscription, further analysis of subscription rates is needed. SIM cards are low cost (around $2) and easy to buy in convenience stores compared with other regions in Asia. Mobile providers have several data package plans for customers, i.e. Viettel provides data monthly packages for 4G/LTE at around fifty cents for 1Gb. According to the Mobile Network Experience Report, Viettel is the leading operator in experiencing 4G coverage in Viet Nam. According to the report, Viettel's 4G LTE network availability is rated the highest when reaching 95% and Viettel's downlink mobile Internet speed experience ranked first with 28.3 Mbps. Opensignal also shows that Viettel's video, gaming, and voice experience is the highest rated. In another aspect, the growing trend of OTT (Over-The-Top) applications such as Facebook, Zalo, Skype, Viber with outstanding and extremely convenient interactive features will make revenue from traditional telecommunications services decline faster.

The fixed broadband internet market has made good progress in recent years. In 2015 the number of fixed broadband Internet subscribers reached 7.3 million; by the end of November 2020, the total number of subscribers was more than 16.5 million. The maximum speed also increased from 17.3Mbps in 2015 to more than 54Mbps. According to statistics, the potential for the development of fixed broadband internet is considered to be still very large; currently the rate of fixed broadband Internet subscribers in Viet Nam is currently only about 17.2 subscribers per 100 people whereas the East Asia - Pacific region has about 23 subscribers per 100 people. However, one reason that greatly affects the speed of fixed broadband internet development is that mobile technology is developing extremely fast in Viet Nam. Broadband service providers are still very optimistic when the Government has just issued the *National Digital Transformation Programme* which focuses on developing digital government, digital society, and digital economy. In particular, digital infrastructure plays an important role in the national digital transformation. The government expects by 2025, fibre optic broadband network infrastructure will cover over 80% of households and 100% of communes; universalising 4G/5G mobile network services and smart mobile phones, etc. It is both an opportunity and a challenge for service providers when the competition is getting fiercer. In the context of the voice and messaging market continuously declining in both revenue and profit, fixed broadband Internet was expected to become one of the solid fulcrums for the growth momentum of network operators in 2021.

According to the GSMA Intelligence unit of the World Mobile Communications

Association (GSMA), the number of 5G subscribers in Viet Nam is expected to account for about 5% of the total number of mobile subscribers in 2025. On the other hand, the deployment of 5G service may also help increase the revenue of Vietnamese mobile carriers by about $300 million a year from 2025. Viettel, VNPT and MobiFone are now testing 5G Internet services in some rural areas. 5G technology is being considered as a game changer for service providers, having a profound impact on the socio-economic, digital transformation in Viet Nam.

In addition, digital transformation also helps limit risks in the traditional economy such as limiting the impact of the Covid-19 pandemic through a number of online work programmes. According to a report of The World Bank (2019), the competitive rate of ICT and telecommunication services is higher than that of Southeast Asian countries. As a result, service prices are more competitive. Viet Nam's internet is among the most competitive in the region. The rapidly increasing scale of telecommunications services, computers and ICT products in Viet Nam show the rapid development trend of the digital economy in the future. Viet Nam's ability to connect to the Internet quickly and easily is also a great advantage for the digital transformation process with the highest mobile/fixed broadband subscribers in Southeast Asia. However, the level of use of digital payment methods by people is relatively low compared to the region, with about 22%. Viet Nam's determination to transform digitally comes from the corporate sector with a digital payment usage rate of up to 51%. In HEIs, the use of digital payment is still limited. One of the reasons is that HEIs do not provide many services using digital payments, except for tuition fee

payments which are only paid once or twice a year.

The World Bank report (2019) also emphasises that Viet Nam has an advantage in using 3G/4G platforms, according to which, Viet Nam's willingness to switch 3G to 4G services is in the high group compared to countries with similar income levels. In other words, this is an opportunity for Viet Nam to take advantage of advanced 4G technologies such as security systems for facial recognition via cameras, virtual tourism applications, smart agriculture, smart call centres, etc. The quality of transmission, the speed of mobile / fixed bandwidth in Viet Nam is relatively uniform and higher than the average of Southeast Asia (excluding Singapore). Moreover, Viet Nam also benefits from an increased average regional connection speed - reflecting the region's potential for development and international connectivity. Viet Nam's e-commerce platforms are also very rich with fierce competition from businesses, such as Lazada, Tiki, Shopee, etc. Consumer growth rate on e-commerce platforms in Viet Nam was up to 63% in 2017 (We Are Social, 2017).

3.2.3. Higher Education in Viet Nam

The Vietnamese HE system currently has 237 universities and institutes (including 172 public schools, 60 private and people-founded schools, five schools with 100% foreign capital), 37 scientific research institutes assigned the task of training doctoral level, 31 pedagogical colleges and two pedagogical intermediate schools. The World Bank reports that Viet Nam's HE enrolment rate is 28.64% (THE, n.d.)

The higher education diploma system includes four types: (1) bachelor's degree, (2) master's degree, (3) doctoral degree and

(4) diplomas for specific training disciplines such as medical doctor, pharmacists, architects, etc. The duration of higher education includes undergraduate and graduate levels from nine to 10 years, following a four-year university pathway, two-year master's, and three-four year doctorates. The training method according to the credit system in higher education was applied from the 1993-1994 school year, replacing the previous module learning system.

More than 72% of HEIs in Viet Nam are public universities (MOET, 2020). Public universities are either autonomous or government controlled. The World Bank (2020) reported that at the time of writing "… only 23 out of 171 public universities have taken part in the autonomy pilot reform." (p.10). Autonomous universities make decisions on personnel, training, scientific research activities and financial revenue and expenditure. Autonomous universities can set their own tuition fees; a tuition fee cap was due to be introduced by The Ministry of Education and Training (MOET) (Viet Nam News, 2020). In 1988 Viet Nam passed laws allowing private universities, managed by domestic or foreign

Type of Institution	Number of Institutions			Enrolment (in '000)			Enrolment Share (%)		
	2005	2010	2016	2005	2010	2016	2005	2010	2016
Public Universities	111	137	170	934	1,248	1,498	67%	53%	65%
Open Universities (Public)	2	2	2	16	n.a.	26	1%		1%
Private Universities	27	50	65	138	190	244	10%	8%	11%
Public Colleges	130	197	189	277	582	311	20%	25%	13%
Private Colleges	7	30	28	22	144	46	2%	6%	2%
VET Colleges	0	120	190	0	193	183	0%	8%	8%
Total	277	536	644	1387	2355	2308	100%	100%	100%

Table 1: Enrolment in Tertiary Education, by institution: 2005, 2010 and 2016. The World Bank (2020, p.26).

Viet Nam has 154 teacher training institutions, including 15 pedagogical universities, 48 multidisciplinary universities with teacher training, and 30 high schools. pedagogical colleges, 19 multidisciplinary colleges with teacher training, two pedagogical intermediate schools and 40 multidisciplinary intermediate schools are training preschool teachers. In 2018, colleges (with teacher training) had 4,416 lecturers (4,297 public and 119 non-public); Universities and academies had 74,991 lecturers (59,232 public and 15,759 non-public).

individuals or organisations, to be set-up. However, on 17 April 2009, MOET suspended licenses to open private universities in the fields of education, law, politics, journalism, police, and the army (Decision No. No. 61/2009/QD-TTg of the Prime Minister).

MOET manages around 20% of universities with the remainder of public institutions managed by other ministries, ministerial-level agencies and local government. TVET colleges are managed by MOLISA (The World Bank, 2020, p.38). Coordination between different government bodies, and nationwide standards and resources have been highlighted as one way to improve the current system (see, e.g. The World Bank, 2020, p.65-66).

There is also widening inequality both in terms of income and ethnic background in accessing HE (The World Bank, 2020, p.27). Whilst there has been a 6% increase in female students over the 2005-2016 period (to 54% of the total student population) in terms of STEM subjects, female students only comprise of just over a third of these, at specialist universities (The World Bank, 2020, p.28).

The facilities of private universities are often more spacious and modern than those of public universities, so similarly digital infrastructure is also more up-to-date. The leaders of private HEIs have full decision-making power with regard to university management and administration, based on its resources to upgrade the facilities and services. In addition, because public universities depend on government budget, funding applications must go through many steps and is quite complicated. These are fundamental differences between a public university and a private university. In general, network infrastructure and ICT services at private schools are well-invested from the outset, which supports management and administration processes. Some notable examples are Vinschool, FPT Education and Phenikaa. For example, in order to support the digital transformation process and apply technology solutions, Phenikaa has researched, developed and introduced the PHX Smart School package for smart schools. The Phenikaa Group has invested in the start-up company BusMap - which owns the core technology of maps. BusMap is now a member of the consortium ecosystem with a new name: Phenikaa MaaS Technology Joint Stock Company. Based on the core technology of maps, Phenikaa MaaS has researched and successfully developed a number of technology solutions such as BusMap smart

bus application, smart traffic (Smart Mobility), smart bus management (BMS), CovidMap application, etc.

3.2.4. Investment in Viet Nam Higher Education

The World Bank (2020) reports that government funding for Higher Education in Viet Nam remains comparatively low:

> "Between 2004 and 2015, the government's resource allocation to the education sector was a healthy 5 percent of GDP and 17-18 percent of total government spending. However, among the education sub-sectors, tertiary education has received the lowest share of public funding allocation (0.33 percent of GDP, 1.1 percent of total government spending and 6.1 percent of total government spending on education and training)." (The World Bank, 2020, p.11)

Currently, Viet Nam's total education budget is 5% GDP. 0.33% of the total investment is for HEIs (accounting for 6.1% of the total government investment in education). This level of investment is very low compared to other countries in Southeast Asia (Dang & Pham, 2020).

3.2.5. The impact of Covid-19 on Viet Nam HE

Due to the complicated breakout of the Covid-19 pandemic in Viet Nam, more than twenty million students and nearly two million teachers at all levels could not study face-to-face in schools and therefore had to switch to online teaching using video conference platforms such Zoom, MS Teams. Many educational institutions had to close for a long time or switch to online

teaching in the absence of preparation of ICT applications to support teaching and learning. The pandemic highlighted that many educational institutions had limited ICT resources, facilities and network infrastructure for online teaching. In HEIs, students had to study fully online for two years. In early 2022 Viet Nam students and teachers returned to schools. This situation has significantly affected the quality of training programmes, teaching and learning organisation plans, activities, and might raises negative impacts for the development of children in many aspects (Rouse, Bulotsky Shearer, Idzikowski, Nelson, Needle, Katz, Bailey, Lane, Berkowitz, Zanti, Pena & Reeves, 2021).

Online teaching and blended teaching are the solutions chosen by many countries and educational institutions during the Covid-19 pandemic. In particular, online teaching using video conferencing platforms is an effective teaching method helping learners to follow lectures at home. In Viet Nam, some popular online video conferencing platforms being used are Microsoft Teams, Zoom, Google Hangout, etc. at HEIs that plan to use blended learning with internal LMS systems. However, maintaining online learning for a long time has many effects on the psychophysiology development of students. Several studies by Salmi (2021) a Global Higher Education Specialist and Research Fellow at the Centre for International Higher Education, Boston College, USA have shown that:

- Short-term effects and reactions to online teaching:

  o Countries and schools were not prepared for change. HEIs in developing countries encountered difficulties in terms of IT infrastructure and Internet access

  o Impact on students: the closure of campuses and the rapid transition to online education had a negative impact on the lives of students worldwide. Students from minority groups were reported to have particular difficulties with regard to living costs, computer and Internet preparation, and mental health issues

  o Assessment and Exams: HEIs reported difficult decisions about online assessment and the increased risk of fraud

  o HEIs facing the Covid-19 challenge: one positive aspect is the generous response by universities worldwide in contributing their scientific knowledge and e-resources to other HEIs. Research at HEIs developed faster and cheaper Covid-19 quick tests, donated equipment/ medical supplies to support hospitals, etc.

- Long term effects:

  o School opening: in countries where Covid-19 is still complicated, the decisions regarding reopening schools are influenced by political and economic considerations. In Viet Nam, the Prime Minister has decided to allow opening HEIs with all students who have been fully vaccinated after the end of the 2022 Lunar New Year holiday following two-years of closure[3]

  o Academic failures on students: students were not prepared for the online learning experience during

[3] https://baochinhphu.vn/thu-tuong-giao-bo-gddt-huong-dan-cho-hoc-sinh-di-hoc-truc-tiep-sau-tet-

nguyen-dan-som-nhat-co-the-10222011817141016.htm

the 2019–2020; 2020-2021 academic years. In addition to the negative impact on the quality of the online educational experience during the Covid-19 pandemic, mental health problems among students have also increased

- o Resource reduction, demand shifts, service closures and re-structuring: the crisis has exposed structural weaknesses in the existing financial and operation models of many HEIs. For private HEIs that depend entirely on tuition fees and/or international students many met difficulties in financial operation. Many students with limited resources may drop out of colleges. A large number of lecturers could not receive full paid salaries. Moreover, the consequences can have higher impacts in many low-income countries where the budget for public educational institutions is limited, often less than 0.5% of GDP

- o Impact on research activities: laboratory closures and travel restrictions result in researchers not being able to continue experiments, field investigations, or joining and organizing conferences or seminars. Research activities that work online might result in inefficient experiments and collaborative work. A growing concern for all research universities is the reduction of funding in the upcoming years, except for research programmes directly related to Covid-19. Some reports also state that female academics are more negatively affected due to

their concerns for child and family care.

- National supporting policies:

  - o Financial Aid: several high-income countries quickly approved economic rescue packages for colleges, universities and/or students. A few low-income countries also offer substantial support packages, but it is still very limited

  - o Promoting connectivity capacity and online education: many countries have tried to increase Internet connectivity for HEIs. Connection to the Trans-Eurasia Information Network (TEIN) network for research and education is a better choice for HEIs

  - o Flexibility in quality assurance and assessment: there is an effort towards more flexible application of quality assurance criteria and assessment methods in HEIs.

- Supporting policies of the university:

  - o Innovative Educational Approaches: the first step towards digital education is to provide digital materials on a learning management system (LMS), using blended-learning methods. During the Covid-19 pandemic, HEIs focused more on preparation to use digital platforms rather than on other educational needs. Consistency of curriculum, pedagogy, and assessment are at the core of a successful online educational experience. It is also important to realise that online teaching is not about recording

lectures and uploading these to the LMS. HEIs also prepare training for lecturers to apply online pedagogical methods to engage students online effectively and appropriately. Finally, many HEIs have found it impossible to ignore strengthening their academic and psychological support systems for individual students impacted by the health and economic crisis who are struggling to adapt to the new curriculum in online education

- o Governance through the pandemic: the crisis has tested the leadership skills of HEIs leaders, forcing them to make fast and critical decisions to protect the health of the academic staffs and students while maintaining institution operation. The lesson to be learned from this crisis is the importance of effective and frequent communication to honestly and transparently explain the challenges and unknowns presented by Covid-19

- o Inventing new operating models: new opportunities may arise in the post-pandemic era. HEIs might diversify and focus on a wider range of learners. Adopting a lifelong learning model that emphasises prioritisation of learners, recognises competencies to get job, and adapt to the learning needs of diverse customers. HEIs can also form university alliances to award joint degrees, joint courses and fostering research collaborations,

effectively combining their talents and financial resources

- o Equality-Focused Responses: one of the priority tasks of many HEIs immediately following the closure of campus activities was to support students from low-income families and vulnerable groups. Financial assistance includes additional subsidies, interest-free loans and access to food banks. In Viet Nam in early 2020, the first rice ATM in the world was set-up to support people who had become unemployed due to the pandemic.[4] Several supporting programmes awarded computers and laptops to students to support their online study. Viettel also provided specific data plans on their 4G Internet services and others offered Internet packages to support online access to students.

In general Viet Nam HEIs have found it challenging to support students and educators during the Covid-19 pandemic and it is unknown how many students with limited resources have dropped out of their studies. As elsewhere in the world, the pandemic has revealed the depth of the socioeconomic inequalities, further widening the stark gap between countries, between HEIs and between students. It is therefore essential to consider, at the national and institutional levels, how to develop and implement policies to achieve equity for students from low-income families, for students and female staff and for ethnic and racial minorities. In addition, in Viet Nam over the past two years, the Covid-19 pandemic has clearly shown the urgent

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3.2.6. Quality: Accreditation

According to MOET, as of 30 June 2019, Viet Nam had 121 HEIs and three pedagogical colleges or 51% of the total number of HEIs, that met quality "accreditation standards".

There are six universities recognised by international assessment/accreditation organisations (HCERES, AUN-QA). Regarding accreditation for training programmes, there are 16 training programmes of seven universities that are evaluated and recognised according to domestic standards and 128 training programmes of 24 universities and academies are evaluated and recognised according to regional and international standards. There are two higher education institutions ranked in the list of 1000 best universities in the world; several universities are ranked in the list of the best universities in Asia. Talented programmes and engineer/bachelor's training programmes have been developed by many universities. There have been 35 advanced programmes in 23 training institutions; 16 high-quality engineering cooperation programmes according to the France standards at four training institutions and 60 high-quality programmes at other institutions. MOET has reported nearly 550 cooperation and training programmes operating between 85 Vietnamese educational institutions and 258 foreign higher education institutions in 33 countries. countries and territories. Joint training programmes with foreign countries have recruited 86,000 students, of which about 48,000 have graduated (including 18,000 bachelor's degrees, 28,000 masters, 60 doctorates and 1,900 other degrees). and 38,000 people are studying. Promoting colleges in higher education institutions is very important not only in the education sector but also spreading to other areas of the economy - society in Viet Nam.

During the Covid-19 pandemic, MOET issued many circulars and regulations guidelines for online training. The first document to respond to the Covid-19 pandemic at Vietnamese HEIs was the official dispatch No. 795/BGDĐT-GDDH dated March 13, 2020 on the use of remote training for all students which can be applicable to official training courses, continuing education, etc. However, despite this document emphasising that HEIs must ensure quality requirements when implementing remote, online learning-based ICT application, there was no clear definition in this official letter of what the required quality of online training activities should be. In fact, this official letter only references two other previous documents, circulars No. 10/2017/TT-BGDĐT (Regulations on distance learning at university level) and 12/2016/TT-BGDDT (Regulations on application of ICT in management and organisation of online training). Later, MOET issued Official Dispatch No. 988/BGDĐT-GDDH dated March 23, 2020, supplementing Official Dispatch 795, detailing several points related to online training which requires several indicators for online and distance training, such as technical infrastructure, learning materials, organisation of online activities, online assessment and recognition of learning results. However, all the contents in this document still appear to be a generic copy of the current regulations for face-to-face teaching methods, which place the responsibility for quality assurance onto

HEIs, without a lack of detail on what is required to implement online teaching.

From April 24 to June 24, 2020, MOET circulated *Draft Circular on supporting regulations on training at university level*. In this document draft, Article 3, Clause 2 states that "The organisation of online teaching must not exceed 20% of the number of total credits of the training programme" but it requires that HEIs must guarantee resource conditions for online teaching and learning. Recently, the number has changed to 30% of total credits. Moreover, MOET had provided additional circulars (No. 20/2020 regulations on working conditions of lecturers of HEIs and No. 38/2020 on online training cooperation) which also refer to Circular No. 12/ 2016. In addition, it also refers to the draft circular on the set of standards for assessing the quality of distance learning which expired for feedback on March 6, 2020.

In summary, the most recent legal frameworks for online training activities in Viet Nam are currently being shaped in two circulars: No. 12/2016/TT-BGDĐT and No. 10/2017/TT-BGDDT mentioned. The most prominent point is that these documents stipulate the necessary conditions for implementing electronic communication, but not enough conditions to ensure quality. Most of the regulations mentioned in both circulars 12/2016 and 10/2017 from MOET are only informed by traditional training methods with appropriate changes made to fit with online/ distance learning and without a detailed explanation of what criteria qualified. For online teaching and learning, all four educational aspects of organisation, human resources, pedagogy and technique, have not been given full attention in the regulations in the two documents (Đại Nguyễn Tấn, 2020).

In order to support the current legal framework for distance learning, MOET has developed a set of "standards for assessing the quality of distance learning programmes at HEI levels" (MOET, 2020). These standards have a strong similarity with the current set of standards for assessing the quality of traditional training programmes issued under Circular No. 04/2016 of MOET and of the ASEAN University Network (AUN) (AUN, 2015). Therefore, in the study of quality assurance in online training in Viet Nam, Đại Nguyễn Tấn (2020) proposed a framework of standards for the quality of online training in Viet Nam (VELQAF), and proposed set of quality criteria for online courses in Viet Nam (VELQAF-Cs). According to Đại Nguyễn Tấn (2020), it is not an easy task to form a set of national standards for such a new field as electronic communication. Even in many developed countries in the world, there is no perfect set of standards, widely agreed upon by all stakeholders in the education system.

Andersson and Grünlund (2009) conducted a survey of challenges in implementing e-learning in developed and developing countries. This research has grouped challenges into fours which are learner, technology, course, and context. The research shows that technology will be less of a challenge for developed countries because the technology platforms in those countries are already highly developed, and already fit technological requirements of the implementation of online training. Ali, Uppal & Gulliver (2018) examine 259 related works that limit the success of e-learning which are published during 1990-2016. By mixed analysis method, the research has identified factors that can limit the success of online learning which are: pedagogy, technology, and learners. In an empirical study by Puri et al. (2012) a survey of 214 learners at both

bachelor's and master's levels was carried out. The authors identified six factors that have an impact on the success of students on e-learning which are: pedagogy, institutions, technology, assessment, support, and interface. Research by Musa and Othman (2012) made a survey of 450 undergraduate students also found technology to be the most important factor, besides three other factors: learner participation, role of learners teaching in promoting interaction, discussion, and timely delivery of e-materials on the system. Xaymoungkhoun, Bhuasiri, Rho, Zo & Kim (2012) collected 76 usable responses using the Delphi method and Analytic Hierarchy Process (AHP) approach. The research results revealing six dimensions and twenty critical success factors for e-learning systems in developing countries. Findings illustrate the importance of curriculum design for learning performance. Technology awareness, motivation, and changing learners' behaviour are prerequisites for successful e-learning implementations (Xaymoungkhoun et al, 2012). Also based on the technology acceptance model, but including cultural, support and teacher factors, Ahmed (2013) looked at the issue from a narrower angle, that is, readiness teacher involvement in the use of e-learning. Using multiple regression to analyse a sample of 281 observations, the author found that cultural factors have the strongest impact. Thus, the role of cultural factors has an indirect impact on the success of online learning through

encouraging the participation and use of online learning by teachers (Ahmed, 2013).

The Covid-19 pandemic caused a huge impact on HEIs and fostered the process of changing their teaching method from face-to-face to online classrooms using video conferencing platforms. However, whilst teaching and learning moved from face-to-face to online, the full affordances of different technologies were not necessarily being utilised. Obviously, in the future, when online teaching is recognised, it means that long-term solutions and plans must be considered to ensure the quality and effectiveness of teaching. Therefore, determining the factors affecting the effectiveness of students' online learning is important, to improve the efficiency and quality of teaching and learning at HEIs.

3.2.7. Quality: University rankings

In assessing the quality of Viet Nam HEIs, The World Bank (2020) compared different countries across key global rankings of universities and noted that "Vietnam is at the bottom of the benchmarking list, slightly behind the Philippines and Indonesia, and far below other countries in the region" (The World Bank, 2022, p.29).

The following compares data reported by The World Bank (2022, p.30) with the latest available information, and includes the latest Singapore and Philippines figures, as well as UK figures for reference:

Table 2: Comparison of current (2022) and The World Bank (2020) (WBR) reported number of top 1,000 universities rankings per country

	Webometrics (WBR)	Webometrics 2022[5]	QS Rankings (WBR)	QS Rankings 2022[6]	THE (WBR)	THE 2022[7]
Philippines	0	0	4	4	2	1
Singapore	3	4	3	7	2	2
UK	80	78	76	74	92	93
Viet Nam	0	1	2	2	2	2

Two Vietnamese universities also now feature in the Shanghai Ranking of universities for 2021.[8]

As this comparison shows, there has been an overall positive shift since The World Bank (2020) report. Vietnamese universities have either increased or held the same number of institutions (and in some rankings the same institutions) in the top 1,000 listings, across a variety of university ranking systems. The Webometrics 2022 ranking also saw Viet Nam HEIs enter the top 1,000 listings, with Viet Nam National University rank 944.

Whilst there is no change in the previously reported number of HEIs in the top 1,000 of the QS Rankings, three Viet Nam HEIs are included in the 2022 rankings with two universities in the top 1,000 (Viet Nam National University, Ho Chi Minh City and Vietnam National University, Hanoi). Two

Viet Nam HEIs also feature in the THE 2022 top 1,000 HEIs: Duy Tan University and Ton Duc Thang University.

Whilst there is no change in the reported number of HEIs in the top 1,000 when comparing the 2020 and 2022 THE rankings, there is a shift in the number of HEIs featuring in the overall listings. From three institutions total in 2020, the THE 2022 listings show a total of six institutions listed. In addition to those institutions in the top 1,000 the following HEIs feature in the overall listings: Vietnam National (Hanoi) (1001-2000), Hanoi University of Science and Technology (1201 +), Vietnam National University (Ho Chi Minh City) (1201+) and The University of Danang (Reporter). The six institutions listed by the THE Rankings

[5] https://webometrics.info/en
[6] https://www.topuniversities.com/university-rankings/world-university-rankings/2022
[7] https://www.timeshighereducation.com/world-university-rankings/2022/world-ranking#!/page/0/length/25/sort_by/rank/sort_order/asc/cols/stats
[8] http://www.shanghairanking.com/rankings/arwu/2021

for 2022 have 245,040 students in total, with an average of 40,840 per institution.[9]

With regard to the THE rankings, it is of particular note that no Vietnamese HE featured prior to 2020.[10] Whilst the number and specific HEIs that have featured in the THE rankings over the 2020 and 2021 period have fluctuated/changed, there has been an overall increase of institutions featuring in 2022. This is a positive reflection on Vietnamese Higher Education overall and bodes well for the future.

Although further analysis over a longer period is required, and the comparison with selected other countries above is limited, it will be of interest to continue comparing different countries in the region over the next few years. Whilst Singapore has held or increased across all rankings shown, the Philippines has not entered the Webometrics rankings and saw a reduction in the number of HEIs in the THE top 1,000 in 2022. Viet Nam has therefore moved up The World Bank (2020) benchmarking list since 2020, when compared with the Philippines.

Finally, UK universities have a slightly reduced presence in the top 1,000 rankings according to Webometrics and QS University Rankings whilst an increase of one institution on the THE rankings, compared with that previously reported by The World Bank (2020).

3.2.8. Research and research networks in Viet Nam

Lack of infrastructure is identified as a critical issue for Viet Nam in The World Bank's (2020) report on HE policy and strategy. Impacting on the ability of

institutions to "research and technology transfer" (The World Bank, 2020, p.9) and engage with industry, the importance of universities building international collaborations to support research and development (R&D) is emphasised (The World Bank, 2020, p.58). International collaboration would also support the development of Viet Nam HEI's research capacity and reach (see The World Bank, 2020, p.59).

The World Bank's (2020) comprehensive review of HE in Viet Nam notes a number of issues which may impact on digital transformation but highlights the critical role of how MOET's *The Higher Education Strategy for 2021-2030* is implemented (see The World Bank, 2020, p.49).

> "University research funding has three key challenges: low level of overall budget, highly fragmented management via numerous agencies and ministries, and limited incentives for collaborative and quality research" (The World Bank, 2020, p.46).

However, there are a number of opportunities to help support Viet Nam HEIs improve both the quantity and quality of research. The World Bank (2020) reports that research funding is insufficient and requires a change in focus so that universities themselves are receiving research funding (The World Bank, 2020, p.37). Postgraduate study in Viet Nam has also seen an increase in the capacity of Viet Nam institutions for research, but not yet yielded results in terms of quality and quantity of research outputs (The World Bank, 2020, p.37). Targeted funding to help support Viet Nam early career researchers and doctoral students, who could work with

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[9] Authors own

[10] Authors own

colleagues at international universities as part of knowledge exchange partnerships, could be one way forward to both increase capacity and funnel funding to universities themselves. Increasing private sector and university research collaboration and a better understanding of how to foster these relationships is also required (see The World Bank, 2020, p.38).

In recent years, colleges in Viet Nam have received a lot of attention from research groups at universities, at research institutes and right at businesses providing digital education solutions. Dr. Nguyen Thi Huong Giang and colleagues have conducted many studies on Teaching Strategies in the Digital Age, Online Course Development, Smart University, Core Technology in Smart Pedagogy (Pham Thi Thanh Hai, Nguyen Thi Huong Giang, 2018 & Hoàng Minh Sơn, Bùi Thị Thúy Hằng, Nguyễn Thị Hương Giang, 2019). Vietnam-Korea University of Information and Communication Technology (VKU) has received a project worth USD 7.7 million sponsored by the Korean Government to "Improve the capacity of education - training, management and scientific research for the period 2022-2026", through which the school launched the Digital Science and Technology Institute (eSTI). According to Assoc. Huynh Cong Phap, Rector of the University, eSTI will be the institute to research, train, develop solutions, apply, deploy, transfer and advise on policies in all manufacturing industries in the field, information technology, communication and digital economy, creating an environment to connect, promote scientific development and contribute to accelerating the digital transformation process in the Central - Central Highlands in particular and the

whole country in general." (Hiền, 2021) Nguyen Duc Son (2020) has also written about digital transformation in vocational training in Viet Nam. However, this article focuses on the application of e-learning in vocational training in Viet Nam. In addition, in the orientation of developing smart education at Hanoi National University, there is an orientation towards building and operating a digital university model, an ecosystem in training, research and product transfer approach 4.0 technology, which will create an organic connection between training, research and training institutions, with high interdisciplinary character. This is comprehensively and systematically innovated from teaching technology to learning activities, practice, curricula, learning materials, facilities, capacity to access technology of lecturers and researchers for the period 2019-2025.

The Vietnam Research and Education Network (VinaREN) is a member of Trans-Eurasia Information Network (TEIN) network,[11] operated by the National Administration of Science and Technology Information, Ministry of Science and Technology and was launched in 2006 (Nguyen, 2013). Some applications using VinaREN include online video conferencing, EduRoam (an international Wi-Fi internet access roaming service for users in research, higher education and further education).[12]

Currently there are 80 HEI partners in Viet Nam with high speed internet connections to TEIN networks. 61 members of VinaREN were reported at the end of 2013 (Nguyen, 2013) representing a total membership of just over a third of all Viet Nam HEIs

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[11] https://www.tein3.net/

[12] https://eduroam.org/

(33.76%).[13] As The World Bank comments "surprisingly many universities are not connected to VinaRen…" (The World Bank, 2020, p.9). Why has there been little increase in membership of VinaREN over the past nine years and what are the barriers to participation in the network? As part of the TIEN network, VinaREN is promoting digital readiness of HEIs in Viet Nam, and so has a crucial role to play in supporting digital transformation.

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[13] Authors own

4. Digital transformation in Viet Nam Higher Education

Digital transformation is one of the top concerns of technology businesses in Viet Nam. The Vietnamese government also pays special attention to digital transformation in the industrial 4.0 and assigns the Ministry of Information and Communications to develop the National Digital Transformation Project and submit it to the Prime Minister right in 2019 (Tran Quang Tuyen & Le Van Dao, 2019).

The World Bank report (2020) on HE in Viet Nam identified "traditional curriculum and pedagogy, under-developed ICT infrastructure, and inadequate staff talent management systems" (p.8) as key challenges for Viet Nam HE, particularly in relation to addressing workforce needs. Indeed, whilst a small number of universities are forging ahead and integrating digital technologies, "Vietnamese universities in general lack the foundational infrastructure and ICT technology to take advantage of digital and/or disruptive technology to support innovative educational approaches in the classrooms" (The World Bank, 2020, p.9). Moreover, in addition to a lack of infrastructure (both foundation and ICT) alongside other demands (such as city based universities increasing their provision for different types of learners, in other locations) The World Bank (2020) reports:

> "An assessment carried out as part of the VNUDP project suggests that even the leading universities in the country lack robust foundational ICT infrastructure and strategic enabling pillars – good governance and effective and sufficient financing – necessary to establish and take advantage of the digital and disruptive technologies." (The World Bank, 2020, p.35).

Whilst collaboration with the private sector is a possible route to support, The World Bank (2020) reports that this would require further legislation to effectively support this route (p.35).

According to Microsoft's 2018 research in the Asia Pacific region, in 2017 the impact of digital transformation on gross domestic product (GDP) was about 6%, in 2019 it was 25% and in 2021 it was 60% (Microsoft Asia News Centre, 2018). McKensey's research results show that in 2025 the impact of digital transformation on GDP of the US is projected to be around 25%, with Brazil at 35%, and in Europe around 36%. From all aspects and advantages of digital transformation, it can be easily seen that the impact of digital transformation on GDP growth for countries, especially suitable for developing countries.

The implementation of digital transformation varies by region and country, depending on the level of technology development and the speed of business model transformation. Europe is considered the region with the fastest digital conversion speed, followed by the US and other countries in Asia. In Viet Nam, digital transformation models are also bringing useful services for the people and effectively utilising society resources. New technology helps start-ups gain an advantage over traditional industrial sectors. In the context of the digital economy and the complicated developments of the current Covid-19 pandemic, traditional

organisations, businesses, and models must make dramatic changes in their operations to survive. Viet Nam has a population of 100 million people and is the second fastest growing economy in the region. The country has a young, dynamic population with readiness to use updated technology show great potential in digital transformation (Tap Chi Con So & Su Kien, 2020). The scale of the digital economy in Viet Nam has increased from 3 billion USD in 2015 to 12 billion USD in 2019 and 14 billion USD in 2020, and it is expected to reach 52 billion USD by 2025 (Megastory, 2021). In particular, e-commerce, one of the most important components of Viet Nam's digital economy, has significantly contributed to promoting economic growth in Viet Nam (Megastory, 2021). These are powerful opportunities for Vietnamese businesses to make a breakthrough in the market thanks to digital transformation.

In the field of education and training, digital transformation supports educational innovation in the direction of reducing lectures, from transferring knowledge to developing learners' capacity, increasing their self-study ability, and creating ubiquitous learning opportunities, and contributing to create a learning society and lifelong learning. The explosion of technology platforms IoT, Big Data, AI, SMAC (social network - mobile - big data analysis - cloud computing) is forming the digital education infrastructure. Accordingly, many smart education models are being developed on the basis of IT applications. IT applications effectively support the personalisation of learning (i.e. each person follows a separate curriculum and their own learning approach and this is automatically

supported by IT systems), making accessing the huge knowledge store on the network fast and easy, and helps the interaction between families, schools, teachers, students. Elsa Speak is an artificial intelligence (AI)-powered language platform designed to help non-native English learners improve their speech and pronunciation via short, app-based and personalised lessons.[14] Knewton has been around for a while compared to other personalised learning resources. The company uses learning analytics to track past performance and modify future curricular experiences based on that performance.[15]

4.1. Current provision and policy

Digital transformation in education and training in Viet Nam currently focuses on educational management and innovation in teaching and learning. Education management includes digitising management information, creating large, interconnected database systems, deploying online public services, and applying new technologies (AI, blockchain, etc.) data analysis, etc. to manage, operate, forecast, support decision making in the education and training industry quickly and accurately (Linh, 2021). A notable example in university online management is eHUST developed by Hanoi University of Science and Technology, Viet Nam for its management.[16]

Currently, MOET has identified applying ICT applications as its key task to effectively implement Resolution No. 29 of the Party Central Committee on renovation of

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[14] https://elsaspeak.com/en/
[15] https://www.knewton.com

[16] https://e.hust.edu.vn

education and training in Viet Nam. The Prime Minister of Viet Nam issued a Project to strengthen the application of information technology in management and support teaching – learning, scientific research activities and improve the quality of education and training in the 2016-2020 period, with a vision to 2025. The main task is to deploy the management information system and database for the education sector to meet the requirements of connection, integration, and information sharing. The project will also promote the application of information technology to innovate teaching and learning methods, assessment, and scientific research. Specifically, the Ministry will implement a shared digital repository which includes electronic lectures, multimedia digital learning materials. gadgets, electronic textbooks, simulation software and other learning materials. iGiaoDuc[17] is the online digital repository which is based on a cooperation activity between MOET and the Government's Digital Vietnamese Knowledge Project and other ICT partners to build a platform with the goal of collecting and sharing e-contents for students and teachers of all levels in Viet Nam to support digital transformation in teaching and learning (Nam, 2020).

Some national policies have been released by MOET to promote digital transformation of education such as regulations on ICT application in management, organisation of online training, regulations on distance learning at university level, regulations on management, operation and use of the industry-wide database system, high school ICT application model, inter-connection data standards, and others.

In MOET, the Ministry has implemented a shared database for 63 Departments of Education and Training of Viet Nam, 710 Departments of Education and Training and about 53,000 educational institutions. Currently, it has digitised and identified the data of about 53,000 schools, 1.4 million teachers, and 23 million students. This database has effectively supported enrolment and statistics and reports in the whole industry and helped managers at all levels to issue effective management policies. Recently, it has contributed to solving the problem of excess and shortage of teachers in schools according to each locality and subject. About 82% of schools use school management software, electronic grade books, electronic school records and most higher education institutions use school management software.

The electronic administrative management system using MOET can support connecting 63 Departments of Education and Training and more than 300 universities and colleges across the country to promote efficient operations. In the field of renovation in teaching and learning, teachers are encouraged to participate, contribute to share learning materials in the digital data warehouse contributed to the Vietnamese Knowledge System which digitise nearly 5,000 quality e-learning electronic lectures, a repository of doctoral theses with nearly 7,000 theses, a multiple-choice question bank with over 31,000 questions, which will promoting lifelong learning. Regarding digital human resources, basic IT courses will be included in compulsory teaching right from 3rd grade of primary school. STEM education is integrated into school subjects which try to connect students' learning

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[17] https://igiaoduc.vn/

through technology application activities to solve problems. In higher education, implementing a specific policy to promote IT human resources, thereby helping training institutions increase opportunities to cooperate with businesses and international organisations to participate in ICT training.

According to Dr. To Hong Nam (2020), Deputy Head of ICT Department, MOET, the current digital transformation in HEIs still have many difficulties and shortcomings that need to be further considered and improved, such as:

- Network infrastructure, IT equipment (such as computers, cameras, printers, scanners), and Internet connection for schools, teachers and students - especially in remote and disadvantaged areas - are outdated. Several areas in Viet Nam have not met the infrastructure requirements for digital transformation (both in management and in innovation of teaching and learning). This is also a cause leading to inequality in learning opportunities and access to knowledge among students in different regions and schools

- Digitising and updating digital learning materials requires a large investment in human resources (including management and implementation) as well as financial resources to ensure the quality for the good of all students at all school levels. Therefore, at present, the problem of developing digital learning materials (such as e-books, electronic libraries, multiple choice question banks, electronic lectures, e-learning software, simulation application software) is still not yet organised and systematic making difficult to control the quality of

e-contents. Moreover, LMS are also deployed widely in the region with several providers, lacking synchronisation and sharing contents between schools

- Collecting, sharing, and exploiting educational management data and digital learning materials needs a common legal corridor in accordance with regulations on copyright, intellectual property, information security, electronic transactions, and it should follow the law of sharing and providing information. More specifically, regulating the list of information subject to mandatory declaration and input data - distinguishing it from private personal information belonging to individuals; copyright regulations for subject matter experts under what circumstances e-contents are being used, or regulations on the exploitation of databases and digital data warehouses (who is entitled to exploit, what exploitation, to what extent, what conditions, who appraises, who allows); stipulating the legality of electronic records in general and grade books and electronic school records in particular (especially in the case of national level transfer or school transfer). Only when these bottlenecks are considered and addressed will the development of a digital data and learning system be developed widely to meet the requirements of national digital transformation in general, and education and training in particular.

Viet Nam is considered one of the leading countries with timely actions in providing legal regulations/ laws in the process of national digital transformation. Since 2009, Viet Nam has promulgated the Law on High

Technology. In 2010, Viet Nam government supported the National High-tech Development Programme until 2014. The Viet Nam president board issued national document No. 36-NQ/TW on "Strengthening the application and development of information technology to meet development requirements of Viet Nam sustainability and international integration". In September 2019, Viet Nam president boards issued document No. 52-NQ/TW on "A number of guidelines and policies to actively participate in the fourth industrial revolution setting a goal that by 2030, the digital economy will account for about 30% of GDP".

According to the government policy, Viet Nam has issued many documents: Resolution No. 41/NQ-CP dated May 26, 2016 on tax incentives to promote development and application of information technology; No. 16/CT-TTg on 4th May 2017 on strengthening access to Industry 4.0. Especially the Prime Minister's Decision No. 749/2020/QD-TTg which approve "The National Digital Transformation Programme to 2025, with orientation to 2030". Viet Nam is one of the few countries in the world issue a national digital transformation strategy with the goal that by 2025, the digital economy will account for 20% of GDP; by 2030 account for 30% of GDP; and 50% of the population has an electronic payment by 2025 and by 2030 80% of the population. Moreover, other legal frameworks have been developed to support national digital transformation strategy such as the Law on Electronic Transactions (2005), the Law on Information Technology (2006), the Law on Radio Frequency (2009), the Law of Cybersecurity (2018).

The document of the XIII Congress determined that by 2025, the digital economy will account for 20% of GDP, and

by 2030, the digital economy will account for about 30% of GDP. To achieve the above goal, the document emphasised the need to improve the business environment, promote innovative start-ups, develop industries, fields and businesses based on science and technology, especially preparation toward the Industrial Revolution 4.0. Viet Nam government focus on perfecting institutions, policies and laws in line with the market mechanism and international practices to develop the digital economy and digital society. Viet Nam government strongly support developing ICT infrastructure, build and develop synchronously national, regional and local data infrastructure with synchronous and unified connection, creating a foundation for development of digital economy, digital society, etc. The National Digital Transformation Programme to 2025, with a vision to 2030, has clearly stated a number of tasks and solutions to promote the development of the digital economy, with a focus on developing digital technology businesses, shifting from assembling and processing information technology into digital technology products, industry 4.0, digital content development, creative industry, platform economy, sharing economy, e-commerce and smart manufactures. This will promote digital transformation in businesses to improve the competitiveness of businesses and the whole economy of Viet Nam. In the National Digital Transformation Programme to 2025 of Viet Nam, there are important things related to digital transformation in HEIs such as: (i) promote training and education of ICT experts; (ii) promote training digital transformation courses for leaders and managers; (iii) update new training courses in ICT technologies such as VR/AR, blockchain, Machine Learning, etc.; (iv) promoting STEM, MOOCs, open

educational resources in national education policy.

4.1.1. Urban and rural areas

Rural areas face specific challenges in relation to digital transformation:

- Limited access to network infrastructures

- Limited of budget for digital transformation

- Limited on digital skills

- Per capita income is low

- Few services offered to people.

In general, Vietnamese HEIs in rural areas are ranked lower than universities in urban areas. This can lead to:

- Difficulty with student admissions and lecturer recruitment

- The application of traditional teaching and learning methods rather than the application of digital skills

- Difficulties in teaching and learning during Covid-19

- Lower research quality and quantity

- Lower employability of students when compared to HEIs in urban areas

- Lower tuition fees and limited student numbers lead to low University budgets; some HEIs residing in rural areas have yet to receive additional budget from their provinces.

- Quality assurance is difficult to access/evaluate.

To help address these challenges, Vietnamese HEIs can learn from UK models and experiences of digital transformation. UK HEIs can share their experiences on

methods and processes to support consulting and the development of a digital transformation roadmap for Vietnamese HEIs. This will help support the development of a methodical digital transformation strategy, integrating ICT solutions and choosing which ICT solutions are appropriate. Often these tasks need a team of experts with both education and technology experience to help and consult Vietnamese HEIs leaders. Moreover, with limited budget and professional resources, Vietnamese HEIs face a number of difficulties and challenges to build a Digital Transformation Roadmap for their strategies. MOET and the British Council in Viet Nam could consider how best to support and enable UK experts and/or companies to visit Viet Nam, share experiences and help Vietnamese HEIs build an appropriate roadmap for digital transformation. MOET could, for example, select some key Vietnamese HEIs to support, review and implement UK frameworks for digital transformation and expand this model to other Vietnamese HEIs across the region.

4.2. Technology application in classrooms and schools

In HEIs, many large lecture halls at universities are equipped with large touch screens/ or at least projectors with laptop computers making it convenient for students to follow the lectures. In most HEIs, students are allowed to use a computer with an internet connection to download materials from teachers or learning on LMS systems. Many libraries at HEIs have the management software to support students

to find books or learning materials easily. At HEIs, there is also public learning space for students, or other resources for learning to supports students are increasingly focused on digital and intelligent tools. Classrooms in the 21st century have smart electronic boards (instead of blackboards), smart desks instead of conventional desks. In some HEIs, students can experience virtual reality tours, i.e. VNU-IS Virtual Tour from Vietnam National University[18] or Phenikaa Virtual Tour. In addition, LMS such as Canvas and Moodle help teachers to provide learning materials in different forms, manage the learning progression of students and easily share documents, videos, and audio lessons. Real-time video conferencing software helps to implement ad hoc online teaching due to Covid-19 pandemic such as Zoom, MS Teams or Google Hangout which transform traditional classrooms into real-time television classes, ensuring the learning process is maintained during the Covid-19 situation.

4.3. Application of IT in innovation of teaching methods

- E-learning/ Massive Open Online Course (MOOC) platforms: teachers and students can interact with each other through online learning management software. Students can easy access MOOC platforms worldwide with good quality courses or work towards a degree on Udemy or Coursera. These platforms potentially have the ability to personalise learning

for each student and could potentially support efficiency of learning and promote lifelong learning. There are many popular MOOC platforms such as Coursera, Udemy and Udacity but there are few prominent names in Viet Nam aside from Edumall and Kyna.vn. These providers have fewer/ limited coursewares when compared with other international MOOC providers and cannot provide degree training due to MOET policy

- Learning-based projects: this is a modern learning method which is now applied in most HEIs in Viet Nam. Students no longer study theoretical works but are also involved in research projects or joint projects with enterprises in schools. During the project, the students will be formed into a group and then assigned each different task to do and collaborate. This learning-based project will promote students to prepare other working skills (teamwork, soft and communication skills) while studying

- Learning method using virtual reality application: learning through virtual reality application gives learners an experience like learning in a real classroom. However, applying VR/AR into laboratory experiences is cost effective

- STEM, programming, Thinking Math or Technological English classes, etc. are no longer limited in developed countries. In Viet Nam, some outstanding learning programmes in this trend can be mentioned such as: E-Robot Coding[19] - familiarise yourself with programming - develop creative

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[18] https://vr.isvnu.vn

[19] http://e-pro.vn

thinking with intelligent robots for Kindergarten and Primary School children, Touch English[20] – The English familiarisation programme for children from 18 months old, etc. and other STEM programmes have brought different effects to the traditional education system in Viet Nam.

4.4. IT application in school administration

- Learning management system (LMS): most HEIs in Viet Nam support LMS to provide learning management system to help teachers collaborating with students, manage learning progress and share lecture contents. Some notable tools are Moodle, Blackboard, or local tools developed by Viettel or VNPT. However, there are some limitations of using LMS in HEIs is the difficulty of developing e-learning courses, recording video lectures

- School management system: several tools are being used in HEIs to support school management system, such as web portal, academic and research management, finance management, etc. However, since those tools are being used in HEIs for a very long time, there are some concerns of synchronous databases on progress of digital transformation

- Student management and admission: this is a complicated process because each student's profile needs to go through many steps under the responsibility of many different positions and departments. In HEIs, student management and admission tool is a very important tool which can involve preliminary consultation, face-to-face consultation, registration, entrance test and class scheduling, and admission procedures, etc. Training enterprises often use process management software to manage student stages.

4.5. ICT in Viet Nam Higher Education

According to the survey of ICT applications in Viet Nam education in 2020,[21] network infrastructure and resource; and teaching-learning methods have the highest rates among all level, with 2.53/3 and 2.45/3 respectively. According to the report, the survey respondents did not think that the National Policy, Plan on IT in Education or Infrastructure and Real Resources was at the transition stage. However, there are huge differences between education levels: college and university level in many fields, most of which are already in the spreading stage; At the secondary level and primary level, some areas are still at the adoption stage of getting used to ICT in education.

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[20] http://touchenglish.vn

[21] https://vietnam.vvob.org/sites/vietnam/files/report_on_survey_ict_in_education_status_and_targets_for_2020_v0.0_120418_vn.pdf

Table 3: Minimum, maximum marks and mean value in fields of ICT in education at Primary, Secondary and HEIs levels (The first six fields)[22]

Fields	Level	N	Minimum	Maximum	Mean	Median	S. Deviation
Field 1: Infrastructure and resources	Primary	19	1	2	1.32	1.00	.478
	Secondary	19	1	2	1.84	2.00	.375
	HEIs	19	2	3	2.53	3.00	.513
Field 2: Teaching and Study Method	Primary	19	1	3	1.63	2.00	.684
	Secondary	19	1	3	1.95	2.00	.705
	HEIs	20	1	3	2.45	3.00	.686
Field 3: Professional Developing for teachers and school managers	Primary	19	1	2	1.53	2.00	.513
	Secondary	19	1	3	1.89	2.00	.658
	HEIs	20	1	3	2.30	2.00	.657
Field 4: CNTT in national programme	Primary	18	1	2	1.33	1.00	.485
	Secondary	18	1	3	1.67	2.00	.594
	HEIs	18	1	3	2.06	2.00	.725
Field 5: Community and counterparty	Primary	19	1	2	1.32	1.00	.478
	Secondary	19	1	3	1.68	2.00	.671
	HEIs	20	1	4	2.05	2.00	.887
Field 6: Evaluating	Primary	19	1	2	1.58	2.00	.507
	Secondary	19	1	3	1.95	2.00	.705
	HEIs	20	1	4	2.20	2.00	.894

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[22] https://vietnam.vvob.org/sites/vietnam/files/report_on_survey_ict_in_education_status_and_targets_for_2020_v0.0_120418_vn.pdf

Table 4: Minimum, maximum marks and mean value in fields of IT in education (The last four areas)[23]

Fields	N	Minimum	Maximum	Mean	Median	S. Deviation
Field 7: Evaluating and research	19	1	3	2.00	2.00	.745
Field 8: National visibility about IT in education	20	1	3	1.75	2.00	.639
Field 9: National policy and plan about IT in education	19	1	4	2.21	2.00	.855
Field 10: Supplying national policy about IT and Education	19	1	4	2.00	2.00	.745

4.6. Policies and Strategies

ICT department, MOET has digitised an educational database and assigned identifiers to 53,000 schools with records of 24 million students and 1.4 million teachers. This database is expected to support MOET to manage and implement their policies effectively. Since 2018, thanks to this educational database, MOET has organised data analysis and found some inadequacies in distribution and quality of lecturers/ students in some regions. Since then, MOET has proposed policies to manage teachers more efficiently such as quality of teachers according to the standards, and the results of the annual teacher evaluation.

This database is also used for MOET to propose to Government and National Assembly to upgrade teacher salary recently.

A repository of digital and open learning materials has been built with 7,000 electronic lectures, 200 titles of popular textbooks, and several virtual experiments. During the Covid-19 pandemic, schools had to close but MOET strongly supported the slogan, "stop going to school, but don't stop learning". Therefore, almost 80% of schools switched to online teaching by video conferencing tools such as Zoom, MS Teams, etc. The 2019-2020 and 2020-2021 school year has basically been completed

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https://vietnam.vvob.org/sites/vietnam/files/report_on_survey_ict_in_education_status_and_targets_for_2020_v0.0_120418_vn.pdf

while ensuring the health of students and teachers of the whole industry.

In addition, in order to reduce the teaching load of lecturers, on January 18, 2019, MOET issued document 138/CT-BGDĐT on reducing using records and books in schools which clearly states: teachers are allowed to choose the form of presentation, handwritten or computer-based; gradually using electronic records and e-books instead of the current ones according to a roadmap suitable to local conditions, schools and teachers' performance; the education management sector at local region does not provide policies of issuing any kinds of records and books to schools or teachers. The directive document is supported by teachers across the industry, because the digitisation of books and records will help them reduce administrative procedures, to focus more on teaching and learning. Currently, MOET ICT system has connected the e-office to more than 300 universities and 63 Departments of Education and Training across country, so the exchange of documents between the Ministry and institutions is done via the e-office system. The leaders and manager of MOET and other educational sectors both use digital signatures. MOET expects that in the near future, learning results and student information will be managed fully by ICT services.

On December 23, 2021, Deputy Minister of MOET, Assoc. Prof. Hoang Minh Son organised a workshop on digital transformation in education, training. MOET aims to provide a set of criteria and indicators to evaluate the digital transformation of educational institutions. The draft set of criteria and indicators for assessing digital transformation of educational and training institutions is built

on criteria that closely follow the content of the national digital transformation programme. Those indicators will be applicable to educational institutions from preschool to university, both private and public institutions. The following seven indicators have been proposed for evaluating digital transformation at educational institutions:

- ICT infrastructure, digital platform and information security

- human resource development

- resources

- institutional development

- digital governance performance

- digital teaching - learning activity

- digital service activity

These indicators will be the basis for promoting digital transformation in educational institutions. Moreover, these indicators can point out strengths that need to be promoted, and limitations that need to be overcome and analytic information to support educational institution policies. MOET goals to develop a set of criteria and indicators to evaluate digital transformation capacity will serve as a measure for educational institutions to have a concrete orientation to invest in the future.

On November 23, 2021, Minister of MOET, Prof. Nguyen Kim Son organised a meeting of the Committee on Education and Human Resource Development, under the National Council for Sustainable Development and Competitiveness Enhancement to promote educational competitiveness according to Decision No. 2605/QD-BGDDT dated August 13, 2021 of the Minister. At the meeting, the Committee members discussed on the project draft document on

"Strengthening the application of information technology and digital transformation in education and training for the period 2021-2025" by MOET. Director of the ICT Department, MOET, Mr. Nguyen Son Hai said "The overall goal of the Project is to promote strong innovation in teaching and learning methods, government management of education institutions, and contribute in the quality and effectiveness of the national education system, forming a digital foundation for a learning society, and creating opportunities to access good quality education at low cost, contributing to the development of high-quality human resources to meet the country's socio-economic development requirements. In the period of 2021-2025, the Project will focus on major tasks and solutions such as upgrading relevant policies; innovating administration and management of educational institutions; developing an ecosystem for digital transformation of teaching-learning activities and digital human resource development. In particular, it will deploy an administrative platform to create an online working and interactive environment for educational administrators, teachers, staff and learners; deploying advanced teaching models on digital platforms. At the same time, the project aims to develop digital data warehouses, open shared learning materials, electronic lectures, multimedia learning materials, electronic textbooks; Its aims also include deploying STEM/STEAM education model, developing programming thinking, implementing appropriate computer science programmes, and improving the digital capacity for teachers, education administrators, staff, and learners to ensure effective management and work in the digital environment.

Affirming the urgency and long-term benefits of digital transformation, Minister Nguyen Kim Son, Chairman of the Education and Human Development Committee said digital transformation in HEIs is one of the breakthrough stages, aiming to create important changes in education. Moreover, digital transformation cannot be done in a short term, but needs to be started. According to the Minister, digital transformation in education does not just limit at innovation of teaching and learning, but also shaping all activities on digital platforms, creating more learning opportunities, making the educational operation more effective and quality. To take quick steps in digital transformation, Minister Nguyen Kim Son said that it is necessary to see all the benefits and advantages of digital transformation. In educational institutions, it's better governance and administration, more convenient learning, and teaching methods with high quality. If digital transformation is success in educational institutions, this will be a breakthrough in educational thinking, management, and administration, innovation of teaching and learning activities of learners towards solving sustainable and long-term problems in the education sector", emphasised the Minister.

4.7. Barriers and Challenges

The Annual Report on Enterprise Digital Transformation 2021 by the Ministry of Planning and Investment of Viet Nam identified the following barriers and challenges to digital transformation in enterprise. These identified challenges are considered to be of relevance to Viet Nam HEIs also:

- First, the barrier of investment and technology application costs: enterprises think that the cost of investing in digital technology solutions and the cost of deploying and maintaining technology is relatively high compared to other costs. A similar barrier may exist for Viet Nam HEIs, especially for public universities which rely on government budget

- Second, difficulties in changing/ adapting new business organisations and practices: digital transformation requires changing business organisation workflows that might be difficult to implement, and which depends on leadership. It may be the case that larger HEIs may encounter more issues than smaller HEIs in this regard

- Third, lack of internal human resources to apply digital technology: lacking ICT experts and ICT-skills staff is a bottleneck for businesses including HEIs

- Fourth, lack of digital technology infrastructure or investment cost to ICT infrastructure: digital technology infrastructure is considered one of the most important factors when businesses perform digital transformation. However, the consequences of high investment costs can lead to a lack of necessary infrastructure for businesses to carry out digital transformation effectively and comprehensively

- Fifth, lack of synchronous/ inter-connection of ICT platforms: digital solutions and technologies are diverse, constantly updated in other departments of organisation might lead to this failure. More specifically, in HEIs there are several ICT platforms for financial management, admission management, human resource management, inventory management, etc. and they are lacking centralised, shared databases

- Sixth, difficulties in integrating digital technology solutions: The use of management software, serving production and business activities sporadically and without planning makes enterprises face many difficulties to perform digital transformation

- Seventh, lack of commitment and understanding of the leaders and managers

- Eighth, lack of commitment and understanding of employees/ staff: HEIs have a range of different employees (e.g. administrative, technical, managerial, teaching) and students to consider when developing training and support for digital transformation. Different groups require different ICT training programmes and support

- Finally, regarding data privacy: In HEIs, student/ staff/ lecturer information privacy is a new concern when implementing new ICT platforms.

4.8. Viet Nam's digital ecosystem

4.8.1. Mapping Workshop

A mapping workshop involving 14 participants, and Hanoi University of

Science and Technology (HUST) and The Open University (UK) (OU) colleagues, took place on 15 February 2022. Eight participants were based at higher education institutions, including private and specialist universities. HEI participants were a mix of senior management and academics. Six out of the eight participants in this group actively contributed to the discussion. One active participant was in a ministry role with the remaining five active participants from HEIs.

The remaining six participants were drawn from technology companies, in a variety of roles. Five industry partners actively contributed to the discussion and the facilitator also contributed to discussion. Participants were selected for their interest in digital transformation.

The objectives for the workshop were as follows:

- To generate a list of the key actors who are impacted by or have influence on the digital transformation in the Viet Nam HE sector

- To understand their roles and the nature of their influence in delivering effective digital transformation for the HE sector in Viet Nam

- To develop an initial understanding of how the primary stakeholders can support opportunities to deliver digital transformation in the HE sector and identify any critical challenges and barriers that may exist

The mapping workshop enabled focused discussion according to stakeholder group through the use of two breakout rooms, one for HE institutions and ministries and the second for industry. The discussion was led by HUST colleagues. The following discussion summarises from each group are followed by a series of recommendations from both discussions.

Group 1: Ministries and Universities

A range of major stakeholders within government, ministries and related departments and public and private HEIs, and their roles and responsibilities for policy development to support digital transformation, were identified in discussion between Ministry participant 1 and University participant 1. In summary:

- Researchers (knowledge of digital transformation)

- Learners and teachers (teaching and learning approaches)

- HEI managers (responsible for "creating foundations")

- State/government (legal framework/policy and key investments/funding)

- Digital ecosystem

In discussing the main developments and successes in digital transformation in the Viet Nam HE sector over the past few years, University participant 2 reported a marked shift in leadership perceptions of digital transformation due to raised awareness of the benefits and particularly in light of the Covid-19 pandemic. University digital transformation models and plans were described by both university participant 2 and 3. In both instances these appeared to be top- down approaches. As university participant 3 noted:

> "Be aware of conflicts and reactions from end users, especially old teachers." (University participant 3)

The perceived barriers for private institutions to make changes (in this instance governance models) were also considered to be less than for public institutions by University participant 3.

University participant 4 noted that although cost and labour saving, digital transformation raised a number of concerns including staff whose roles were made redundant, the impact on governance practices and processes and the emergence of new professions, which would need to be recognised and supported so that students were prepared for these roles.

The need for flexible approaches to digital transformation were noted by two participants:

"Digital transformation needs to be customised according to structure and operation of each university and industry instead of mass construction." (University participant 4)

"We should not impose a particular concrete digital transformation platform as it is hard to change if needed. Instead, focusing on sharing database." (University participant 5)

Ministry participant 1 reflected on the challenges and barriers to delivering on the opportunities discussed. Focusing on the application of technology rather its implementation was considered key going forward. More specifically:

"What we need to do: optimise resources, including data and infrastructure for effective cost and functionality; improve the student's experience; improve institution's competitiveness, especially in research and build a data-driven culture.

For enterprises: build a clear but flexible strategy considering influencing factors as they can change in the future." (Ministry participant 1)

Group 2: Industry partners

"Output of the universities are considered to be input of both domestic and international industries. This relationship forms an ecosystem, which is between partners and/or between suppliers versus customers." (Industry partner 1)

Major stakeholders and actors in the private sector, and the roles they can play in the innovation and digital transformation process taking place in HEIs are, and could potentially be, varied. Whilst industry partners support universities directly by providing services, a range of collaboration opportunities for different types of businesses (e.g. SMEs/start-ups, larger organisations) and universities were outlined by Industry partner 1, including the sharing of real world problems with students or developing student soft skills.

Challenges raised by Industry partners 1 and 2 included resources, investment, making the case for university investment in digital transformation and how to showcase the advantages of digital transformation. Considerations such as integration and sustainability were also noted as key by Industry partner 2. The limited budgets of universities was noted by Facilitator 1.

"Three key points in digital transformation in industries are clear strategies, human resources, and digital transformation culture." (Industry partner 1)

A number of developments and successes in digital transformation in the Viet Nam HE sector were shared, with the private sector, EdTech and industry companies reporting a range of activities and partnerships. Two industry partner representatives reported implementing online teaching and learning systems and platforms at scale, discussions with universities regarding digital transformation and supporting training initiatives. The role of government policy on digital transformation was noted by two industry participants. As one participant noted:

> "From businesses' perspective, the digital transformation policies of MOET (including the set of seven key criteria in evaluating digital transformation in HE institutions) helps to establish vision to create products and solutions suitable with the demand of educational market." (Industry partner 4)

Future opportunities for industry and EdTech companies in the next two-five years were considered plentiful and varied by Industry partner 5. Consultation for government agencies and universities, training and onboarding students and providing an understanding of the current trends were all potential opportunities highlighted. Some challenges were also noted, including infrastructure, standardised systems and open access learning resources. Facilitator 1 also noted investment/profit timelines and international competition as factors that need to be considered. Here as elsewhere in the discussion, the pandemic as a key factor in driving change was noted:

> "The pandemic is boosting digital transformation in HE institutions. This is opportunity for EdTech companies

and industry to enter the digital transformation market of higher education" (Industry partner 5)

Barriers and challenges to delivering on the opportunities noted by two participants included the ongoing and lengthy nature of the digital transformation process. This was described by Industry partner 1 as requiring an iterative strategy, which changes and develops according to technological opportunities and in response to changing situations. The challenge of engaging with and supporting all university staff to participate in the digital transformation process was noted by two industry partner participants this segment of the discussion. In addition, the challenge of bringing together and leading diverse institutions was also noted. Industry partner 2 also considered Viet Nam's position regionally as being advantageous in relation to digital transformation due to its young population and "high level of readiness"/enthusiasm for digital transformation.

Recommendations

- The private sector is collaborating with universities to further the digital transformation process and actively engaging with MOET policy in order to inform its approach. MOET could provide EdTech and industry specific guidance or briefings in relation to policies issued. This would recognise, coordinate and help support further collaboration, as appropriate

- Support from the private sector could take a variety of forms and lead to ongoing partnerships or research partnerships between industry and HEIs. Working with students to address real world problems together or

develop more direct links between HEIs and business may also impact positively on graduate employability and research output as well as on the ongoing digital transformation process. MOET could coordinate these opportunities, in particular to ensure that all HEIs have the opportunity to participate in initiatives, to ensure that different learners can participate and to ensure that research and lessons learnt are shared widely across the sector

- The digital transformation process is ongoing and long-term. Directly addressing concerns and challenges for HEIs, such as the issue of cost, standardised systems and infrastructure are vital to ensure that HEIs feel fully supported in the digital transformation journey and that challenges are recognised

- The digital transformation "ecosystem" was noted by both participant groups and reflects the range of different stakeholders and their specific roles and involvement in the digital transformation process. Whilst policy provides a "top down" steer and driver for change, how this is implemented at individual HEIs will vary as each institution has its own systems, processes, educators and learners to consider. Frameworks and other tools will provide a common starting point for thinking about different facets and stakeholders in the digital transformation process at HEIs, whilst recognising institutional differences

- In addition to supporting conversations between staff, students and management about the impact and

benefits of digital transformation on campuses, HEIs should directly address concerns and ally any concerns about the potential impact of digital transformation. HEIs could work with industry, for example, to identify new career paths for students and raise awareness of these. Keeping staff and students informed and engaged with what is happening will foster active engagement and may also encourage educator and student led activity to support the digital transformation process.

4.8.2. Digital Readiness Tool

The digital readiness tool (DRT) was developed as a set of survey questions in order to structure focus groups and key participant interviews. The aim of the DRT is to provide a snapshot of the current activity and level of digital transformation at both the institutional and individual (in this instance senior team members with a good understanding of institutional digital capacity, resources and technology) levels. This aimed to enable insight into potential strengths and weaknesses to support a strategy for digital transformation.

A rapid review of existing tools (appendix B) was completed using the following key words via a Google search to assess the availability of an existing, openly available, tool that could be reused within the Vietnamese HE context. Equally a relevant tool would allow for benchmarking.

digital readiness, digital readiness tool, digital readiness assessment tool, digital readiness assessment tool for higher education, digital transformation questionnaire, digital transformation

These keywords were chosen for their explicit description of the requirement to facilitate a rapid review. As is expected with a search of this kind a significant number of results were returned for each search item. The first 12 results were considered (first page) for review, in each search there were at least four promoted links these were ignored as were generally commercial offerings and did not fit the open resource requirement. The results were then filtered based on the page description; is it a tool, is it in the HE sector, does it offer a description of digital transformation or digital readiness. The results needed to exemplar at least two of these characteristics to be short listed. From this, 18 sites (appendix B) were chosen to be reviewed with a number coming from the same provider n = 9 (JISC = 4, UNESCO = 3, European commission = 2).

Through this process it became clear that there was not one tool that was both contextually relevant (i.e. based in the context of Viet Nam or the region) and provided a clear set of questions that enabled a sound understanding of the state of readiness that took into account the institution and the individuals there-in, notes on each site can be found in appendix B. However, this did provide insight into the types of questions that were more appropriate, and the following categories were derived from this research. The categories were split into institutional and Individual with the aim of understanding any disparity between the groupings.

Institutional perspective:

1. Policy and Collaboration
2. Connectivity
3. Resource Availability

Individual perspective:

4. Digital literacy
5. Access
6. Use

4.8.3. Digital Readiness Tool categorisation rationale

Policy and collaboration

Policies ensure not only compliance with any legislation but equally indicate a level of commitment to the topic within the policy area. This is a useful indicator to understand engagement at a senior level. This also as acts as indicator to the level of structures within place for decision-making, and internal processes. In conjunction with policy collaborations show an expansion of engagement beyond the institution for successful digital engagement through building of networks both academically and commercially.

Connectivity

Although the use and implementation of digital technologies is not solely predicated on the level of connectivity, in order to fully engage connectivity must be seen as part of a wider strategy for scaling up of digital transformation to allow for services and learning provision at a distance and independent of time. The better the connectivity the better the readiness to transform.

Resources availability

Resource availability is concerned with two areas; the actual physical resources the institution has in terms of equipment and access to that equipment, and the support structures to maintain and deliver digital services including the value placed on and

the availability of professional development of the workforce.

Digital literacy

In order to implement any kind of digital transformation a digitally literate workforce is required. In order to assess the level of readiness understanding individual digital literacy is key. Equally this metric will be combined with the access to professional development and the extent to which this is applied across the institution.

Access

This category relates to the level of access to technology the individual has it is distinct from use (described below). It covers both access personally as well as institutionally, it supports a picture of opportunity related to digital literacy and allows us to understand any disparity between the institutional and individual groupings, making assumptions on the strengths or weaknesses of the areas in which readiness exists.

Use

Use links directly to the ways in which individuals use technology, again as with access this is concerned with use both inside and outside of the institution and is a good measure to cross reference against access. It enables us to understand disparities in relation to personal use and how this is applied to a professionally setting.

These categories can also be mapped onto MOET's 2021 criteria for digital transformation in educational institutions as follows:
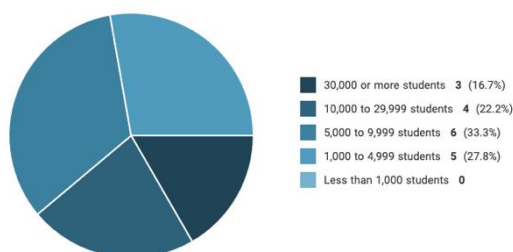
Table 5: Digital Readiness Tool categories and MOET 2021 criteria for digital transformation in educational establishments category mapping

	Institutional			Individual		
	Policy & Collaboration	Connectivity	Resource Availability	Digital Literacy	Access	Use
ICT infrastructure, digital platform and information security		X				X
Human Resource development			X			
Resources			X		X	
Institutional Development	X					
Digital Governance Performance	X					
Digital Teaching – Learning Activity						X
Digital Service Activity		X		X	X	

4.8.4.   Survey Responses

The survey was launched on 14 March 2022 and ran for approximately ten days, closing at midnight on 27 March 2022 UK time. The survey was distributed via the UK-VN HE network, an International Relations group of Vietnamese Universities and other selected institutions. It was also distributed to selected attendees of a British Council in Viet Nam organised Digital Transformation in HE event from September 2021.

A total of 25 responses were received with a total of 21 useable responses. 18 unique

30,000 or more students	3 (16.7%)
10,000 to 29,999 students	4 (22.2%)
5,000 to 9,999 students	6 (33.3%)
1,000 to 4,999 students	5 (27.8%)
Less than 1,000 students	0

(n=4).

Figure 2: University size

institutions were reported on by respondents. This is 7.6% of the total number of HEIs in Viet Nam (N=237).

4.8.5.   Institution overview

Over half of institutions reported a specialist focus (56.3%, n=9) with the main specialism being reported as teaching/education. 100% of institutions were city based (n=18) and there was representation from across Viet Nam with 7 respondent universities based in Northern Viet Nam, 4 in Central Viet Nam and 7 in Southern Viet Nam. 6 out of 8 sub-regions were represented.

As can be seen in the Figure 2, there is a spread of university sizes represented in the sample, with a third of institutions declaring between 5,000-9,999 students (n=6).

77.8% of universities declared that they are public institutions (n=14) with 22.2% as private institutions
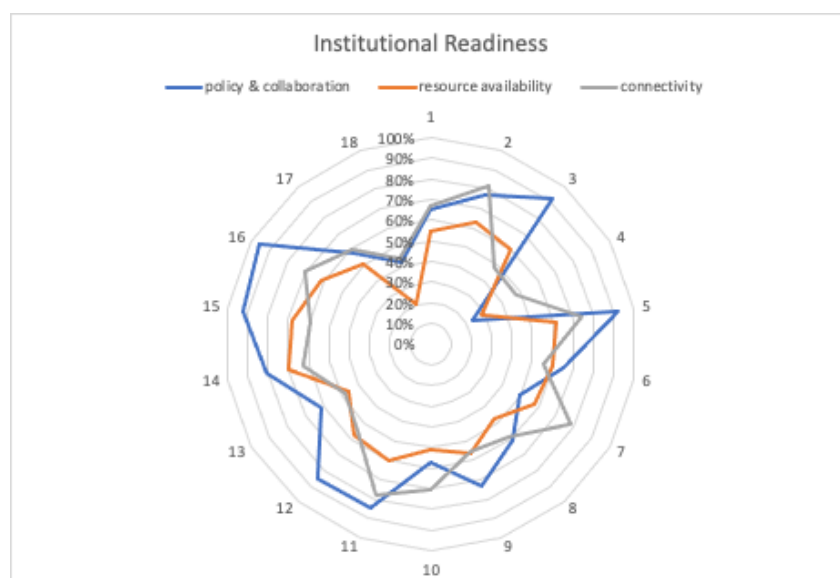
Institutional Readiness

Figure 3: Institutional Readiness

Figure 3 offers a visualisation of the data from the survey linked to institutional readiness in the areas of: Policy and collaboration, connectivity and resource availability. The numbers 1-18 represent the 18 individual universities surveyed. The survey questions were converted to numerical values based on the number of answers available in ascending order with zero being the negative answer (an answer of 'unsure' was recorded as 0). These numbers were then converted to a percentage based the highest possible score. No additional weighting was added to any of the questions however we recognise that given more time this may have provided a more nuanced view of the data.

In general, and as discussed in more detail below, policy and collaboration are well supported, however, resource availability should be further addressed.

Institutional Policy and Collaboration: Overview

Respondent universities had a range of institutional policies in place:

- Staff capacity development (76.5%, n=13)

- Data Security and Management (75%, n=12)

- Quality Assurance for online learning (72.2%, n=13)

- Open Educational Resources (OER) (60%, n=9)

- Intellectual Property (58.8%, n=10)

- Accessibility and Inclusion (58.8%, n=10)

- Open Access (46.7%, n=7)

Just under a quarter of respondents were "unsure" as to whether they have policies related to accessibility and inclusion (23.5%, n=4). A third of respondent universities also reported having no open access policy (33.3%, n=5) and around a quarter reported no open education or quality assurance related policies (26.7%, n=4 and 22.2%, n=4, respectively).

It is of note that although there may not be institutional policies in place to ensure staff capacity development, 88.9% of universities reported staff development or training in the use of digital technologies (n=16).

There were high levels of internal, regional and international collaboration to support the use of digital technology reported by this sample group. Over 80% of respondents reported collaboration with other universities in Viet Nam and/or collaboration with private sector organisation(s) who provide specialist support and/or training (82.2%, n=14). 87.5% reported collaboration with specialist centres or departments within their own university (n=14). Of particular note is that almost half of respondent universities reported collaboration with universities in the UK (46.7%, n=7) with the remainder reporting no collaboration (53.3%, n=8). 64.7% of institutions reported collaboration with other universities in the ASEAN region (n=11).

All respondents strongly agreed or agreed with the following statements:

- My university increased its use of digital technologies for teaching and learning during the Covid-19 pandemic (72.5% strongly agreed, n=13; 27.8% agreed, n=5).

- My university increased its support for students to use digital technologies for learning during the Covid-19 pandemic

(62.5% strongly agreed, n=10, 37.5% agreed, n=6)

- My university increased its support for educators to use digital technologies for teaching during the Covid-19 pandemic (56.3% strongly agreed, n=9, 43.8% agreed, n=7)

- As a result of the Covid-19 pandemic, my university will use more digital technologies for learning and teaching in the future (68.8% strongly agreed, n=11, 31.3% agreed, n= 5).

Institutional Policy and Collaboration: Discussion

Although one public university reported having none of the types of policies listed, all other respondent institutions reported at least one policy. Policies such as an OER policy, which was reported by 60% of respondents, is one key area of the National Digital Transformation Programme to 2025 of Viet Nam, for example.

Of particular note is that over 70% of respondents reported policies supporting quality assurance for online learning. Highlighted by The World Bank (2020) as an area to focus efforts, HEIs in our sample have been actively engaged in putting policies to support quality online teaching and learning. However, with over 20% of respondents reporting no policies in this area and critically, accessibility and inclusion policies being less prominent in respondent institutions, more support could be needed to ensure that universities develop a suite of policies to support all facets of digital transformation appropriately. That universities are keen to ensure that appropriate staff capacity development takes place was noted; over three quarters of institutions reported policies to ensure this. However, as noted elsewhere in the

survey, despite a lack of formal commitment to staff development at some institutions, this does not necessarily result in no opportunities for staff capacity building.

The range and levels of collaboration to support the use of digital technologies reported by respondents is positive and bodes well. That the private sector are the most popular non-institutional collaboration partner is of particular note. Provision of specialist support and training appears to be a current important role and collaboration opportunity for the private sector, however, as internal university expertise increases this may change and it could be that certain universities may be able to provide certain specialist training and support going forward.

Promisingly, there was a large amount of both internal, national and international collaboration to support digital transformation reported by this sample. As noted above, around half of our sample reported collaboration with UK HEIs to support digital transformation, for example. Collaboration with other HEIs in the ASEAN region also provides a critical and exciting opportunity to strengthen research and related activities. Ensuring that there are further opportunities and that these opportunities are shared across a range of universities is critical going forward.

Finally, in terms of responses to the Covid-19 pandemic, it is clear that Viet Nam universities in our sample increased not only their use of digital technologies but also support for educators and students to engage effectively with the move to online. Moreover, these experiences have had a reported impact on future teaching and learning, as pandemic practices help shape future practice and more digital technologies are integrated going forward.

Institution Connectivity: Overview

100% of respondent universities reported internet connectivity and wi-fi availability at their university (n=18). Wi-fi was reported to be available at a range of locations across campus, if not campus wide, and available to both staff and students at all responding institutions. Guest access to wi-fi was similarly widespread. There was a range of broadband connectivity speeds reported by respondent universities, with a third of respondents reporting between 100 and 499 MB per second (33.3%, n=6). Half of universities reporting speeds of 1000MB per second or more identified as private institutions (n=2).

We asked respondents whether their university provided access to different services. Over 80% of reporting institutions allow use of their servers for data storage and support for web services to staff and students (81.3%, n=13). Similarly, over three quarters reported universities offering cloud based data storage and web services to both groups (76.5%, n=13).

71.4% of respondents advised they were "unsure" as to whether their university provided access to VinaREN (n=10) and 21.4% advising that VinaREN was not offered at their institution (n=3). Only one university offered access to VinaREN to both staff and students. An identical response was recorded in relation to TIEN3 and regional NREN services. With regard to both the National Vietnamese Knowledge System and National Repository over 40% of respondents were "unsure" as to whether their university offered these services to either staff and/or students (40%, n=6 and 46.7%, n=7, respectively). Moreover, only 20% and 26.7% of respondents reported these respective services being offered to

both staff and students at their institution (n=3 and n=4).

Institution Connectivity: Discussion

Although internet connectivity and broadband are ubiquitous at institutions in our sample group, connectivity speeds varied widely. Support for increased connection speeds could be important, particularly to help support access and use of non-university provided services. Whilst our sample group is small, there does appear to be a difference between public and private institutions in this respect. This should be explored further and support given to public universities, as appropriate.

Critically, there was uncertainty in our sample group regarding awareness of what non-university services were offered at their institution, in particular VinaREN and TIEN3 and regional NREN services. As noted earlier, it remains unclear as to why there has been so low uptake of services such as VinaREN, particularly given the potential for increasing collaboration and research opportunities. Similarly lack of awareness of the Vietnamese Knowledge System and National Repository was high in this sample group. Promotion of these services and the ways in which they support different types of national and international collaboration, as well as showcasing institutional research should be strongly considered to address concerns such as those of The World Bank (2020) noted earlier.

Institutional Resource Availability: Overview

All respondents reported that their university has an institutional website (100%, n=18). The majority of websites are dual language and are available in both English and Vietnamese languages (77.8%, n=14). 83.3% of universities have a presence on

Facebook (n=15) and a third on Instagram (n=6). Use of WhatsApp and Twitter was also reported (11.8%, n=2 and 16.7%, n=3 respectively) as well as limited use of other platforms, including YouTube, LinkedIn and TikTok reported.

100% of universities reported having overhead projectors in classrooms (n=16) with 94.1% reporting internet access availability in classrooms (n=16). Whilst 58.8% of classrooms are equipped with desktop computers (n=10) and 47.1% with laptops (n=8), availability of handheld devices was less common (14.3%, n=2). 50% of universities also reported provision of subject specific technologies (n=7).

Universities reported providing a range of services including e-book resources for staff and students (94.1%, n=16), student support services (93.8%, n=15) and electronic catalogues (83.3%, n=15). Online repositories and subscriptions to online journals were also reported at around 70% of reporting institutions (68.8%, n=11 and 75%, n=12, respectively). Less common were VR tours of campus with just over a quarter of responding institutions offering this service (26.7%, n=4), and half of these private universities.

93.8% of institutions reported having a LMS/VLE (n=15) and online registration is offered by 87.5% of reporting universities (n=14). 82.4% of universities reported having their own student administrative system (n=14). Online library catalogues were reported at 70.6% of institutions (n=12) and 68.8% reported having a digital repository (n=11). 58.8% of respondents reported that their university has an online payment system (n=10).

Universities reported high levels of support for funding resources, with 100% of

respondents reporting support for the development of ICT infrastructure on campus, e-learning design teams and specialist ICT support services (n=17, n=15 and n=15, respectively). There was also institutional support for technology purchases for staff and/or students at over 80% of reporting institutions (85.7%, n=12 and 80%, n=12, respectively).

44.4% of respondents advised that their universities have their own dedicated learning design team (n=8). Six of these universities are public institutions. 22.2% of respondent universities have IT support for learning design, rather than a dedicated learning design team (n=4). 27.8% reported other staff providing support for learning design activities (n=5). Only one institution reported no support for learning design at all at their university (5.6%, n=1).

Of those institutions who don't currently have dedicated learning design teams, 80% reported their institutions were planning to set-up a dedicated team (n=8). Of the remaining respondents who were unsure of whether any dedicated support was planned, neither respondent institution reported IT team support for learning design (n=2).

72.2% of universities reported that their IT team supports the use of digital technologies (n=13) with 22.2% reporting that other staff members and not the IT team provide support for the use of digital technologies (n=4). 80% of respondents without current support from their IT team reported that their IT team would support the use of digital technologies in the future (n=4).

Institutional Resource Availability: Discussion

Viet Nam universities are visible online, and on a variety of platforms. Website availability in both English and Vietnamese languages supports collaboration by enabling non-Vietnamese speakers to engage with a university's work and mission. Social media and websites also enable universities to showcase and share their work more widely.

A range of services and support for staff and students are offered by our sample universities. A large number of universities reported that they have systems in place (e.g. online registration, VLE/LMS) which will help support digital transformation.

It is clear that in our sample there appears to be commitment to digital transformation both through the provision of resources and teams to support students and staff.

Investment in dedicated learning design teams and IT teams to support digital technologies are clear indications of institutional commitment to digital transformation. In addition, support for both staff and students in purchasing technology is important and indicative of the holistic approach that is needed for digital transformation to be successful.

4.8.6. Individual Overview

77.8% of the sample identified as male (n=14) and 22.2% female (n=14). 94.4% of respondents speak Vietnamese as their first language (n=17). 44.4% of respondents were in either a Head of Department or Vice Chancellor/Rector role (n=4 and n=4, respectively). 94.4% of respondents work full-time (n=17).
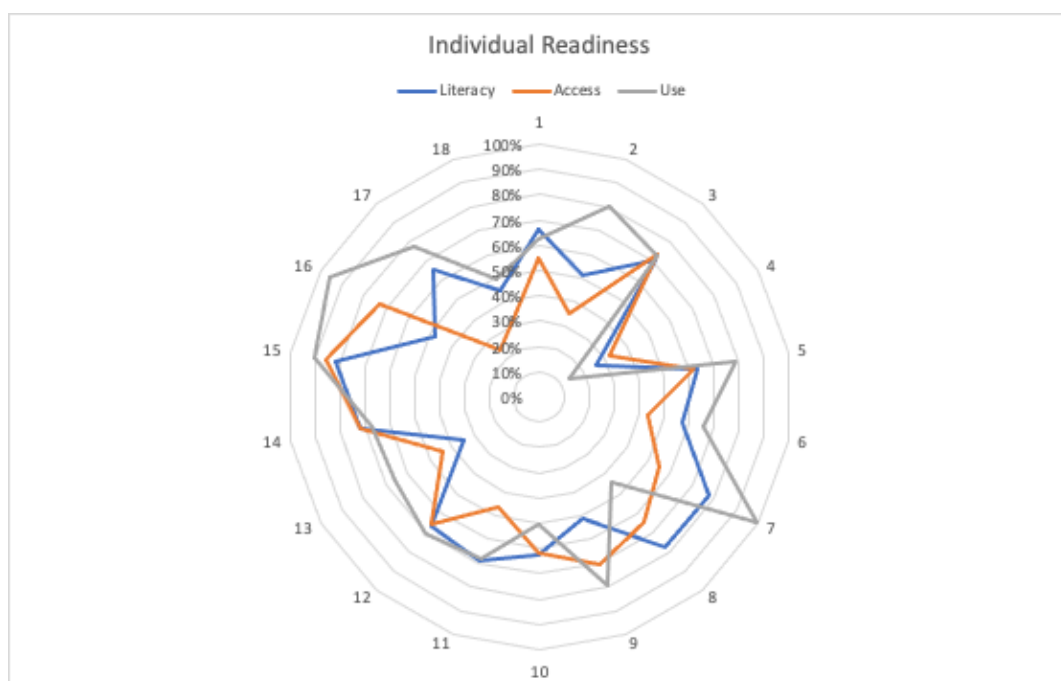
Individual Readiness

Figure 4: Individual Readiness

Figure 4 offers a visualisation of the data from the survey linked to individual

readiness in the areas of: Literacy, access and use. The numbers 1-18 represent the

18 individual universities surveyed. The survey questions were converted to numerical values based on the number of answers required in ascending order with zero being the negative answer (an answer of 'unsure was recorded as 0). These numbers were then converted to a percentage based the highest possible score. No additional weighting was added to any of the questions however we recognise that given more time this may have provided a more nuanced view of the data.

In general, all areas are quite closely linked however there does appear to be a discrepancy with use and literacy. In most universities digital literacy appears to be lower than the use, we would expect to see the inverse particularly when access is also low. This would warrant further investigation.

Individual Digital Literacy: Overview

All respondents strongly agreed or agreed with the statement "Digital transformation is important to my university" (72.2%, n=13 and 27.8%, n=5, respectively). However, there were a mix of definitions of digital transformation provided by respondents elsewhere in the survey with a small number of definitions reflecting the holistic nature of digital transformation whilst others focused on applying digital technology to specific tasks or focused on process.

A third of respondents reported being "completely confident" in the use of digital technologies in their role (33.3%, n=6). 61.1% reported being "fairly confident" (n=11) with a further respondent being "somewhat confident" in their capabilities.

There was uncertainty amongst respondents as to the frequency of challenges faced by staff when teaching with digital technologies. 11.8% of respondents were unsure about whether lack of training or support impacted

(n=2) whilst the largest number of "unsure" respondents related to whether staff at their university faced challenges regarding a lack of standards related to promoting access (43.8%, n=7) and/or lack of legal requirements that promote inclusion (41.2%, n=7). Similarly of note is that a lack of standards related to promoting access was the only option not reported as a daily or weekly occurring challenge for staff at universities, according to respondents.

Moreover, five respondents reported one or more of the following challenges as occurring daily for staff at their university: High cost of connectivity (n=2), Language (n=2), high cost of technology (n=1), lack of ICT equipment (n=1), lack of training and support (n=1) and not enough support for additional needs (e.g. braille, transcripts etc.) (n=1). Only one private university reported high cost of connectivity as a challenge to staff.

88.9% of respondent universities reported offering training or staff development in the use of digital technologies (n=16). Respondents in a range of roles reported receiving training from their university on the following areas:

1. Teaching Online (87.5%, n=14)
1. Educational Technology (81.3%, n=13)
2. Learning Design (75%, n=12)
3. Online Research (62.5%, n=10)
4. Data Management (47.1%, n=8)
5. Open Educational Resources (OER) (46.7%, n=7)
6. Intellectual Property Rights (IPR) (41.2%, n=7)
7. Open Access (25%, n=4)
8. Cyber security (18.8%, n=3)

9. Data Protection and Privacy (18.8%, n=3).

Respondents were by and large familiar with laws, policies and initiatives related to digital transformation:

- 66.7% of respondents advised that they were aware and knew a lot about "Decision No. 131/QD-TTg of the Prime Minister to approve the Project "Strengthening the application of information technology and digital transformation in education and training in the period of 2022 - 2025, with orientation to 2030" (n=12). All of the sample were at least aware of Decision No.131, even if they reported knowing nothing about it

- Only one private university respondent reported being unaware of all other initiatives, policies and laws listed aside from Decision No.131. All other respondents had at least awareness of policies, laws and initiatives listed

- MOET's draft circular on supporting regulations on training at university level was the policy/law/initiative that was least familiar to respondents, with 23.5% of respondents advising that they were aware but knew nothing about it (n=4).

Individual Digital Literacy: Discussion

Whilst our sample group is reasonably confident in using digital technologies, confidence could be further increased. This is particularly important so that senior team members can better understand and utilise digital technologies effectively for themselves and their institutions.

Whether the rapid online pivot due to Covid-19 necessitated rapidly utilising unfamiliar

digital technologies and/or training was limited or unavailable at this point, it is clear that training is a priority area for universities going forward. Moreover, much of the training reported by universities supports the National Digital Transformation Programme to 2025 in Viet Nam, with training on online teaching, OER, learning design and online research reported. Ensuring staff are trained supports the investment in resources and training reported elsewhere. As noted above, the majority of universities offer training and development in aspects of digital technology. However, understanding data protection, privacy and cyber security will be critical to provide training for all staff so as to safely and effectively instigate change at their university; currently these topics were reported as being training received by few respondents.

There appeared to be uncertainty amongst respondents, which are drawn from senior members of staff in different roles, as to what challenges staff are encountering when teaching with digital technologies. Further work to identify where training or resource would be most effective at individual institutions, and perhaps nationally, would be of benefit. Moreover, it appears that whilst some universities report multiple challenges, other institutions report infrequent challenges faced by their staff. Finally, centring access and inclusion as important to digital transformation would be beneficial, to ensure that all learners are centred in learning design activities going forward.

Increasing familiarity with the detail of policies, laws and initiatives related to digital transformation and what they mean in practice for HEIs will be increasingly important going forward. Disseminating detail on these effectively and to enable and

support universities in their implementation will be key.

Improving understandings of digital transformation so consensus as to the scope and reach of the "ecosystem" are more widely understood may be beneficial. However, it is clear from this sample group that digital transformation is a priority for universities.

Individual Access: Overview

100% of respondents reported owning a laptop (n=18) and all had at least two or more of the devices listed.

A number of universities reported provision of a wide range of equipment to both staff and students. Desktop computers and laptops were the most frequently reported equipment provided to both staff and students (41.2%, n=9 and 35.3%, n=6 respectively). Only one institution reported not providing desktop computers to staff. 70.6% of respondents reported provision of laptops to staff (n=12) with half of these institutions providing laptops to both students and staff (n=6). No university reported providing equipment to students only.

94.4% of respondents reported that staff are able to use their own digital devices to access university services on campus (n=17) whilst 88.9% of students can use their own devices on campus (n=16). Other respondents reported being unsure of provision, rather than reporting this was not possible at their institution.

When compared with staff, less challenges were reported as occurring daily for students learning online at institutions. The main challenge reported was lack of ICT equipment, which was reported as a daily challenge for students by a small number of

institutions (11.8%, n=2). Looking at both weekly and daily challenges, in addition to lack of ICT equipment, the high cost of connectivity and high cost of technology were frequently encountered challenges (17.7%, n=3 and 16.7%, n=3, respectively).

Staff lacking digital skills was reported as occurring several times a year or never by 70.6% of respondents (n=12). The second least infrequently occurring challenge by respondents was lack of ICT equipment with 70.6% of respondents advising that this only occurred several times of a year or never for their students learning online (n=12).

Individual Access: Discussion

Universities appear to offer generous equipment support to both staff and students. However, looking in more depth at individual responses reveals that a small, but not insignificant number, of respondent institutions either provide no equipment or only desktop computers to their staff. These institutional differences should be explored further and funding potentially offered to support similar levels of provision of equipment to staff and students at universities. Within the context of individually owned equipment reported by respondents, it does appear however that lack of ICT equipment is perceived as an infrequently occurring challenge for students. However, equipment, connectivity and the high cost of technology were reported by a small number of institutions as frequently occurring challenges for students. Particular attention should be paid to ensure that all students have access to equipment and data to ensure they can participate fully in online learning.

In relation to respondents themselves, self-reported ownership of equipment in this

sample group shows that all respondents own at least two or more devices.

Positively it appears that most universities enable both staff and students to use their own equipment to connect to the network on campus.

Individual Use: Overview

100% of respondents use email (n=18) and the majority use Facebook (94.4%, n=17). All respondents use Zalo messaging app (n=18) whilst 83.3% use Viber (n=15) and 66.7% WhatsApp (n=12). 61.1% of respondents use all three messaging apps (n=12). 61.1% of respondents also reported using food ordering apps (n=11).

Digital technologies were reported as in use daily across all groups:

- IT staff (76.5%, n=13)
- Academic and teaching staff (66.7%, n=12)
- Librarians (64.7%, n=11)
- Students (64.7%, n=11)
- Administrators (58.8%, n=10)
- Management and senior team (e.g. Vice Chancellors / Rector) (58.8%, n=10)

The top five digital technologies used daily as part of respondents' role over the last 12 months were:

- Mobile technologies (including phones with 3/4/5G connectivity) (88.2%, n=15)
- Laptop (88.2%, n=15)
- Desktop computer (82.4%, n=14)
- Social media (76.5%, n=13)
- Internet of Things (52.9%, n=9)
- Projectors (52.9%, n=9)

- Administrative management tools (such as Microsoft Teams) (50%, n=9)
- Subject specific websites (47.1%, n=8)

Individual Use: Discussion

Digital technologies are reported as integral to a wide range of university roles. More than 80% of respondents reported daily use of laptops, desktop computers or mobile technologies for work purposes. Outside of work respondents use a wide range of applications, especially messaging apps. Digital technologies are core to personal and professional life, however, as seen earlier understanding the effective and appropriate use of these within the context of wider digital transformation is critical.

Conclusion

Overall universities are progressing to meet the aim for all HEIs to offer online learning by 2030 (Decision 131, 25 January 2022). Although Covid-19 required "emergency response" learning, our respondent Viet Nam HEIs are well positioned and universities appear to be dedicating specific resource and personnel to support online teaching and learning. All respondents reported that their universities increased their use of digital technologies during the Covid-19 pandemic *and* their support for both students and educators to utilise these. However, although an overall positive picture emerges from the survey results it is also clear that resources, support and opportunities may be siloed and specific efforts to ensure that all universities are able to participate may be needed.

These survey findings are limited both with regard to sample size and composition. However, the sample includes a range of HEIs across Viet Nam, and both private and public institutions and give a snapshot of

digital transformation in HE at this point in time. Understanding the experiences and concerns of those institutions and individuals who didn't participate will also crucial going forward.

Recommendations

- Increase familiarity with, and disseminate effectively, policies related to digital transformation to combat current siloed engagement and understanding. MOET could actively support awareness through national level training, webinar series etc.

- Ensure and actively support further opportunities for collaboration between regional, national and international HEIs on digital transformation. MOET and British Council in Viet Nam could play a key role in brokering these relationships and providing opportunities for collaboration

- The private sector is an active partner with Viet Nam HEIs to increase capacity for digital transformation. Could the role and remit of the private sector be made clearer to universities to ensure effective collaboration?

- More support could be provided to ensure that all universities develop relevant and up-to-date policies to support all facets of digital transformation appropriately. In particular, policies related to quality assurance, accessibility and inclusion should be considered a priority

- Staff capacity development covers a wide range of relevant topics but key areas such as data protection, privacy and cyber security should be prioritised. Ensuring that all universities can access training relevant to digital

transformation is vital to ensure all institutions can engage with the digital transformation agenda

- Increase awareness and active use of VinaREN, Vietnamese Knowledge System and other platforms that support collaboration and the showcasing research. MOET has a potentially critical role in supporting this and ensuring that engagement with these platforms is considered essential by HEIs

- Increase the confidence and knowledge of senior team members with regard to digital technologies and transformation. MOET could consider a nationwide training programme for senior team members, for example

- Individual institutions should consider ways in which they can better understand the resource and training needs of their staff and students, so they can be better supported in their engagement with digital technologies. Currently support is siloed and whilst some institutions provide a range of support for students and educators at other HEIs this remains limited

- The key issues of connectivity and cost of technology should be addressed at both the institutional and national level. MOET could review and look into possible solutions to address these issues, perhaps by working with private and technology companies.

4.9. Perceptions of Individual and Institutional Digital Readiness in Viet Nam HEIs: Key Informant Interviews

The Viet Nam key informant interviews (KIIs) and focus group discussions (FGDs) (see 4.10) made further use of the digital readiness tool outlined above and enabled further exploration of both individual and institutional digital readiness.

Interviewees and focus group participants were drawn from senior team members (either in academic or management roles) at six different universities in Viet Nam. Senior management interviewees work at the strategy/policy level and have knowledge of the HEI's use of digital technologies. Senior academics also had a responsibility for teaching.

Both FGDs and KIIs were semi-structured, with some interviews conducted via email due to availability. Questions for management focused on policy, connectivity and resources. Questions for senior academics focused on literacy, access and use.

KIIs and FGDs were conducted with educators and senior team members at Vietnamese universities during March and April 2022.

4.9.1. Senior Management Key Informant Interviews

Two individual interviews were conducted with senior management, in different roles, at the same university, which is based in or near to a major city. Senior Management 2 previously had a leadership position directly related to digital technologies at the university.

Digital transformation was considered of crucial importance by both interviewees with one interviewee (senior management 1) noting that they are currently leading a project focused on e-learning, with their university currently engaged in a major digital transformation project to upgrade university systems.

> "The ultimate goal of digital transformation must be associated with expanding learning opportunities, improving the quality and efficiency of learning, low cost for all people." (Senior Management 2)

Both interviewees shared a range of sweeping changes that had been instigated as a result of the Covid-19 pandemic. These included the establishment of systems to support online learning, training opportunities and online sessions, including moving international collaborative activities online as a result.

> "I think COVID-19 is the last and biggest motivation to promote the digital transformation in the past two years." (Senior Management 1)

Both interviewees reported policies and/or initiatives that support digital transformation at their institution.

Connectivity was reported to be good, with access for students, staff and guests. Senior Management 2 noted that staff, students and guests have their own devices to connect to the network. However, infrastructure to support high demand for bandwidth was noted as an area for improvement:

"Sometimes, when the demands for bandwidth is high, we have to rent additional package from businesses (such as FPT) for back-up. In the future … there should be better investment in bandwidth and transmission lines." (Senior Management 1)

University provision of a range of resource support for digital transformation, including large server capacity, licenses for teaching software and internal and externally provided training was noted. The availability of more advanced training was noted as an issue by one interviewee. One interviewee reported that annual assessments of digital capacity were carried out:

"Specifically, we conduct year-end assessment based on the lecturer qualification assessment framework, including components related to the use of technical equipment, and design of e-learning lectures." (Senior Management 1)

International financial support to enable all staff to have laptops was reported by one interviewee.

One interviewee highlighted the importance of engaging with staff effectively to promote the benefits of digital transformation and to further improve staff and student digital literacy:

"It is necessary to support, raise awareness, and change habits of all levels from leaders, to staff and lecturers to better adapt to the digital transformation. Knowledge and skills are also indispensable factors.

Showing people the benefit of digital transformation for their work is the key

for success. Therefore, it is essential to organise seminars, training and sharing to help change perceptions for leaders, lecturers and staff." (Senior Management 1)

Resources such as "papers, digital books, networking devices and software, data" were highlighted by one interviewee as useful to support digital transformation at their university.

Promotional opportunities in relation to the use of digital technologies were noted by one interviewee.

A range of collaboration with international universities was reported by both senior management team interviewees. One interviewee noted several hundred collaborations with HEIs around the world, including staff and study exchanges. More generally, the benefits of collaboration and international examples were highlighted as follows:

"The level of impact depends on the quality and effectiveness of the co-operation between partners. For example: universities in the UK and US are the first to organise webinar programs, which makes our university realise the ability to do the same activity. We are very interested in participate in collaborative projects on digital transformation, as well as communities and networks on digital transformation for experience sharing." (Senior Management 1)

Recommendations

- Issues with bandwidth and support for cost-effective data should be considered at the national level. MOET could broker and support this, as appropriate

- Collaboration with other national and international universities is an important aspect of the digital transformation process. MOET and British Council in Viet Nam could increase support and opportunities for conversations and collaborative projects between different HEIs

- Supporting individual HEIs to understand the benefits of digital transformation and hold appropriate training and events should also be considered

- Support for more advanced training on digital transformation and digital technologies should be considered by individual HEIs and at a national level.

4.9.2. Senior Academic Interviews

Three individual interviews were conducted with senior academics. All interviewees are based at different universities in or near to major cities. All academics except Senior Academic 1 work in fields directly related to digital technologies.

The impact of digital transformation on all facets of a university was highlighted by one interviewee as follows:

> "I think digital transformation has two main types: digital transformation in content/training programme for teaching and digital transformation in managing procedure. I am participating in and more familiar with digital transformation in teaching as I often use available online platforms to design the lessons and share/ provide students with materials via digital tools/apps. Regarding the digital

> transformation in management, we have the [university system] which is a useful tool for teachers and students to access and manage information better." (Senior Academic 1)

The heavy promotion of digital transformation in mainstream media was noted by one interviewee.

Senior Academic 1 noted that their institution had already been actively engaged in digital transformation prior to the Covid-19 pandemic. This was reported to have made it easier to adapt to online learning and teaching during the pandemic. Some challenges were noted, however, including varied educator preparedness for online teaching and/or use of digital tools to support their teaching.

Both Senior Academics 2 and 3 reported that their institutions had moved to online teaching during the pandemic. Senior Academic 3 noted that administration and management activities had also needed to move to online as a result. Senior Academic 2 reported a range of tools in use to help students and educators quickly adapt to learning and teaching online. Mutual support for educators to adapt to the new conditions and the use of innovative approaches were reported:

> "After every lesson, lecturers enthusiastically share experiences with others with more "tricks", tips, and effective methods. Moreover, the teachers have flexibility in content preparation, choosing interactive tools to attract as many students as possible.

> The schedules are crowded with many types of lessons (quiz, live stream,…). Although teaching is the forte of

lecturers, they have been worried about being alone in front of the camera, in a large classroom without students and becoming reluctant "actors". The key actions for Covid-19 prevention must also be taken so that teachers will feel more secure when teaching.

Learning online is not the same as studying in the lecture hall, even though the teachers still go to class and still have computers, projectors, blackboards, and chalk. It's not easy for students and teachers to interact together as before, but this is a chance for some students who are often shy or find a seat at the end of the class now can ask teachers comfortably." (Senior Academic 2)

All interviewees reported using digital technologies at home, including social media, online shopping and TV. A wide range of digital technologies were also used by all senior academics interviewed in their administration and teaching work, including scheduling software, shared drives, university e-learning systems and MS Teams. YouTube was noted by Senior Academic 1 as particularly useful:

"In teaching, I use a lot of online materials, e.g. YouTube to teach vocab, grammar, or international culture. These tools are very useful, especially in language teaching." (Senior Academic 1)

However, despite being comfortable in using digital technologies for their professional role, this interviewee expressed some concerns regarding security when using digital technology in their personal life.

More varied website content and raising awareness of this with students was noted as one technology which could be used in future by Senior Academic 1's institution. Reducing the amount of paper based management activities and introducing software to support these was highlighted as one area for improvement by Senior Academic 3. Similarly, making improvements to the current e-learning system was also considered important going forward:

"It should be improved and innovated to better support teaching and learning activities, answering students' questions and addressing their problems during learning process." (Senior Academic 3)

Training to support the use of MS Teams was reported by two interviewees when asked about existing support for staff and/or students to develop digital literacies. At one institution this had resulted in the establishment of a support team specifically for staff and students using MS Teams. Other training was also reported by two out of the three interviewees, however resources on one university's e-learning system were noted to be "still limited". The impact of providing training to students was highlighted:

"The training and technical support from the university equip students with the skills to effectively and responsibly find, evaluate, communicate, and share online content that is key to their studies. It profoundly impacted reconstructing education during and after the COVID-19 pandemic." (Senior Academic 2)

When asked about what additional support could help develop staff and student digital literacies, "access to more commercial online resources", hardware support for students and more general training on using the internet and Microsoft Office were noted by two interviewees.

When asked about barriers for accessing online teaching and learning systems, all interviewees referenced the cost of internet access for students and/or educators:

> "Many students do not have wi-fi or internet connection, so they have to spend much money on 3G/4G connection to study online." (Senior Academic 3)

> "For students, cost is one of the major problems. The tuition fee remains the same as before while students have to pay for online devices such as internet, laptops, mobile phones, etc." (Senior Academic 1)

Digital literacy ("skills") and access to the internet, particularly in areas where there is poor internet connectivity, were also noted as barriers for students to fully engage in online learning. One respondent noted the limited interaction between lecturers and learners online, which may reflect the use of particular pedagogical approaches.

One interviewee noted that there was still work to be done to ensure that all lecturers are convinced of the need for digital transformation and online teaching and learning:

> "The first barrier could be lecturers' mind. Some lecturers still prefer the traditional teaching approach and hesitate to adapt to the new teaching methods / technology. It often takes time to learn the new things. But we

> have to accept that fact as not everyone wants to exploit those digital technologies." (Senior Academic 1)

However, all interviewees reported that their universities were addressing these challenges by providing further support, e.g. training, the loan of hardware, scholarships for poorer students, financial support including 3/4G costs for students. However, the issue of limited interaction between teachers and learners was noted as an issue that could not be immediately addressed.

As highlighted earlier, staff and students are reportedly using digital technologies in a range of different ways. The use of external platforms (e.g. Zalo and Facebook) as well as university provided technologies and websites were noted. The lack of integration of university systems was noted by one senior academic interviewee.

When asked about the future role of digital technologies at their respective institutions over the next five years, two interviewees noted the need for improvements to current management systems. The importance of digital technologies going forward was noted by all, and other opportunities to extend current practices were also noted:

> "Also, we should digitise learning materials to be more convenient for students. With the traditional way, we send materials to students, ask them to self-study and test them twice in a semester. However, using digital platform, such as Moodle, we can encourage students to self-study while assuring quality via reports / homework regularly." (Senior Academic 1)

Recommendations

- Whilst some universities have provided extensive resource to support students and educators in the pivot to online learning, addressing the barriers students face in accessing online learning (e.g. connectivity) is critical to ensure equitable access to education

- University systems and processes may require significant overhaul and resource to become fully integrated and/or online

- Increase training to support appropriate pedagogical practices for effective online teaching and learning will be vital going forward

- Encourage and provide further information to support all staff in understanding the benefits of digital transformation and address concerns

- Sharing experiences of online teaching and learning is beneficial for educators. To help share experiences beyond individual institutions MOET could consider holding events or provide platforms where educators can share their experiences and advice

- Further support for universities to develop digital literacies could be considered, or brokered, at a national level by MOET.

4.10. Perceptions of Individual and Institutional Digital Readiness in Viet Nam HEIs: Focus group Discussions

The Viet Nam key informant interviews (KIIs) (see section 4.9) and focus group discussions (FGDs) made further use of the digital readiness tool outlined above and enabled further exploration of both individual and institutional digital readiness.

Interviewees and focus group participants were drawn from senior team members (either in academic or management roles) at six different universities in Viet Nam. Senior management interviewees work at the strategy/policy level and have knowledge of the HEI's use of digital technologies. Senior academics also had a responsibility for teaching.

Both FGDs and KIIs were semi-structured. Questions for management focused on policy, connectivity and resources. Questions for senior academics focused on literacy, access and use.

4.10.1. Senior Management FGD

A very small focus group discussion/conversation of senior management participants took place in March 2022. Senior Management 3 is based at a new private university in or near to a major city. Senior Management 4 is based at an older public university in or near to a major city. Both participants work in roles directly related to digital technologies.

The move to online teaching and learning, and management functions to support this, was accelerated by the Covid-19 pandemic. Whilst some teething issues were reported, these were resolved over time. Senior Management 4 reported training for both students and educators to support the move to online teaching and learning.

Policy indicators and criteria were considered of critical importance. National level support for effective use of digital technologies in Viet Nam HE should focus on providing guidelines and criteria to support and evaluate the digital transformation process at universities. This would introduce clarity and help shape universities vision.

> "However, to gain an overall transformation of a university, the university needs: (1) time, and (2) a long-term investment…" (Senior Management 3)

Digital transformation was considered important for FGD participant universities going forward, although the time needed was noted as a concern. Senior Management 3 reported a range of activity to further the digital transformation agenda at their university, including a steering committee, focused sub-groups with financial incentives for online teaching and collaboration with businesses to deploy 5G and other technologies. Senior Management 4 reported progress with regard to developing their own management system but faced a number of challenges. Collaboration with external organisations to progress the planned management system was hoped for, and visiting larger universities which are more advanced in digital transformation was also noted.

Senior Management 3 expressed concern regarding infrastructure and the varied needs of different institutions across Viet Nam. At their own university:

> "…international bandwidth is often costly, so we buy the service according to our demand forecasts. Therefore, there will be quality problems if our forecasts does not match the real demand. We think that Viet Nam universities should share experience on this matter since many universities have deployed these systems and faced similar problems. Besides, the role of the Ministry of Education and Training is very important. They have a top-down overview, can provide suggestions and advice for universities, or connect with national carriers to prepare appropriate service packages and infrastructure." (Senior Management 3)

It was agreed that national carriers have a key role to ensuring cost effective connectivity for HEIs going forward. The role of technology companies in providing infrastructure and software was also discussed. It was suggested that MOET could liaise with major carriers to support and enable agreements for cost effective data. Similarly, it was suggested that MOET could also investigate support for software such as Office 365. This kind of support was considered critical to underpin digital transformation at universities:

> "If universities have to fully pay for themselves for strong broadband connection, due to their limited budget, the digital transformation process will face many challenges." (Senior Management 4)

The cost and resources needed for institutions to progress the digital

transformation agenda effectively was highlighted again in discussions regarding resourcing and available support. The potential for waste, due to unclear vision and strategies, was noted as a current risk for digital transformation in HEIs. The role of government guidelines in ensuring that the specifications for university systems were relevant and that where similar systems were required (e.g. for admissions) duplication of effort was avoided, was noted. Sharing experiences and better coordination across HEIs was suggested:

> "Currently, Viet Nam universities are still struggling with building the digital systems by themselves or hiring suppliers. However, it is also difficult to find the desired provider because each supplier offers a different price, while the features are not customised to suit the needs. The government should create a forum for universities and specialists to share experience and support each other." (Senior Management 3)

In discussion of support for digital transformation, financial support and guidance for each faculty regarding digital transformation requirements was noted. Senior teams and university leadership being fully aware and supportive of digital transformation was also key, particularly to ensure effective direction of resourcing.

Central to supporting digital transformation is policy and the ability evaluate progress in digital transformation. This was considered to be key to underpinning and informing how best to focus resources and activities. In shaping a digital transformation vision, both domestic and international HEIs were noted as having an important role to play, particularly with sharing their experiences.

Recommendations

- Digital transformation policy with clear guidance, criteria and evaluation frameworks will provide clear, ongoing, practical support to HEIs embarking on digital transformation

- Continued focus on developing senior team and leadership understandings of the scope and requirements of digital transformation is important

- Centralised cost negotiation and support for hardware, software and cost effective data for HEIs could be considered by MOET

- Sharing experiences between domestic and international HEIs was considered important. MOET and The British Council could play an enhanced role in facilitating and enabling these conversations and collaborations, including visits between universities.

4.10.2. Senior Academic FGD

A small focus group discussion between three senior academic participants took place in March 2022. All interviewees are based at universities in or near to major cities. All academics work in fields directly related to digital technologies or STEM subjects.

The acceleration to online teaching and learning as a result of the Covid-19 pandemic was noted by participants. A range of activities were noted in discussion including a digitisation partnership with a UK HEI and the use of Zalo and YouTube to support learning.

Prior experience of blended learning approaches through the development and use of a university LMS prior to the

pandemic were noted by Senior Academic 5 and ensured that a range of resources were already available online, ready for use in what appeared to be a "flipped classroom" model during the pandemic.

Some concerns were raised during the discussion on digital transformation and changes at respective HEIs. These included educator lack of experience in online teaching, quality assurance of online examinations and the authentication of learners, the digitisation process and the continued need for hardcopy administration for both staff and students.

> "There are also two major obstacles for digital transformation: the nature of the courses and human problems. For engineering courses, teachers and students easily adapt with the transformation to online teaching. However, other courses require hands-on practice can only be delivered by offline. Secondly, older generations face more challenges with online teaching compared to young ones. Therefore, the support from university is very important. For example, in our faculty of IT, we ensure clear guidance for lecturers to create classes, upload lectures, manage students…" (Senior Academic 6)

A variety of levels of digital literacy were reported by these FGD participants. Younger lecturers or those in disciplines related to digital transformation were considered to be well placed to engage effectively in digital transformation opportunities. Training at two institutions had reportedly ensured that "old generation lecturers" and social science lecturers were quickly upskilled. The need for tailored advice and support for different disciplines

and departments was also noted earlier in discussion. Digital infrastructure and device ownership were considered the main barriers in discussion.

Students at universities were considered to have varying levels of digital literacy, depending on factors such as discipline and geographical location. Senior Academic 4 noted that limited network connectivity and lack/low-quality digital devices are barriers for students but that the pandemic had reduced the impact of these challenges.

One university reported that a training course was offered to all students to ensure they had the necessary computer skills. A number of challenges and ideas for how to better support students were noted in discussion:

- Universities should provide modern and up-to-date equipment for students, which should be complimented by reliable connectivity to enable many students to study online

- The range of available learning resources should be increased and shared on different platforms

- Policy and training to support students to study independently online should be prioritised. Other training priorities noted in discussion include web searching skills and for both students and educators understanding copyright/intellectual property and increasing understanding and supporting good practices with regard to cyber security and privacy.

- Increased interaction and communication between students and lecturers online.

The main barriers raised by two participants in relation to accessing HE in Viet Nam were

infrastructure costs, the appropriateness of digitisation for some activities, student access to devices and reliable network access, support for students to make appropriate degree choices and student "passive learning" rather than "proactive" engagement with online learning. Underrepresented groups of students include those that study social science disciplines and therefore receive limited financial and other support from their university, business or wider society. Low income students face a range of challenges including increased tuition fee costs, the high cost of living in urban areas and not having the required level of English language. Senior Academic 5 suggested scholarships and counselling to help support. Digital transformation was considered to have a role in addressing these barriers by providing access to prestigious learning materials from leading international universities, potentially providing quality distance learning to low income learners and potentially providing an official "career orientation system."

A number of innovative digital practices were reported by two FGD participants, including combining approaches, use of innovative models and collaboration with technology companies to build online laboratories. One respondent noted:

"…We are transforming our learning materials digitally. The University has established the [centre name] to record lectures with high resolution quality. Besides, the centre also helps shoot interview videos and organising University's events.

Recently, we also receive sponsorship for personal laptops and Internet packages from many enterprises for

students who have difficulties in accessing online learning. I can see that most universities now have their own portals for online teaching and learning." (Senior Academic 4)

GG Meet, MS Teams, Zoom, LMS, online portals were all considered to be widespread digital technologies in Viet Nam HEIs.

Artificial intelligence, Big Data and virtual reality were highlighted in discussion as important digital technologies for transforming and improving the HE sector in Viet Nam, particularly with regard to personalisation, providing data and analysis on student learning and supporting student management. Individual university apps were also noted by one participant as potentially useful to share information with staff and students.

Recommendations

- Provide case studies and support for educators to use innovative pedagogies which encourage "proactive" online learning. This would increase communication between learners and educators, reduce the likelihood of cheating due to the types of assessment used and decrease perceived student passive learning

- Provide comprehensive training for students, including web search skills, to ensure learners are able to make the most of online learning opportunities

- Actively identify and support low income and geographically diverse learners through resource provision (e.g. data packages and digital devices) as well as scholarships and English language support. Outreach programmes to potential students

should be considered by HEIs and special support for students working in the arts, humanities and social sciences should be considered. In particular, examples of innovative digital practices in these disciplines should be actively sought out and engaged with, providing the basis for potential international partnerships

- Provide further training and support for educator digital literacy, and encourage conversation within individual departments, to ensure that no discipline is excluded or marginalised in the digital transformation process. In particular training should focus on key areas such as copyright, intellectual property and cyber security and privacy; essential topics for digital transformation

- Support Viet Nam HEIs to share innovative models and practices. MOET could broker and provide regular opportunities for this kind of knowledge sharing activity

- Actively promote distance learning as a positive choice and not 'second best'. MOET could play a key role in highlighting good examples and case studies and promoting new attitudes to online distance learning, as well as providing practical support

- Encouraging collaboration and conversation around challenges such as quality assurance of online examinations and online learning, authentication and the scope of digitalisation etc. could help reach consensus and ensure that lessons learnt are shared effectively to benefit all.

4.11. Current and future collaboration between UK and Viet Nam HEIs on Digital transformation

The following section incorporates data from a series of key informant interviews (KII) that were carried out with UK key stakeholders during March 2022. Four interviews were carried out with academics at two UK universities (referred to as University A and B) currently collaborating with Viet Nam HEIs and two managers at UK professional body organisations (referred to as Professional Body A and B) which support HEIs. Prior to these interviews informal conversations regarding collaboration with Viet Nam universities took place with a wider range of stakeholders, to both introduce this work and better understand current engagement.

The KIIs were semi-structured and aimed to give insight into:

- The nature of current collaborations of UK HEIs with Vietnamese HEIs

- Whether these collaborations do, or could, relate to digital transformation

- What collaboration models work well and could be replicated

- How digital transformation is developing in the UK HE sector and what the main trends are

- Potential strengths that UK HEIs could bring to international collaboration around aspects of digital transformation.

Overview

Data from the British Council Partner Southeast Asia (SEA) "Why Vietnam Matters" (November 2021) highlights that in recent years the UK has been losing enrolments and market share in relation to Vietnamese students coming to the UK, with the UK share being its lowest in South East Asia. However, enrolments in UK Transnational Education (TNE) programmes have shown an upturn in the last few years. Based on data related to collaboration the presentation notes that "Vietnam collaborates with the UK at far lower rates than would be expected based on its overall appetite for collaboration." (The British Council, 2021)

The context for collaboration between UK and Viet Nam HEIs is a very positive one from the UK HEI perspective. The British Council Partner SEA data indicates an affinity in Viet Nam for UK culture with education seen as one of the UK's core strengths. In our interview with a manager at Professional Body B Viet Nam was perceived as a country with great potential for economic growth, and as a priority country for HE Sector collaborations to be developed. This provides a positive context for collaboration.

Digital transformation is both a potential enabler for collaborations and an area to which collaborations can contribute, so is an important topic to focus on when assessing options for future collaboration.

4.11.1. Strengths of UK HE sector in Digital transformation

Digital transformation in the UK HEIs is characterised in two main ways

- At the institution level: where digitisation is seen as introducing new

mainstreamed systems and practices related to both teaching and learning, and to administration and support activities. Introducing digital transformation at this level often involves introducing standard practices in use of digital tools and systems, and this can take time to gain agreement and implement, so the resulting practices whilst brining transformation in terms of working practices will often fail to reflect the latest more cutting-edge uses of digital technology

- At the individual or departmental level: where practices of early adopters related to a subject or process are driven forward in new ways by more cutting-edge digital innovation.

A study on the Future of Digital Education conducted by University of London Centre for Distance Education (Gillies, Gregson, San Diego, Sheehan & Thuranira-McKeever, 2019) found that whilst use of online learning environments and mobile technologies were becoming widely used across institutions to support teaching and learning, the potential for use of learning analytics, artificial intelligence, virtual and augmented reality was still at a relatively early stage of use and were more confined to use by early adopters who were open to change and excited by the potential of new digital technologies.

The nature of collaboration around digital transformation is most likely to be influenced by the individual champions or departments that are leading on innovation and introduction of new practices. A requirement noted in KIIs is for champions at both ends of an international partnership, who can influence and support change, whilst noting that time is needed to deliver

this as others may not have the same level of interest, time or desire for change.

4.11.2. Recent digital transformation trends that influence collaboration approaches

The Covid-19 pandemic has of necessity driven forward the process of digital transformation both in UK and Viet Nam, as digital technologies played an increasing role during a period when staff and students could not come to campuses.

This led to a widespread practice of people working from home under more flexible arrangements. This practice is expected to continue to an extent as the constraints related to the pandemic ease. At Professional Body A for example they have adopted a 40/60 policy going forward where staff spend a minimum of two days at the offices and can work flexibly from home for up to 60% of their time. These changing working practices can impact collaboration; as noted by a manager at Professional Body B international collaborators are used to working flexibly across time zones and communicating through use of technologies.

The new digital skills gained during the pandemic, for communicating and supporting teaching and learning with tools such as Zoom, Microsoft Teams and Miro, have enabled collaborative international projects to progress but in a different form.

The benefits of new practices (that have been catalysed by the pandemic) for collaborations related to education (and other sectors) can include:

- More flexible working and studying

- An improving range of digital tools and systems to support remote communication, team based working, collaboration and teaching and learning

- Less travelling to place of work and on international travel bringing potential time savings and environmental benefits

- Experts from a diverse range of locations can more easily become involved and contribute to a project

- A virtual project can also develop scale and reach and deliver value for money outcomes (depending on the nature of the activity)

- Developing a new project idea and building a team can be done virtually, without the pressures to succeed and travel costs associated with pre-project scoping visits.

Conversely, the virtual collaboration model without team members meeting in person often requires more time, as scope for meetings must be negotiated between time zones. There is less opportunity to build relationships, understand context and identify unexpected opportunities or understand how unanticipated outcomes are manifesting. Conducting monitoring and evaluation assessments remotely is also a major challenge, as observation and other qualitative approaches become more difficult. To make the most of virtual collaborations in a project aimed at digital transformation, participants at contributing HEIs need to have access to potentially cutting-edge technologies and excellent connectivity (potentially at home) and project budgets need to consider support for this.

The experience during the pandemic has highlighted how digital transformation can change the shape of international collaborations related to education, and the main conclusion from the interviews conducted is that whilst this has brought a range of benefits, face-to-face meetings and partnership activities in country remain a very important component for most collaboration models, with in-country visits at the commencement and in the concluding stages of a project being of particular value.

> "Purely virtual delivery doesn't form the same level of team building and rich contextual awareness of a location as you get if you have a physical kick off. I can pretty confidently conclude that while the virtual collaboration has improved greatly, the overall quality of the experience, the overall engagement of the students with their team- mates and with the context … has been reduced." (Academic, University A)

4.11.3. Models and examples of collaboration

There are a range of different types of collaboration evident in UK-Viet Nam HEI partnerships and more generally in HE sector international collaborations. Some of the main ones are summarised below with examples. Note however that

collaborations often reflect more than one of the approaches outlined:

Scholarship programmes

Such programmes support both staff and student mobility, and organisations such as the British Council,[24] Commonwealth Scholarship Commission (CSC),[25] Association of Commonwealth Universities (ACU)[26] and Ford Foundation[27] support scholarship schemes. The CSC also offers distance learning scholarships opportunities, and there are also charities such as Prospect Burma[28] that support student scholarships though in recent years there is

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Case Study: Learning digital capabilities through project work

An approach to digital transformation that can be particularly effective in relation to developing digital literacy skills for students from different disciplines is to support students from participating universities to work together on focused activity.

University A projects with Viet Nam HEIs are undertaken using a particular collaborative model for innovation which is challenge focused. The outcome of activities are not be specifically focused on digital transformation but as part of the collaborative process digital tools will be used and digital literacy skills developed. A facilitator ensures that relevant digital skills are developed.

One example of University A collaboration with a Viet Nam university using this model was focused on students working competitively on an entrepreneurship opportunity that they had to pitch to gain further support. The groups comprised students from international partner universities, and due to the Covid-19 pandemic the groups worked collaboratively online, using tools such as Miro.

The model used in this approach reflects enquiry based learning and foresight techniques and supports a phased design led approach that starts by mapping and understanding the context, and then through bringing together perspectives of different stakeholder's challenges within the context are mapped. Following this prototypes are ideated (ideally within the location) and a common language established (through use of higher level metaphorical abstractions). Work then continues remotely around innovations to address the challenges, and on return to the location the final models are pitched as ideas to the stakeholders.

The potential strengths of this model for digital transformation are the use of digital technologies as an enabler. The skills are developed almost incidentally among participants, as they collaborate around an exciting challenge. The challenge itself could be framed as having a significant digital transformation component relevant for the HE sector and could involve teams of academics and support staff (i.e. the approach need not be limited to supporting student learning).

For students unfamiliar with learning or working online providing foundation level training to enable them to gain basic skills for using different technologies and apps, and raise their awareness of online safety, security and identity management, is recommended.

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[24] https://study-uk.britishcouncil.org/scholarships
[25] https://cscuk.fcdo.gov.uk/scholarships/commonwealth-masters-scholarships/

[26] https://www.acu.ac.uk/funding-opportunities/for-students/scholarships/
[27] https://www.fordfoundation.org/work/investing-in-individuals/international-fellowships-program/
[28] https://prospectburma.org/students/

a notable shift to support scholarships to universities within the region rather than to UK.

Joint and shared degree programmes

Joint degrees where a UK collaborates with an international partner to offer a degree represent a model for collaboration that enables courses to mix modules from the different institutions and create degree programmes with an international reputation and local relevance. They are however difficult to put in place, due to the quality assurance and regulatory mechanisms that may exist with the institutions themselves and the regulatory bodies. No joint UK-Vietnamese HEI degrees were found advertised online.

The World Bank (2020) reports on current international collaboration is "…limited mainly to curriculum "borrowing" … There are also 526 joint programmes between Vietnamese and foreign institutions in Viet Nam (of the total number of approximately 6000 programmes of all levels available in the system" with the latter frequently incurring higher tuition fees (The World Bank, 2020, p.34).

Another form of degree that is more easily formulated, combines UK and Viet Nam expertise is exemplified by the University of Bedfordshire Business Studies or Business Admin BSc degrees, where students start their study at the Foreign Trade University, Viet Nam and complete the degree at the

University of Bedfordshire Luton campus.[29] Similarly, University of the West of England (UWE) has a number of shared programmes with Vietnam National University Ho Chi Minh City.[30]

Joint course or content development

Collaboration around course content is often easier to progress than full degree programmes and enables subject matter knowledge and digital skills to be developed. Content itself could be provided into a local Vietnamese university course and the UK collaborator can be a recognised content provider. This approach was one element of the Transformation by Innovation in Distance Education (TIDE) project in

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Case Study: Staff Capacity Development

University B collaboration with two Vietnamese Universities represents a very good example of a digital transformation project setting out to develop staff capacity in the use of digital technologies. The approach is based on a framework developed from an EU Erasmus funded project exploring digital literacy capacity development. The model is based on two layers, with educational practice as the foundation, and digital confidence is built on top of this. Participants self-rate their skills and reflect on where they are on a framework which has three levels:

1. Discover and discuss
2. Design and deploy
3. Demonstrate and disseminate.

Training and workshop activities provide support with the aim of incrementally moving the participants on through the levels, though some may initially move backwards if they become aware that their initial assessment was incorrect. University B collaboration has focussed mainly on participants who were educators or viewed themselves as leaders related to education in their HEI. At the heart of the activities were the participants own subject area of educational practice, and it is worth stressing that strengths in pedagogical practices from the UK HEI were central to the collaboration. The sustainability from this model comes when those who reach the third level commit to supporting process and helping the participants who are at the first two levels. As a result the process becomes more institutionalised.

Myanmar where online course, open educational resources (OERs) and training materials related to environmental sciences were developed by UK partners with local

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partner Universities, for local (and potentially wider) use.[31]

Joint research

Joint research around a subject area or digital technologies including those related to digital education can be a great starting place for collaboration and developing long term relationships around an area of common interest. Frameworks such as the UK-ASEAN Digital Partnership Programme[32] could provide opportunities for joint research to be developed around digital activities where the knowledge gained also supports developing digital capacity within the collaborating HEIs and researchers.

Networking

Professional Body A use a model of small initial funding for networks of member groups, where groups reflect a particular interest area. The funding received by the groups supports initial face to face and/or virtual gatherings to develop ideas for collaborating that the group can work on and seek the necessary funding for. Setting up such international 'communities of interest' across UK and Viet Nam HEIs could be good way of supporting networking and relationship building around digital transformation themes, that can develop ideas into meaningful funded collaborative projects.

As part of The British Council's Going Global Partnerships programme, The

University of East Anglia (UEA) is collaborating both with Korean and Vietnamese universities to both support and sustain long-term collaboration through a focus on digital transformation and ensuring that students have relevant skills for industry.[33]

Trans-National Education (TNE)

Trans-national education often involves Universities from one country such as the UK setting up a campus within another country or offering courses online which may be supported locally by partner HEIs involved in teaching. Setting up a physical campus is less common, and whatever form TNE takes there are usually local regulatory issues. There is also a common misconception that online or distance education courses are cheaper or lower quality than their face to face equivalents. In practice where reputable Universities are involved the quality standards should be good, and in the case of the UK HEIs, such arrangements come under regular QAA audits.

Case Study: TNE Models in Practice

The University of London provides examples of the varied models of TNE, and how these have also been impacted by the pandemic. The Goldsmiths, University of London BSc in Computer Science provides a good example. This course is run face to face on their campus in London, and there is also (a) a totally online/distance version of the course with online tutors and (b) a version of the same course which is taught by a partner institution in country (e.g. Singapore Institute of Management) with students in that country attending face to face on the SIM campus. During the pandemic the partner model moved to online so became more akin to the online course but with tutors from the partner country in touch with students online and via tools such as Zoom.

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[31] https://www.open.ac.uk/about/international-development/projects-and-programmes/tide-transformation-innovation-distance-education
[32] https://ukabc.org.uk/news/vietnam-and-uk-strengthen-cooperation-in-digital-economy-and-digital-transformation/

[33] https://www.uea.ac.uk/news/-/article/uea-vietnam-partnership-prepares-students-for-a-digital-world-c2-a0

Exchange and Delegation visits and Conferences

Another approach to capacity development based around knowledge exchange, that could also be useful for digital transformation, is use of exchange programme visits, or visits from delegations wanting to learn how an HEI in UK has implemented digital transformation. Such programmes can now themselves have an online or virtual equivalent and become a component within a project that makes use to digital tools.

Technical Collaborations

Collaboration over system and technical developments which could potentially be system wide (e.g. National Research and Education Networks – NRENs) can also deliver significant digital transformation within HEIs or across the sector. These can include development of Online Learning Environments / Learning Management Systems, Student Lifecycle Support systems and MIS systems. The technical collaboration may need expert input from a UK specialist centre or organisation such as JISC, and such collaboration should pay attention to area such as data management/privacy, and accessibility where specific training and capacity development may be required.

Case Study: System Wide Digital Transformation

A longer term and larger scale HE collaboration approach is reflected in the 'Strategic Partnership for Higher Education Innovation and Reform (SPHEIR)' programme, which had the goal of systemwide transformation. The SPHEIR programme was a programme that run from 2016-2022 and comprised several projects.

These projects were not focussed on digital transformation but on system wide reform of HE systems, and as such there was a significant focus on the role of digital technologies and open education approaches. Most of the projects were in East Africa, but the Transformation by Innovation in Distance Education (TIDE) project was focussed on reform of the Arts and Science Universities in Myanmar which supported both campus based face to face and distance education delivery models. The TIDE project involved multiple partners from UK and Myanmar, had a substantial budget and took place from 2017-2021 (including the inception period).

The system wide approach recognises the interdependencies of different components in an HE system, and assumes that to bring about transformation and sustained change in institutional practices requires an understanding of these interdependencies.

The design of the TIDE project reflected this approach through focusing on three streams of activity that each had a strong connection with digital transformation: (i) development of staff capabilities, (ii) development of online platforms and systems to support teaching and learning and HEI administration and (iii) strengthening and development of high level strategies and policies to provide an enabling environment supportive of change. Across all three streams there was a strong focus on introducing open and online / digital approaches.

The first stream involved capacity development for academics, teachers and support staff. The project team worked with academics and participants in cohorts from 10 Universities, to develop capacity and enhance pedagogic and digital literacy / ICT skills. A competency based model was part of the project design, and frameworks (for example CMALT and UKPSF) for support staff were introduced so that participants could commit to professional development. Participants moved through a process (supported by residential training programmes, webinars and online courses) of learning, cascading learning to colleagues within their institutions, and then potentially committing to a training of trainers' approach where they had the skills to deliver the programme to others.

The second stream supported the technical development of online / offline delivery of teaching and learning, and incorporated a range of short team pilot projects involving collaboration with Private Sector EdTech companies. There was also a component to develop educational resources that reflected innovative pedagogy and open licensing models.

The third stream involved working primarily with the Rectors Committee and senior representatives from the Ministry of Education to support the development of policy and a roadmap for strengthening the enabling environment and supporting change management.

New institutions and the Licensing model

Collaboration may also be possible to support the development of a new or fledgling institution. University of London have a long history of supporting new Universities, such as the relatively recent launch of University of Seychelles which during its first five years licensed University of London courses. Open University of Mauritius followed a similar trajectory on its launch through licensing courses from UNISA in South Africa. The Open University (UK) has

models for making course material openly available, for example through its platforms OpenLearn[34] and OpenLearn Create.[35] In all cases content is in digital form, and can thus be delivered online, and support a shift towards digital transformation and blended or online modes of teaching and learning.

Institutional development

At the HE institutional level, collaborations can also be valuable, to develop effective policy development, leadership, strategy development and change management processes that support digital transformation within / across an institution or develop enabling capacity elsewhere in the sector (e.g. within Government ministries and departments responsible for education). This requires commitment from the top, close participation relevant stakeholders and an understanding of how to effect change within particular HE sector cultures and contexts.

Pandemic Case Studies and Models

Barber's (2021) review *Gravity Assists…* includes a series of "innovation" case studies of UK university practices and collaborations during the Covid-19 pandemic. These case studies were reviewed for their potential to be applied within the Vietnamese HE context.

The partnership between University of Liverpool and Xian Jao Tong University (Barber, 2021, p.39) has potential to be applied within the Vietnamese context, particularly at HUST where the benefits for the development of shared learning across both institutions could be actively applied in further developing the digital infrastructure and providing access to professional development. The work at the University of

Leeds (Barber, 2021, p.44) could also be adapted for the Vietnamese context through providing a set of guiding principles for the development of digital delivery principles, ensuring a shared vision of quality assurance through innovation in teaching and learning methodologies and aiding a standardised student experience.

The University of Wolverhampton provides access to technology for students on a loans basis (Barber, 2021, p.64). This is a positive initiative although within the Vietnamese context it could be resource intensive and costly so may not be viable for all universities currently. However, there are initiatives across HE within Viet Nam to fix and upgrade old laptops and PCs and provide these as loan equipment to students who are unable to get online due to a lack of access to computers.

The work of Birkbeck, University of London (Barber, 2021, p.67) to redesign their whole teaching delivery model to move fully online certainly has value in the Vietnamese context, although there may be barriers to its application. The costs involved in doing this would be significant and not something that could be currently managed at a whole institution level. It would also require the upskilling of large numbers of staff. It is also not clear the extent to how much of curriculum could be transferred to this modality with in-person key to the pedagogies of many of the subjects taught. Finally, students in the Vietnamese context may not be ready for this change in terms of access to technology with there being a potential for an unequitable system. There will be much to learn from this experience and it could be transferred in small parts across different faculty within specific

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[34] https://www.open.edu/openlearn/

[35] https://www.open.edu/openlearncreate/

universities that are perhaps further down the road of digital transformation.

Finally, the use of learning analytics as presented by Nottingham Trent University (Barber, 2021, p.87) to monitor student engagement in order to support success is something that could begin to be applied across institutions in Viet Nam that have LMS to deliver and assess learning. It would not be a complete picture due to the blended nature of the delivery methodology but has value in learning from this experience.

5. Analysis, Recommendations and Conclusion

There is great progress and potential for digital transformation within the Viet Nam context and for fostering supportive and innovative collaboration between UK and Viet Nam HEIs. Care to ensure that support for digital transformation is equitably distributed across HEIs is of importance. Our research showed that although some universities are making significant progress in updating systems, structures, practices and the use of digital technologies, and providing support to staff and students, other HEIs may need further support, guidance and resourcing to progress and take advantage of the opportunities that digital transformation brings. This appears to be particularly the case for HEIs which began their digital transformation journey during, and as a result of, the Covid-19 pandemic.

Recommendations have been made throughout the report, drawing on the research that has been carried out. These are summarised below. Following this summary, we explore recommendations and models for collaboration to support these activities.

Policy: Recommendations

Whilst Viet Nam policies promoting digital transformation in HE provide a solid foundation and focus for the pace and scope of digital transformation in universities, awareness of the detail of these and active engagement appears siloed. Further support could be considered in the following ways:

- Whilst policy provides a "top down" steer and driver for change, how this is implemented at individual HEIs will vary as each institution has its own systems, processes, educators and learners to consider. Frameworks and other tools will provide a common starting point for thinking about different facets and stakeholders in the digital transformation process at HEIs, whilst recognising institutional differences

- To enable HEIs to effectively embark on digital transformation and provide practical support for policy implementation, MOET could provide clear related guidance, criteria and evaluation frameworks, as appropriate

- To increase familiarity with, and disseminate effectively, policies and supporting resources related to digital transformation policy, MOET could co-ordinate and promote national level training, webinars and other activities.

National level support: Recommendations

A range of non-policy related national level support is needed to enable all Viet Nam HEIs, and their staff and students, to take full advantage of the affordances of digital technologies and participate fully in the digital transformation process. Whilst some HEIs had explored online or blended models prior to Covid-19, invested in infrastructure or are actively engaged in a range of international partnerships to support digital transformation, other HEIs may need focused, enhanced support. Similarly, whilst

HEIs appear largely formally or informally committed to staff development, availability and the range of topics covered may be limited at some HEIs. Further support could be considered in the following ways:

- Increase awareness and active use of VinaREN, Vietnamese Knowledge System and other platforms that support collaboration and the showcasing research. MOET has a potentially critical role through the promotion of these platforms and ensuring that engagement with, and use of, these platforms is considered essential by HEIs

- Issues related to bandwidth, cost-effective data, connectivity and the cost of technology are institutional and national level concerns. MOET could examine how best to address these challenges at the national level, perhaps through national agreements with providers, brokering conversations between HEIs and firms and working with private and technology companies, as appropriate. Centralised cost negotiation and support for hardware, software and cost-effective data for HEIs could be considered by MOET

- Similarly, recognition of and directly addressing concerns and challenges for HEIs, such as the issue of cost, standardised systems and infrastructure are vital to ensure that HEIs feel fully supported in the digital transformation journey and that challenges are recognised

- Actively promote distance learning as a positive choice to a range of stakeholders, including learners and their parents/caregivers, educators,

business and industry and institutions. MOET could play a key role in highlighting good examples and case studies and promoting new attitudes to online distance learning, as well as providing practical support. Viet Nam, UK and other international HEIs could also contribute to this type of initiative and knowledge exchange with support from British Council in Viet Nam

- Similar support and knowledge exchange activities could also be used to share innovative pedagogical models and practices. MOET and British Council in Viet Nam could broker and provide regular opportunities for this kind of knowledge sharing activity between Viet Nam, UK and other international HEIs

- Increased investment and support for universities at all stages of the digital transformation journey should be considered by both individual HEIs and at a nationwide level. Training to understand the benefits of digital transformation, develop digital literacies and more advanced modules should be considered, as well as specific training for senior team and leadership to understand the scope and requirements of digital transformation. Support and development of training programmes could be led by MOET

- Staff capacity development covers a wide range of relevant topics but key areas such as data protection, privacy and cyber security should be prioritised. Centring access and inclusion is also critical. Ensuring that all universities can access training relevant to digital transformation is vital

to ensure all institutions can engage with the digital transformation agenda.

- Some university processes and systems may require significant resource and activity to become fully integrated and/or online. MOET could review and support, as appropriate

Collaboration: Recommendations

Whilst many Viet Nam HEIs collaborate with national, regional and international colleagues and institutions, as well as private companies, on digital transformation, ensuring that all Viet Nam HEIs have opportunities to benefit from knowledge sharing activities, as well as increasing the opportunities for these, will be important going forward. There is also a role for leading, flagship HEIs to support other universities and for international universities to share their experiences of digital transformation as well as for a range of collaboration with businesses and EdTech. Further support could be considered in the following ways:

- Ensure and actively support further opportunities for collaboration between regional, national and international HEIs on digital transformation. MOET and British Council in Viet Nam could increase support and activity in brokering these relationships and providing a range of collaboration opportunities, including funded collaborative projects or the opportunity to converse and connect

- More informal opportunities for sharing experiences between both domestic and/or international HEIs could be beneficial. MOET and British Council in Viet Nam could play an enhanced role

in facilitating and enabling these conversations and collaborations, including visits between universities or opportunities for educators to share their experiences and advice on online teaching and learning

- Encouraging collaboration and conversation between Viet Nam HEIs around challenges such as quality assurance of online examinations and online learning, authentication and the scope of digitalisation etc. could help reach consensus and ensure that lessons learnt are shared effectively to benefit all. This type of activity could be supported by key Viet Nam HEIs and/or MOET

- The private sector is an active partner with Viet Nam HEIs to increase capacity for digital transformation. Supporting Viet Nam HEIs in their engagement with the private sector, and brokering conversations could be one role that MOET could explore going forward

- Support from the private sector could take a variety of forms and lead to ongoing partnerships or research partnerships between industry and HEIs. Working with students to address real world problems together or develop more direct links between HEIs and business may also impact positively on graduate employability and research output as well as on the ongoing digital transformation process. MOET could coordinate these opportunities, in particular to ensure that all HEIs have the opportunity to participate in initiatives, to ensure that different learners can participate and to ensure that research and lessons

learnt are shared widely across the sector

- In some instances, private sector organisations are actively engaging with MOET policy in order to inform their approach. MOET could provide EdTech and industry specific guidance or briefings in relation to policies issued. This would recognise, coordinate and help support further collaboration, as appropriate

Staff and students: Recommendations

For students and staff to actively engage with, and champion, digital transformation they should be supported appropriately. As noted above, whilst some HEIs appear to offer a range of training for staff and students, other HEIs may need further support to offer relevant and timely resources and training. Further support could be considered in the following ways:

- More support could be provided to ensure that all universities are able to develop relevant and up-to-date policies to support all facets of digital transformation appropriately. In particular, policies related to quality assurance, accessibility and inclusion should be considered a priority

- Whilst some universities have provided extensive resource to support students and educators in the pivot to online learning, addressing the barriers students face in accessing online learning (e.g. connectivity) is critical to ensure equitable access to education

- Active identification and support for low income and geographically diverse learners through resource provision

(e.g. data packages and digital devices) as well as scholarships and English language support should be considered by HEIs. Outreach programmes to potential students should be considered. Opportunities for students working in the arts, humanities and social sciences could also be considered. In particular, examples of innovative digital practices in these disciplines should be actively sought out and engaged with, providing the basis for potential international partnerships. MOET and British Council in Viet Nam could play a role in fostering and championing these discipline specific collaborations or providing scholarship or visiting opportunities for students, early career researchers or doctoral students. In particular these could focus on increasing research collaboration and therefore developing capacity, whilst providing funding to individual HEIs to support activities

- HEIs should consider further training and support for educator digital literacy, and encourage conversation within individual departments, to ensure that no discipline is excluded or marginalised in the digital transformation process. In particular training should focus on key areas such as copyright, intellectual property and cyber security and privacy; essential topics for digital transformation. MOET could support training on these topics at the national level

- Individual HEIs should consider how best to understand the resource and training needs of their staff and students, so they can be better

supported in their engagement with digital technologies. As noted earlier, key training topics such as data protection, privacy and cyber security should be prioritised. Providing support for appropriate pedagogical practices for effective online learning and teaching, as well as centring access and inclusion, will be vital going forward

- In addition to supporting conversations between staff, students and management, and providing information on the impact and benefits of digital transformation on campuses, HEIs should directly address concerns and ally any concerns about the potential impact of digital transformation. HEIs could work with industry, for example, to identify new career paths for students and raise awareness of these. Keeping staff and students informed and engaged with what is happening will foster active engagement and may also encourage educator and student led activity to support the digital transformation process. This work could be supported by MOET, as appropriate

- Increasing the confidence and knowledge of senior team members with regard to digital technologies and transformation is important. MOET could consider a nationwide training programme for senior team members, for example

- Provide comprehensive training for students, including web search skills, to ensure learners are able to make the most of online learning opportunities. Identification of existing resources to

support from MOET to develop these could be considered.

5.1. Recommendations for future UK-Vietnam collaboration to support digital transformation

The rapid development in use of digital technologies in HE to support teaching and learning, research and innovation and management and administration, presents wide ranging opportunities for development of Viet Nam's HE sector. The major focus of our recommendations for collaboration, drawing on evidence from our study, relates to teaching and learning and institutional development.

The response to the Covid-19 pandemic in Viet Nam, as in many other countries, was to rapidly adopt use of digital technology to support teaching and learning, through a period when campus based educational delivery was not possible. This has meant that many HEIs have 'put their foot in the water' of digital transformation, and have new insights into the potential of online and blended learning models for teaching and learning. However, there is now an opportunity to develop this, and explore how approaches introduced during the pandemic can be adapted to have longer term value. In particular HEIs will need clear strategies for digital transformation and skilled and knowledge leaders and staff who understand the benefits of digital technologies and how they can support effective teaching and learning. There is also a need to develop and implement policies and quality standards to ensure that

online and blended teaching models are inclusive and accessible to disadvantaged and disabled students and staff.

We have organised our recommendations for collaboration under three categories of project based on timescale and budget level. In some cases, projects that are initially small in size and more exploratory in nature, could later be scaled up to have greater impact, though this may require identification of new/additional funding streams. The recommendations within these categories are not in order of priority.

Small: (Up to 6 months, and £50K budget limit)

Recommendation 1: Knowledge Exchange

Support knowledge exchange and pilot training initiatives related to digital transformation, drawing on the expertise of leading technical Vietnamese HEIs working in collaboration with UK HEI partners. This knowledge sharing can be via workshops, events and conferences in Viet Nam, with UK partners supporting activities both virtually and in country. This process could also include some knowledge sharing visits to UK HEIs from Vietnamese partners involved in the project.

Recommendation 2: Study on online accessibility and quality standards

Conduct a study focussed on inclusive education to assess the quality and standards currently being applied by Viet Nam HEIs in their digital teaching and learning, focussing in particular on online accessibility of content and learning design that has been rapidly developed for use as a result of the Covid-19 pandemic. Findings

from this small project, could lead to development of quality standards, and training on HEI level implementation and compliance practices related to accessibility standards that can benefit all students and in particular disabled and disadvantaged groups.

Recommendation 3: Development HEI digital transformation strategy and implementation roadmaps

Support the development of HEI level digital transformation strategies and roadmaps. These strategies can be linked to the Ministry level indicators for digital transformation, and basically provide HEIs with the support they need in addressing how to implement digital transformation in their University. The development of strategy and a roadmap for implementation are a first essential step in a change management process that needs support from HEI leaders. A small project could include leaders (including management, academics and ICT support staff) from several universities being mentored and supported through the process of digital transformation strategy development by a UK/Viet Nam HEI team of experts.

Recommendation 4: Student Digital Literacy (Core skills)

Students are involved in wide ranging academic disciplines, and most of these now require some level of digital literacy. A core foundation short course would be valuable that ensures that students are safe online, can manage their digital identity and make use of available digital tools. In the case of disabled students this also means that they are aware of any available assistive technologies and reasonable accommodations available to support their

learning. A small collaborative project could focus on reviewing existing openly licensed material for adaptation and developing an open educational resource (OER) which could be updated and localised, as required.

Recommendation 5: Student Digital Capabilities (Additional skills)

A second approach to developing student digital capabilities within different subject areas, is to support the collaboration of students from UK and Viet Nam, in addressing team based challenges. This process can be competitive in nature, and innovative and entrepreneurial in intent, with the outcome focussed on a goal related to the discipline. The digital skills developed are key to the collaboration and to effective online communication and team building. They represent a valuable side benefit in terms of soft skills needed that support future employment opportunities for the participating students. This approach has already been tested through an existing UK/Viet Nam student level collaboration. Project funding can support the international collaboration and a related small grant of seed funding to the winning initiative.

Medium: (Up to two years, and £500K budget limit)

Recommendation 6: Digital Literacy Skills and Capabilities

Digital literacy skill development is needed to raise awareness and knowledge of how to develop and support online teaching and learning and related administration. This is a large scale task that builds on the initial knowledge gained in response to the Covid-19 pandemic, to improve quality in both processes and implementation of online and blended models of teaching and learning.

The aim here would be to undertake digital literacy training and provide mentoring and support for both academic and support staff. This approach was used successfully during the TIDE project, for example, and can draw on and scale up existing models used for the development of digital capabilities. UK partners could support a Vietnamese HEI partner to deliver this capacity development programme to staff from a selected range of Vietnamese HEIs.

Recommendation 7: Supporting Change Management

Building on recommendation 3, this initiative would provide mentoring and support for selected HEIs engaged in implementing their digital transformation strategy and roadmap. Experts from UK HEIs could work together with leading Viet Nam HEI partners to facilitate the change process. For this initiative to be effective digital literacy skills among staff will be a prerequisite, and HEIs will need to have appropriate levels of autonomy and/or top level Ministry support and resourcing to drive through both change at system and behavioural levels. This potentially requires addressing structures, ways of working and incentive systems.

Recommendation 8: Digital Transformation Hub

One collaborative initiative for which there may already be a potential source of funding identified by HUST (i.e. the EON Knowledge Metaverse Grants Program) is for UK / Viet Nam HE partners and the Ministry of Education and Training to work with EdTech companies to create a Digital Transformation Hub. This hub can develop a curriculum related to digital transformation, and be a centre providing support and

capacity development expertise available across the Viet Nam HE sector.

Large: (Up to five years and £1m+ budget)

Recommendation 9: System-wide Digital Transformation and Capacity development

A large scale transformation support project (such as those illustrated by the SPHEIR programme) starts by recognising and mapping the inter-connections between different components and stakeholders in an HE system, and then designing activities to address the components where new skills, systems and change management support is needed.

Such a project requires substantial funding and an initial timeframe of at least 3-5 years, and realistically a longer term 10 year commitment to a comprehensive

transformation process. A collaboration drawing on expertise from UK and Viet Nam HE sector (and other key national and international actors) and fully supported by the Ministry of Education and Training would be an effective partnership in supporting this system-side approach. The learning and benefits from such a collaboration (as with all those collaboration recommendations listed above) would be two way, and likely to produce spinoffs in terms of wider collaboration e.g. related to research.

It is recognised that the system-wide approach is the most difficult to fund. However, an understanding of the overall system will be important for achieving National digital transformation or individual HEI targets. It will be important to identify and understand the ways in which small and medium sized project initiatives can contribute to system level change, and fit within a wider strategic plan and roadmap.

References

Advance HE, (n.d.) Blended learning. *Advance HE* https://www.advance-he.ac.uk/knowledge-hub/blended-learning-0

Ahmed, D.T.T. (2013). Toward Successful E-Learning Implementation in Developing Countries: A Proposed Model for Predicting and Enhancing Higher Education Instructors Participation. *International Journal of Academic Research in Business and Social Sciences*, (3:1, pp.422-435). https://www.semanticscholar.org/paper/Toward-Successful-E-Learning-Implementation-in-A-Ahmed/379de12b599a660a402e89db6e0a2dee1777d07d

Ali, S., Uppal, M.A., Gulliver, S.R. (2018). A conceptual framework highlighting elearning implementation barriers. *Information Technology & People* (31:1, pp.156-180) https://www.researchgate.net/publication/322936743_A_conceptual_framework_highlighting_e-learning_implementation_barrierss

Andersson, A., Grɪᵾnlund. (2009). A Conceptual Framework for E-Learning in Developing Countries: A Critical Review of Research Challenges. *The Electronic Journal of Information Systems in Developing Countries* (38:1, pp.1-16) https://onlinelibrary.wiley.com/doi/abs/10.1002/j.1681-4835.2009.tb00271.x

AUN. (2015) Guide to AUN-QA assessment at programme level (Version 3.0). *ASEAN University Network* https://fh.unnes.ac.id/wp-content/uploads/2017/05/Guide-to-AUN-QA-Assessment-at-Programme-Level-Version-3_2015.pdf

Barber, M. (2021). Gravity assist: Propelling higher education towards a brighter future – Digital teaching and learning review. *The Office for Students.* https://ofslivefs.blob.core.windows.net/files/Gravity%20assist/Gravity-assist-DTL-finalforweb.pdf

Barnes, J., Greenway, C. & Morgan, C. (2021, February 11) How has Covid-19 affected the way in which teacher educators engage their students with learning. *British Educational Research Association (BERA).*

https://www.bera.ac.uk/blog/how-has-covid-19-affected-the-way-in-which-teacher-educators-engage-their-students-with-learning

Bozkurt, A., Jung, I., Xiao, J., Vladimirschi, V., Schuwer, R., Egorov, G., Lambert, S., Al-Freih, M., Pete, J., Olcott, Jr., D., Rodes, V., Aranciaga, I., Bali, M., Alvarez, A. J., Roberts, J., Pazurek, A., Raffaghelli, J. E., Panagiotou, N., de Coëtlogon, P., Shahadu, S., Brown, M., Asino, T. I., Tumwesige, J., Ramírez Reyes, T., Barrios Ipenza, E., Ossiannilsson, E., Bond, M., Belhamel, K., Irvine, V., Sharma, R. C., Adam, T., Janssen, B., Sklyarova, T., Olcott, N., Ambrosino, A., Lazou, C., Mocquet, B., Mano, M., & Paskevicius, M. (2020). A global outlook to the interruption of education due to COVID-19 pandemic: Navigating in a time of uncertainty and crisis. *Asian Journal of Distance Education*, *15*(1), 1-126. https://www.asianjde.com/ojs/index.php/AsianJDE/article/view/462

Bolton, P. (2022, February 23) Higher Education Student Numbers. *House of*

Commons Library.
https://researchbriefings.files.parliament.uk/documents/CBP-7857/CBP-7857.pdf

The British Council (2021, November 15-19) Why Viet Nam Matters. *Partner South East Asia: Why South East Asia Really Matters* online event. https://education-services.britishcouncil.org/news/opportunities/partner-south-east-asia-why-south-east-asia-really-matters

Calvet, L, Bourdin, P, Prados, F (2019). Immersive Technologies in Higher Education: Applications, Challenges, and Good Practices. *ICEEL 2019: Proceedings of the 2019 3rd International Conference on Education and E-Learning.* November 2019, pgs. 95-99.
https://dl.acm.org/doi/abs/10.1145/3371647.3371667

Castell, E. & Wake, D. (2021, December 16) Higher Education in Facts and Figures: 2021. *Universities UK.*
https://www.universitiesuk.ac.uk/what-we-do/policy-and-research/publications/higher-education-facts-and-figures-2021

Clark, D. (2022, February 23) Number of universities and higher education institutions in the United Kingdom from 2010/11 to 2018/19. *Statista.*
https://www.statista.com/statistics/915603/universities-in-the-united-kingdom-uk/

Đại, N. T. (2020) Đảm bảo chất lượng trong đào tạo trực tuyến: Đề xuất cách tiếp cận mới tại Việt Nam. Hội thảo "Cải tiến chất lượng trong quản trị đại học", Trường Đại học Khoa học Xã hội và Nhân văn, Đại học Quốc gia TP. HCM, Oct 2020, TP. HCM, Vietnam. https://hal.archives-ouvertes.fr/hal-03123378/document/

DfE, (2019). Realising the potential of technology in education: A strategy for education providers and the technology industry *Department for Education*
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/791931/DfE-Education_Technology_Strategy.pdf

ESFA (2022) Get help with technology programme: conditions of device grants for technical support. *Gov.uk*
https://www.gov.uk/government/publications/get-help-with-technology-conditions-of-internet-access-and-device-grants/get-help-with-technology-programme-conditions-of-device-grants-for-technical-support

Gillies, M., Gregson, J., San Diego, J., Sheehan, T. & Thuranira-McKeever, C. (2019) Digital Educator Project: Final Report. *The University of London & Centre for Distance Education.*
https://london.ac.uk/sites/default/files/cde/Digital-Educator-Final.pdf

Grace, C. (2021, May 25) The impact of COVID-19 on distance learning universities: The Open University*. OUPblog*
https://blog.oup.com/2021/05/the-impact-of-covid-19-on-distance-learning-universities-the-open-university/

Hiền, N. (2021, November 15) Trường đại học nghiên cứu thúc đẩy chuyển đổi số ở miền Trung - Tây Nguyên. *Vietnam net.*
https://vietnamnet.vn/truong-dai-hoc-nghien-cuu-thuc-day-chuyen-doi-so-o-mien-trung-tay-nguyen-792317.html

Hoàng, M. S., Bùi, T. T. H. & Nguyễn, T. H. G. (2019) Mô hình trường đại học trong bối cảnh cuộc cách mạng công nghiệp 4.0, Kỷ yếu Hội thảo quốc tế về Các vấn đề mới trong Khoa học Giáo dục, tiếp cận liên ngành và xuyên ngành (6/2019), Nhà xuất bản Đại học Quốc Gia Hà Nội, ISBN: 978-604-968-566-8.

Horton, A.P. (2020). Could micro-credentials compete with traditional degrees? *BBC Worklife* https://www.bbc.com/worklife/article/202002 12-could-micro-credentials-compete-with-traditional-degrees

Hunt, S. & Boliver, V. (2019, April 18) A look at Private Education in the UK. *Inside Higher Ed.* https://www.insidehighered.com/blogs/world -view/look-private-higher-education-uk

ISSI (n.d.) Chuyển đổi số là gì? Tầm quan trọng của chuyển đổi số hiện nay. *ISSI.* https://issi.vn/kien-thuc/chuyen-doi-so/chuyen-doi-so-la-gi-tam-quan-trong-cua-chuyen-doi-so-hien-nay

Iosad, A. (2020, October) Digital at the core: A 2030 strategy framework for university leaders. *JISC.* https://repository.jisc.ac.uk/8133/1/2030-strategy-framework-for-university-leaders.pdf

Jensen, T. (2020) Higher Education in the Digital Era: The Current State of Transformation Around the World. *International Association of Universities (IAU).* https://www.iau-aiu.net/IMG/pdf/technology_report_2019.pdf

Joint Information Systems Council (JISC) (July 2020) Learning and Teaching Reimagined: Change and Challenge for students, staff and leaders. https://www.jisc.ac.uk/sites/default/files/ltr-report-change-and-challenge-for-students-staff-and-leaders-aug-2020.pdf

Linh, T. (2021, December 24) Sẽ có bộ chỉ số đánh giá chuyển đổi số ở các trường, phòng, Sở Giáo dục. *Giaoduc Viet Nam* https://giaoduc.net.vn/giao-duc-24h/se-co-bo-chi-so-danh-gia-chuyen-doi-so-o-cac-truong-phong-so-giao-duc-post223276.gd

LGA. (2021). Local Government Association, 'Tackling the digital divide'. [online] https://www.local.gov.uk/parliament/briefings -and-responses/tackling-digital-divide-house-commons-4-november-2021

Megastory (2021) Việt Nam có tiềm năng dẫn đầu về chuyển đổi số. *Megastory.* https://special.vietnamplus.vn/2021/10/21/vi et-nam-co-tiem-nang-dan-dau-ve-chuyen-doi-ky-thuat-so/

Microsoft Asia News Centre (2018, February 21) Digital Transformation to contribute more than UK$1 trillion to Asia Pacific GDP by 2021; AI is primary catalyst for further growth. *Microsoft* https://news.microsoft.com/apac/2018/02/21 /digital-transformation-to-contribute-more-than-us1-trillion-to-asia-pacific-gdp-by-2021-ai-is-primary-catalyst-for-further-growth/

MOET (2020) Higher Education Statistics for the 2018-2019 academic year. *Ministry of Education and Training* https://moet.gov.vn

Musa, M. A. & Othman, M. S. (2012) Critical Success Factor in E-Learning: An Examination of Technology and Student Factors. *International Journal of Advances in Engineering & Technology* (3:2, pp.140-148) https://citeseerx.ist.psu.edu/viewdoc/downlo ad?doi=10.1.1.667.1861&rep=rep1&type=p df

Nam, T. H. (2020, June 7) Chuyển đổi số trong lĩnh vực giáo dục và đào tạo: Thực trạng và giải pháp. *Thong Tn & Truyen Thong.* https://ictvietnam.vn/chuyen-doi-so-trong-linh-vuc-giao-duc-va-dao-tao-thuc-trang-va-giai-phap-20200522150010574.htm

Nguyen, H. T. (2013) Vietnam Research and Education Network (vinaREN)

NSRC/intERLab AIT Network Monitoring and Management Workshop, 25-29 November 2013, Bangkok, Thailand https://nsrc.org/workshops/2013/nsrc-ait-nmm/raw-attachment/wiki/ParticipantPresentations/VN_VinaREN-Vietnam-Update.pdf

Nguyen, S. D. (2020). Digital transformation in art pedagogical training in Vietnam today. *Vietnam Journal of Education*, *4*(4), 69–75. https://doi.org/10.52296/vje.2020.82

Nguyen, T. Dang & Pham, T. (2020) Characteristics of Viet Nam HEIs. *Conference Presentation at* MÔN GIÁO DỤC HỌC ĐẠI CƯƠNG, NVSP-K74, University of Social Sciences and Humanities (USSH), VNU-HCMC.

https://www.researchgate.net/publication/352644378_DAC_DIEM_CUA_GIAO_DUC_DAI_HOC_VIET_NAM

Office for Students (2020) Briefing Notes. *Office for Students* https://www.officeforstudents.org.uk/advice-and-guidance/coronavirus/briefing-notes/

Pham, T. T. H. & Nguyen, T. H. G. (2018) Master Plan for Higher Education Institutions – The Lesson Learn for Vietnam (9/2018), Proceedings of International Conference - Education for All, Nhà xuất bản ĐH Quốc Gia Hà Nội, ISBN:978-604-62-6622-8.

Puri, D.G. (2012). Critical Success Factors In E-Learning - An Empirical Study. *International Journal of Multidisciplinary Research,* 2(1), pp.149-161. http://zenithresearch.org.in/images/stories/pdf/2012/Jan/ZIJMR/11%20%20Goldi%20Puri%20Critical%20success%20factors%20in%20e-learning.pdf

QAA (2018, August) The Right to Award UK Degrees. *The Quality Assurance Agency for Higher Education (QAA)* https://www.qaa.ac.uk/docs/qaa/guidance/the-right-to-award-degrees-18.pdf?sfvrsn=4a2f781_14

Rouse, H. L., Bulotsky Shearer, R. J., Idzikowski, S. S., Nelson, A. H., Needle, M., Katz, M. F., Bailey, J., Lane, J. T., Berkowitz, E., Zanti, S., Pena, A & Reeves, M. (2021) Developmental Impacts of the COVID-19 Pandemic on Young Children: A Conceptual Model for Research with Integrated Administrative Data Systems", *International Journal of Population Data Science*, 5(4). doi: 10.23889/ijpds.v5i4.1651

Salmi, J. (2021) Impact of COVID-19 on Higher Education from an Equity Perspective (02:105) *International Higher Education.* https://www.internationalhighereducation.net/en/handbuch/gliederung/?articleID=3109#/Beitragsdetailansicht/837/3109/Impact-of-COVID-19-on-Higher-Education-from-an-Equity-Perspective

TẠP CHÍ CON SỐ & SỰ KIỆN (2020) Quy mô dân số Việt Nam những phát hiện chính. TẠP CHÍ CON SỐ & SỰ KIỆN. http://consosukien.vn/quy-mo-dan-so-viet-nam-nhung-phat-hien-chinh.htm

Times Higher Education (THE) (n.d.) Study in Vietnam. *THE* https://www.timeshighereducation.com/student/where-to-study/study-in-viet-nam

Tuyen, T. Q. & Dao, L. V. (2021, November 29) Chuyển đổi số nền kinh tế Việt Nam trong giai đoạn tới. *Tap chi Congsan.* https://www.tapchicongsan.org.vn/web/guest/kinh-te/-/2018/824383/chuyen-doi-so-nen-kinh-te-viet-nam-trong-giai-doan-toi.aspx

Universities UK (2021a, October 8) Huge economic contribution of universities must not be forgotten. *Universities UK.*

https://www.universitiesuk.ac.uk/what-we-do/creating-voice-our-members/media-releases/huge-economic-contribution-universities

Universities UK (2021b, December 16) Higher Education in Numbers. *Universities UK.* https://www.universitiesuk.ac.uk/latest/insights-and-analysis/higher-education-numbers

Universities UK. (2021) Degree classification in 2019-20 *Universities UK* https://www.universitiesuk.ac.uk/what-we-do/policy-and-research/publications/degree-classification-2019-20

Viet Nam News (2020, June 17) Public Universities in HCM City to hike tuition. *Viet Nam News.* https://vietnamnews.vn/society/738268/public-universities-in-hcm-city-to-hike-tuition.html via https://www.universityworldnews.com/post.php?story=20200621111738868

We are Social (2017) Digital in 2017: Southeast Asia. *We are Social* https://wearesocial.com/special-reports/digital-southeastasia-2017

The World Bank (2020). Improving the Performance of Higher Education in Vietnam : Strategic Priorities and Policy Options. World Bank, Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/33681 License: CC BY 3.0 IGO

The World Bank (2019) The Digital Economy in Southeast Asia: Strengthening the Foundations for Future Growth. World Bank, Washington, DC. © World Bank https://openknowledge.worldbank.org/handle/10986/31803 License: CC BY 3.0 IGO

World Economic Forum (WEF) (2020). The COVID-19 pandemic has changed education forever. This is how. *World Economic Forum* https://www.weforum.org/agenda/2020/04/coronavirus-education-global-covid19-online-digital-learning/

Xaymoungkhoun, O., Bhuasiri, W., Rho, J.J., Zo, H. & Kim, M.-G. (2012). The Critical Success Factors of e-Learning in Developing Countries. *Kasetsart Journal of Social Sciences*, 33, 321-332. https://www.thaiscience.info/journals/Article/TKJS/10897910.pdf

Zhou, X. & Wolstencroft, P. (2020, April 9) Digital masters? Reflecting on the readiness of students and staff for digital learning. *British Educational Research Association (BERA).* https://www.bera.ac.uk/blog/digital-masters-reflecting-on-the-readiness-of-students-and-staff-for-digital-learning

Appendix

Appendix A: Methodology

This report was written and developed as part of a British Council in Viet Nam commissioned study, and was a collaboration between The Open University (UK) and Hanoi University of Science and Technology (HUST). The project began in November 2021 and ended April 2022. The collaboration produced this scoping study, which provides an overview of digital transformation in both the UK and Viet Nam HE sectors. In particular the report identifies current policies and practices, what challenges exist and makes recommendations to address these. This report also aims to outline the current and potential opportunities and models for collaboration between UK and Viet Nam HEIs.

To develop this report a number of research activities were conducted. These included a mapping workshop with selected ministry, university and technology stakeholders; literature reviews; the development of a Digital Readiness Tool which framed the development of a survey for senior team members, as well as questions for focus groups and interviews with selected stakeholders. The authors of this report would like to thank all those who participated in the research or associated events for this study.

This research project was reviewed incrementally by, and received a favourable opinion from, The Open University Human Research Ethics Committee – HREC reference numbers: HREC/4252/Pitt (Phase I) and HREC/4296/Pitt (Phase II).

Appendix B: Digital Transformation Tool Development: Websites Reviewed

Organisation / author	Link	Sector	Notes / Comments	RAG
Digital social care	https://www.digitalsocialcare.co.uk/measuring-digital-readiness/	social care employers	Questionnaire split into sections: Leadership and management; Staff training, skills and attitudes; Data Protection and Cyber Security; Collecting, managing and using data and information. Report emailed with top tips against each section and links to social care resources to support readiness, doesn't look wholistically only at each section and too specific to social care.	🟧
JISC	https://www.jisc.ac.uk/guides/key-questions-college-leaders-should-ask	FE	Set of self -reflective questions aimed at college leaders - could be useful to review for inclusion in survey. There is no output from the questions (no report).	🟩
JISC	https://www.jisc.ac.uk/guides/fundamental-technology-services-every-college-should-embrace-during-area-review-implementation	FE	List of fundamental technology services. Published 2018 however good list of technologies that could evidence a level / stage of digital readiness. Not clear to the extent this would match the Vietnamese context.	🟩
JISC	https://repository.jisc.ac.uk/8133/1/2030-strategy-framework-for-university-leaders.pdf	HE	**Digital at the core: A 2030 strategy framework for university leader**s - Looks across 4 themes: leadership; staff; business model; investment. Lots of good reflective questions and reasoning. Useful as a set of questions to answer for leadership teams once an understanding of digital readiness is confirmed	🟩
DRL	https://drl-tool.org/	Business	can't gain access	🟥
JISC	https://www.jisc.ac.uk/full-guide/developing-organisational-	HE / FE	Guide to developing organisational approaches to digital capability - interesting read links to good case	🟧

	approaches-to-digital-capability		studies not much in the way of assessing readiness.	🟧
OU	https://www.open.ac.uk/libraryservices/pages/dilframework/	HE	Digital and Information Literacy Framework builds on the Jisc digital capabilities framework. Good evidence matrix for levelling capabilities, aimed at the individual though not the institution.	🟩
World bank	https://openknowledge.worldbank.org/bitstream/handle/10986/33674/Digital-Government-Readiness-Assessment-DGRA-Toolkit-V-31-Guidelines-for-Task-Teams.pdf?sequence=1&isAllowed=y	Government	Digital Government Readiness Assessment (DGRA) Toolkit V.3 1 - some good questions to reflect on for HE. There is a questionnaire in the appendix, can't find an excel version as it looks like it would provide a dashboard as well which could be useful. Focus is UK Government though.	🟧
Skill IT	https://digipathways.io/digital-readiness-self-assessment-tool-for-organisations/	Youth work	well laid out good set of questions / examples and a baseline for which to base your answer on. Good dashboard report. Could be used and adapted.	🟩
Genesis analytics	https://pathwayscommission.bsg.ox.ac.uk/sites/default/files/2021-12/South_Africa_Digital_Readiness_Assessment_Accessible.pdf	Government / country	Digital readiness assessment of South Africa - some interesting representations of data and reporting. Economic focussed though.	🟥
UNESCO	http://uis.unesco.org/sites/default/files/documents/ip56-recommendations-assessment-tools-digital-literacy-2019-en.pdf	individuals	**Recommendations on Assessment Tools for Monitoring Digital Literacy within UNESCO's Digital Literacy Global Framework** - interesting but not much use immediately as is more focussed on monitoring. Some good information on approaches .	🟥
European commission	https://ec.europa.eu/social/BlobServlet?docId=15688&langId=en	individuals	**The European Digital Competence Framework for Citizens**, good basis for which to standardise questions / answers. Good tool for the individual in and out of work.	🟧

UNES CO	http://uis.unesco.org/si tes/default/files/docum ents/ip51-global-framework-reference-digital-literacy-skills-2018-en.pdf	individuals	**A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.**2 - good competency framework with standards that could be re-used, but would be a framework to use for individual digital literacy monitoring / assessment.	🟩
Europ ean commi ssion	https://education.ec.eu ropa.eu/self-reflection-tools/schools-go-digital	school	SELFIE is a free, easy-to-use, customisable tool to help schools assess where they stand with learning in the digital age. - looks like a good adaptable tool but don't have easy access as need to register school	🟧
UNES CO	https://unesdoc.unesc o.org/ark:/48223/pf000 0224655	School	**Global Media and Information Literacy Assessment Framework: country readiness and competencie**s - good questionnaires in the appendices but not all completely relevant	🟧
Wesse x academ ic health scienc e networ k	https://wessexahsn.org .uk/img/news/Digital% 20Readiness%20Stud y%20Report_full_repor t-1612545101.pdf	primary care	Digital readiness within General Practice report - some interesting questions in appendix 2 that could be adapted	🟥
Europ ean Univer sity Associ ation	https://www.eua.eu/do wnloads/content/surve y.pdf	HE	**Survey on digitally enhanced learning in the European higher education institutions** - good set of questions could be re-used	🟩
TES	https://campus-cms.prd.timeshighered ucation.com/sites/defa ult/files/2021-02/THEDigitalTeachin gSurveyspecialreport.p df	HE	TES digital teaching survey results some questions in here but complete set not readily available.	🟩

Research team

UK team

1. Beck Pitt, Research Fellow, The Open University (UK)
2. Jon Gregson, Independent Consultant
3. Tim Seal, Head of Future Learning, The Open University (UK)

Vietnamese team

1. Assoc. Prof. Huynh Quyet Thang, President of Hanoi University of Science and Technology
2. Dr. Nguyen Thanh Hung, Vice Dean of the School of Information and Communication Technology, Hanoi University of Science and Technology
3. Dr. Tran Hoang Hai, Vice Director of the Network and Information Center, Hanoi University of Science and Technology
4. Dr. Bui Thi Ngoc Thuy, Deputy Head of the External Affairs Office, Hanoi University of Science and Technology
5. Mr. Nguyen Minh Hoang, assistant of the project.

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