

Organisational digital capability: a cross-country review of guidance

Abstract

Purpose: Digital transformation continues to rapidly progress in higher education globally, spanning all aspects of higher education operations, values, and culture. Despite expanding literature, guidance remains focused on emergency application during pandemic lockdowns and/or on single organisational case studies. Digital transformation frameworks that move beyond these foci, are heavily criticised for being commercially contextualised (outside of higher education) and are often too narrowly conceptualised. The purpose of this paper is to review the most common framework currently used in the UK which takes a strategic, organisational perspective to digital transformation.

Design/methodology/approach: This is a technical review article which summarises key guidance for organisational digital capability and then reflects on the application in the UK (a developed economy and higher education system) and in Vietnam (one of the fastest growing economies with a developing higher education committed to digital transformation) As an initial attempt to explore its applicability beyond the UK context. Vietnam has been chosen as a reference context given its significant current digital transformation policy reform at national level, and as a collaboration partner with the UK in its digital transformation.

Findings: The guidance highlights six core areas to consider for digital capability: ICT infrastructure, content and information, research and innovation, communication, learning, teaching and assessment, and organisational digital culture. Although the framework is normative, findings suggest it is sufficiently open-ended to enable its users to determine practical steps to drive digital transformation. However, complementary tools are suggested to deal with the rapidly developing digital transformation policy context of Vietnam.

Originality: This is the first time a review has been conducted from the perspective of different countries, with a view to support leaders, managers, and policymakers in the UK, Vietnam, and other ASEAN networks in their own digital transformation transitions.

Introduction

Digital transformation continues to progress rapidly across all aspects of life globally, not just in higher education (Jandrić, 2022), and often refers to a broad and deep notion encompassing “a series of deep and coordinated culture, workforce, and technology shifts that enable new educational and operating models and transform an institution’s business model, strategic directions, and value proposition.” (Brown et al, 2020, np). The extant literature on digital transformation *in or of* higher education has grown exponentially in recent years (Díaz-García et al, 2022) partly reflecting the necessity of digital transformation to enable higher education to continue in emergency contexts (Rof et al, 2022). Here, the pandemic seems to have promoted the engagement with digital teaching and learning tools in classrooms, reflecting the immediate, important needs during the emergency transitions to new models (D'Ambra, Akter, & Mariani, 2022). However, recent research has also found that the covid-19 pandemic seems to have promoted and accelerated broad digital engagement in higher education, including through the creation of spaces for digital experimentation and innovation, as well as digital literacy of staff, students, and wider stakeholders (Deroncele-Acosta, Palacios-Núñez, & Toribio-López, 2023). Indeed, some have argued that the pandemic has created a ‘shadow’ in higher education to describe the legacy of the pandemic on digital transformation (Krishnamurthy, 2020).

The extant literature on digital transformation in higher education emphasises the organisational specific nature of digital transformation, reflected in the prevalence of single organisational case studies to document the digital transformation journey. For example, again in the shadow of the pandemic, some studies refer to the mechanisms of technological adoption to ‘stay afloat’, scaling technical functions, and justifying change (e.g. Bygstad et al, 2022). Others describe, in addition to the technical changes, the new forms of digital pedagogical spaces created in adjusting to the situation (Antonopoulou et al, 2023). This perspective is also echoed in some studies across countries, highlighting the role of strategic intent, technological aspects and the potential requirement for cultural adaptation to ways of working in higher education (e.g. Valdés et al, 2021; Pinheiro et al, 2023; Cerdá Suárez, et al, 2021). In China, Xiao’s (2019: 515) analysis of 75 university strategic plans found a focus on the implementation e-campuses, modernisation of existing facilities, and “building a positive online ethos and developing political and ideological education via digital means” and little consideration of the application of digital technologies to “serve a wider community and to build technology-enhanced research capacity... of open, flexible, distributed, and disaggregated learning” (ibid: 515). In Vietnam, as an economy which has had and continues to have a significant pace of economic growth, has experienced rapid policy reform to promote digital transformation in higher education. Here, recent evidence highlights cultural and legal challenges in relation to the digital transformation of teaching and learning, but also the unreliability of data infrastructures to make robust strategic decisions in terms of training or investment (Uoc, 2023). Whilst the extant literature provides rich studies into the experiences of transition in emergency contexts and analysis of what may be covered (or not) in digital transformation plans, they are not designed to guide nor support those responsible for, or those who are involved in, the strategic intent or planning of digital transformation in practice. As a result, there are a range of frameworks which have been developed outside of scholarly work and facilitated by corporate organisations. The frameworks include ones that have been developed by KPMG, Google, and Microsoft, all of which have common dimensions of people, technology, and change management, and variable levels of ‘maturity’ within them (Alenezi, 2021). These frameworks however are not typically contextualised within higher education (ibid) and as such is the basis for major criticism, reflecting the language and reference points which are meaningful for those involved in the change aspects of digital transformation (Mohamed Hashim et al, 2022). Another important criticism has been that whilst the frameworks may encompass the three elements of people, technology and change, there are often not applied holistically in practice (Benavides et al, 2020).

Within the specific context of higher education, however, leaders and managers have taken a keen interest how digital transformation is impacting operations, values and culture across their institutions, and therefore potentially creating (or destroying) their distinctive advantage in increasingly competitive markets (Valdés, Alpera, & Cerdá Suárez, 2021). From this institutional perspective, therefore, organisational level digital capability is an important area of innovation and practice development. This paper therefore outlines and reviews the most widely used frameworks in the UK relating to organisational digital capability. This framework has been designed by Jisc, the UK’s national, not-for-profit, non-governmental digital agency which oversees the national research and education networks and has been supporting higher education digital transformation for over three decades, and supports 18 million users on the UK’s digital research and education network (Jisc, 2023, np). Specifically, Jisc’s framework considers guidance made available through Jisc’s ‘building digital capability service page’ (<http://ji.sc/building-digicap>), specifically focusing on Jisc’s “Developing digital capability: an organisational framework” (Jisc, 2023a). These resources provide an organisational perspective on digital capability, specifically for “leaders, managers and change agents with responsibility for developing digital capability” (Jisc, 2023b: page 1).

The structure of this paper is as follows. First, it outlines the guidance provided by Jisc (2023a, b), highlighting the key aspects of the main document underpinning the guidance. Second, it reflects on the guidance from the perspective of higher education expert practitioners from the UK (as a

developed country with an established higher education sector), and Vietnam (as one of the fastest growing countries in the world with a developing higher education system which is governmentally committed to digital transformation). The analysis, we believe, provides leaders, managers, and policy makers across countries a resource to help inform their own digital transformation transitions.

Summary of technical guidance

Jisc (2023) adopts the broad and deep definition of digital transformation outlined above, which positions it as a dual cultural as well as technological set of shifts (Brown et al, 2020, np). This framework was developed in 2015 and was revised and updated in 2018 so it currently stands as the most commonly used guidance framework materially informing practice across the UK (see Jisc, 2023c). The guidance developed by Jisc is underpinned by ‘six elements of digital capability’ which refer to core activities and the wider organisational digital culture (see Figure 1). This highlights the extensive and all-embracing nature of digital (Jandrić, 2022) and digital capability across a university, far beyond just the three imperatives of teaching, research and enterprise (Barnett, 2023). Each of the six elements are outlined below.

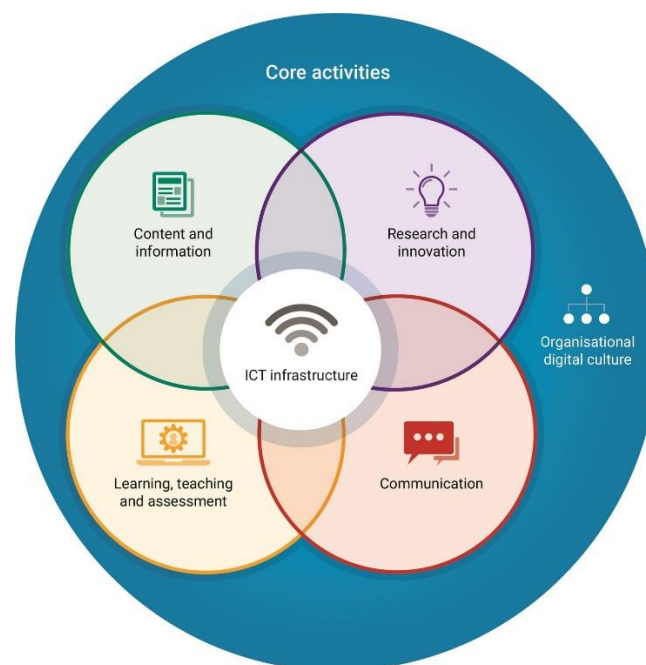


Figure 1. Developing digital capability: an organisational framework (Jisc, 2023a, this image is licensed under CC BY-NC-SA).

ICT infrastructure

Jisc highlights that technologies (existing, emerging or new) should be examined in relation to the organisational strategic priorities of a university. This includes the strategic choices about how digital infrastructures should be “[p]rocure[d] and/or develop[ed], implement[ed], manage[d] and maintain[ed]” (ibid: p2). It includes decisions about in-house or out-sourced skills and expertise, as well as how the wider communities of users are engaged and upskilled to be able to benefit from the infrastructure. Here, consultation is seen as a critical component alongside imagining the needs of

‘future users’. As such, digital infrastructures should be seen on the same footing as physical infrastructure, and as such, should consider the elements of integration and complementarity.

Content and information

Jisc’s guidance clarifies the essential need for an organisational level *information strategy* and the associated policies, protocols, and procedures, and the development of library and information professionals’ expertise in “information management, IPR and licencing, digital resources, open publication, open educational content, information literacy and other digital specialisms” (ibid). This fits as part of a wider strategic plan for information literacies across the organisation. Yet there are other strategic choices around *data use* and *digital media strategy*. These include clear strategies for “gathering, managing, analysing and using data across the organisation[,]... data management and compliance” (ibid, p2). In addition, there are strategic choices around investments in the internal capabilities and “innovation projects to support strategic goals” (ibid: p 2).

Research and innovation

Jisc articulates four broad areas here: creativity, problem solving, support and innovation. For *creativity*, the guidance considers “rewarding innovation, developing a risk-accepting culture, and modelling innovative approaches”, perhaps through “events, awards, initiatives and funding streams to support digital innovators”. In terms of *problem solving*, it highlights the need for a *digital research strategy* which embraces open data, publishing and research data management, with the investment to underpin it. In terms of *support*, it all-embracing aspects including: Centres of Excellence in ‘digital fields’, the promotion of digital skills and scholarship for staff and students, including creating opportunities to use digital tools and data, and the broader systems of recruitment, selection and retention of digital talent. And finally, in terms of *innovation*, the guidance considers the need for digital transformation initiatives and leadership and the identification and removal of barriers to digital innovation across the institution. Here, innovation should be enabled through infrastructures to support digital working.

Communication

In this area, the guidance covers three main aspects: *digital communication*, *collaboration*, and *participation*. *Digital communication* needs investment to connect and engage networks internally and externally, in line with an institution’s vision, mission and values. This might include a “democratic style of communication as suited to a digital organisation” but should be based on respect. In terms of *digital collaboration*, investment should be made in environments to underpin this, for example, “open practices such as the release of open educational materials, open courses, open scholarship and publication”. Interestingly, Jisc endorses the integration of “collaborative experiences into courses of study and staff development” and the promotion of “collaboration across organisational boundaries”. Digital capability, according to Jisc, is also about being aware of the “opportunities and risks involved in creating a broader culture of digital collaboration” and should therefore have the relevant processes in place. Finally, in terms of *digital participation*, institutions should “promote engagement and participation across the organisation, using digital tools to engage, consult and make effective decisions”, being driven by a culture “access, inclusion, and equality of opportunity”.

Learning, teaching and assessment

This area includes *digital learning* and *digital teaching and assessment*. *Digital learning* asks institutions to consider the investment in the professional development for (all) staff and students, and the digital learning digital learning platforms (e.g. to access information, learning resources, submit

assessments, marking, create and maintain portfolios). Here, understanding the digital learning experience helps underpin improvements, as well as the need to reward students for developing digital capabilities (e.g. through digital badges). *Digital teaching and assessment* considers the need for a strategies for technology-enhanced learning, e-assessment (including an e-marked assessment), the use of analytics to inform teaching/curriculum development, and plans to operationalise. These strategies include how to embed and ensure ongoing development of digital skills, and the investment needed to deliver it. This can include opportunities to share digital practices, the recognition for staff who develop these (e.g. through workload allocation or promotion).

Organisational digital culture

Jisc (2023a:np) describes organisational digital culture as “express[ing] how the organisation supports the development of digitally capable people... [and] determines its style of internal and external communication and its approach to issues such as digital safety and well-being”. This includes developing an *organisational identity* which reflects the institutional ‘mission and values’, and which guides individual behaviour to reflect those in digital spaces such as social media. However, it also includes developing approaches to promoting *organisational wellbeing* by “promoting healthy, sustainable practices with digital technology” (ibid: p4). As such, this area recognises the all-encompassing nature of culture and how institutions should consider cultural aspects which could promote digital transformation or which might act as barriers to change. Indeed, according to the guidance, the organisational framework can be used to explore and make decisions about responsibilities across an organisation, and as a result, identify possible gaps in expertise and prioritise developments.

Reflections on application

Although the framework is normative in the sense it provides categories for reflection for institutional leaders to consider in the context of their specific institution, within the UK context, it is sufficiently open to enable leaders to reflect their own conditions. This reflects the context in which it was developed where each institution largely has autonomy to determine its strategic direction and infrastructure, and where there is significant diversity of institutional context (e.g. size, geographic location and reach, relative intensity of teaching, enterprise and research). Although it is the most commonly applied in the UK with many cases are available through Jisc, there remains little peer-reviewed published research into the way it has been applied (see Foster et al, 2023). Evidence does, however, highlight how an organisation’s climate for shared decision-making influences how employees voluntarily contribute or share new ideas during digital transformation (Haskasap et al, 2023) and how executives’ business, technical and financial connections can support (or otherwise) digital transformation efforts (Bai et al, 2023). This evidence highlights it is reasonable to expect variations in the engagement of the framework in higher education, partly depending on its fit with existing cultures and the style of the that engagement over time (also see Huber et al, 2023).

Moreover, how applicable is the framework in another context, outside of a long-established, autonomous higher education system? Vietnam has been one of the fastest growing economies for some time now and has a rapidly developing economic system and higher education system. In Vietnam, digital transformation in general – and in education and training in particular – has been given special attention by the Vietnamese government, particularly since Covid 19. According to the Network Readiness Index, Vietnam ranks as 1st globally for internet access in schools 3rd globally for fibre to the home (the UK ranks 43rd). Alike the UK, Vietnam does not have a single digital transformation framework (as outlined above), so the organisational digital capability framework provides immediate relevance to the different elements involved in digital transformation in higher education to Vietnam. Unlike the UK, Vietnam has a complex and rapidly changing higher education

environment with national, mandatory policies and projects emerging rapidly. As a result of such rapid policy and project initiatives, there has been a wide range of innovation in teaching and learning through: (1) MOOCs (e.g. Edumall and Kyna.vn), but in comparison to international providers, these providers have fewer, limited courseware, and cannot provide degree or credit-bearing awards due to Ministry of Education and Training policy, (2) project-based learning projects which is applied in most institutions in Vietnam and are oriented towards work/transferable skills (e.g. teamwork and communication skills), (3) Learning using virtual reality applications, and (4) science, technology, engineering and mathematics programmes introducing new methods for creative thinking and replacing didactic methods (British Council, 2021).

Nationally, there have been many policies and projects in Vietnam focusing on promoting and strengthening the application of technology in education management and teaching and learning innovation. For example, the project “*The National Digital Transformation Programme to 2025, with orientation to 2030*” (MOET, 2020) aims to promote the development of a digital Government, digital economy and digital society. In the same vein, the Ministry of Education and Training has also released national policies on the application technology in education, such as the use of e-books or the digitalisation of documents (see MOET, 2019). Another significant policy is “*Increasing the application of information technology and digital transformation in education and training in 2022-2025, with a vision towards 2030*” which aims to use technology to promote innovation in teaching and learning (MOET, 2022a). These policies closely links to the “*digital learning and teaching and assessment*” aspect of the framework which encourages institutions to invest in professional development opportunities, digital learning infrastructures such as learning platforms, developing a strategy for e-learning, e-teaching and support for its implementation.

In the context of Vietnam, the strategies for the development of these areas are urgently needed because of the lack of staff with digital skills and expertise, insufficient training, and poorly-equipped digital learning infrastructure (Le, 20220; British Council, 2021). Here, one of the barriers for applying the practices in the “*communication*” aspect of the framework is the limited open educational materials, open courses, open scholarship and publication in the Vietnamese context (ibid). Similarly, while the digital infrastructures are essential for the development of research and innovation, specifically, for embracing open data, publishing and research data management, Vietnamese institutions have insufficient conditions to support research and innovation. For example, several studies show that Vietnamese institutions not only lack adequate resources, but also the collaboration among academic staff and library staff (Denison & Robison, 2004; Pham 2016; Tuamsuk & Nguyen, 2022). In recognising this limitation, the policy promotes the principles of working in partnership with industry and technology specialists to mobilise change and transformation. This reflects the common question posed by the guidance about the need to consider both internal and external expertise in developing digital capability at the organisational level. In reality, however, this is often limited due to available funding, both in terms of engaging collaborators and in terms of the development of staff to keep up to date.

In a separate set of challenges, the guidance that educational institutions should increase access to digital information to inform *decision making* to improve student success is supported by governmental policy (MOET, 2022a). There has been significant growth in this domain by companies such as Microsoft and Google in their digital transformation frameworks, often linked to software products, this is a particular issue within Vietnam. Within Vietnam, there is often an issue with strategic insight because of the unreliability of data which problematises the potential of making robust strategic decisions (e.g. in relation to assessing impact of educational interventions) (Uoc, 2023). This is a material barrier because of the availability of funding for both investment in systems as well as training to resolve the issue (ibid; British Council, 2021). At the same time, this issue is exacerbated by the lack of strategic commitment and understanding of leaders, managers and staff in relation to digital transformation, so much so, the area of “*communication*” in the framework (which

includes communication, collaboration, and participation) was highlighted as a priority by a recent digital transformation readiness survey (British Council, 2021). Specifically, by creating collaborative cultures based on “access, inclusion, and equality of opportunity” means that all staff, learners, managers and leaders can engage in digital transformation. However, one of the barriers for applying the practices in the “*communication*” aspect of the framework is the limited open educational materials, open courses, open scholarship and publication in the Vietnamese context.

Within the context of Vietnamese institutions, the organisational framework can be used to formally organise the discussion around where investment is needed. Currently, digital transformation in education and training in Vietnam mainly focuses on digitising educational management and some aspects of digital teaching and learning. However, digital transformation is much broader than this as indicated by the organisational framework – one of the very important aspects in the framework that interconnects with all other aspects is the digital infrastructures such as the learning platforms, collaboration platforms, research and innovation, and library systems. As such, a framework helps identify, with more precision, the specific areas to seek targeted institutional investment as well as national Governmental support. Jisc’s guidance successfully highlights one of the main barriers to digital transformation in Vietnamese institutions; investment across all aspects of the framework according to recent research (British Council, 2021). Specifically, the framework provides a platform to identify specific areas of investment, including (1) the human resources to develop and apply digital transformation and related skills around all parts of institutions (all areas including *ICT infrastructure* and *Digital learning, teaching and assessment*), and (2) the digital technology infrastructure (*ICT infrastructure*). Research confirms the need for the development of digital leadership capabilities to help tackle the difficulties in changing or adapting new practices, especially when organisational workflows are difficult to implement (ibid).

As such, the framework does address the major criticisms of other, more narrowly scoped models which are applied outside of higher education. At the same time, the flexibility of the framework necessarily creates two additional but interrelated demands on those organisations who engage with it, which are perhaps emphasised in the context of Vietnam. The first relates to the extent to which those engaged in the framework can identify with and understand the key concepts and technologies referred to, and therefore the ability to accurately assess/audit a position (especially in heavily siloed organisation). Whilst this may not be an issue for organisations who are well developed in their digital transformation journey, it can be problematic in embryonic applications of digital transformation (Aras & Büyüközkan, 2023). The second demand relates to handling organisational change *in using the framework*, as opposed to the change processes integrated within the wider *Organisational Digital Culture* dimension which is integral to the framework. Here, Jisc do refer to using methods such as Appreciative Inquiry, as a positive model of change management, but it is imaginable that higher education establishments might well operationalise an approach to change which is both instrumental and without consultation or engagement. There is already evidence of this in the UK (Mohamed Hashim et al, 2022), so there may be instances of this in Vietnam in the case of digital transformation especially in higher education organisations with strongly managerialist cultures (Vu, 2019).

The second demand relates to the complexity of the Vietnamese context and the implications on this for decision making. Here, whilst the Jisc framework was not designed within this rapid policy development setting, it does highlight the need for a meta-prioritising function within the *Organisational Digital Culture* dimension. The need for this prioritisation is crucial given the variability of resources available across different institutions – each institution therefore needs to have a strategy about how digital infrastructures should be “[p]rocur[e]d and/or develop[ed], implement[ed], manage[d] and maintain[ed]” (ibid: p2) as suggested by the framework to make sure the long-term development of digitalisation. In one way, the framework is useful to pinpoint investment not just by institutional leaders, but also policy makers who can use it to articulate schemas of investment profiles across institutions. Or in other words, by using the framework, it can

help design packages of financial or strategic support. However, as highlighted above, there are a wide range of interrelated investment needs in Vietnamese higher education institutions, which may well be stifled by the sheer task of prioritisation without funding to match the wider ambition. Here, the framework could well be complemented with decision making tools – independent from the framework to match the contextual need – specifically related to managing barriers in digital transformation suited to the context. For example, Aditya et al's (2022) tool from Indonesia specifically designed for digital transformation in higher education proposed a carefully curated process of identifying barriers, sorting them (contextual, social, technical, cultural), rating them (importance / difficulty to fix), and scoring them to give a priority. Here, the sorting of barriers helps to identify particular resolutions, and the rating of barriers helps help understand the level of investment, which are dependent on the particular resource envelopes available to higher education organisations. This point returns the discussion to the organisational specificity of digital transformation journeys (Bygstad et al, 2022; Antonopoulou et al, 2023), and the need for practical guidance on how to deliver it. Although this paper focused on the organisational framework as a guide for digital transformation in Vietnamese higher educations, it may well be relevant to higher education organisations across other ASEAN (the Association of South Eastern Nations) higher education organisations, especially those where there is a political will and means to invest in its digital transformation. This reflects a geopolitical will to address credible digital talent and skill shortages in three areas for future growth in Asia: smart city development, online education, and the green economy including in India, Indonesia, Malaysia, and the Philippines among other countries (ADB, 2022). Some of these countries reflect similar digital transformation needs to Vietnam, for example, in Indonesia, reports suggest there is a need to update digital infrastructures and to encourage collaborations among stakeholders such as teachers, students, and private firms (Riaz et al, 2020). Yet across other ASEAN higher education organisations, there are very different development contexts, often with lowest literacy levels, minimal resource availability, and the lowest digitalisation usage, (e.g. Myanmar, see Ha & Chuah, 2023; Savuth & Sothea, 2023), and even within conflict contexts (Habib, 2023). In these contexts, there may well be radically different contextual features which emphasise some digital transformation priorities over others (e.g. the use of open educational resources in low resource or conflict settings – Goshtasbpour et al, 2023) but a framework which is sensitive to these contexts seems the most responsive to the needs of development in its broadest sense.

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