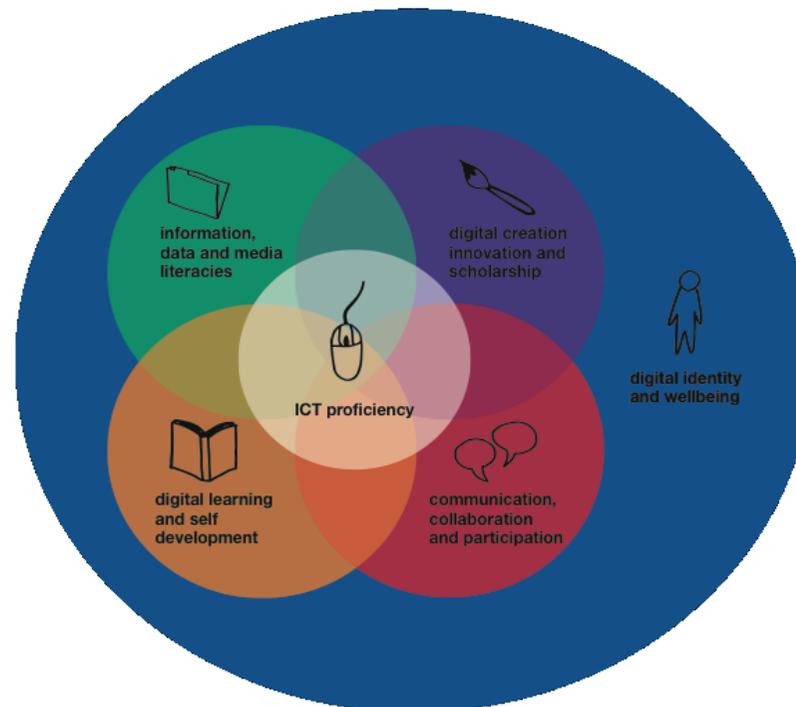


## 1. Digital capabilities: the 6 elements defined

<b>ICT proficiency</b>	The capacity to use ICT-based devices, applications, software and services via their interfaces (mouse, keyboard, touch screen, voice control and other modes of input; screens, microphones, haptic feedback and other modes of output); to use basic productivity software, web browser, and writing/presentation software; to use digital capture devices such as a camera. At higher levels, the capacity: to choose, adapt and personalise ICT applications and systems; to critically assess the benefits/constraints of ICT applications and approaches; to design and implement ICT solutions; to recover from failures; to stay up to date with ICT as it evolves; to adopt computational modes of thinking (coding, algorithms etc).
<b>Information, media and data literacy (<i>critical use</i>)</b>	<b>Information literacy</b> The capacity to find, evaluate, manage, curate, organise and share digital information, including open content. At higher levels a critical awareness of provenance and credibility. Capacity to interpret information for academic and professional/vocational purposes. Ability to act within the rules of copyright and to use appropriate referencing. Ability to record and preserve information for future access and use.
	<b>Media literacy</b> The capacity to critically read communications in a range of digital media – text, graphical, video, animation, audio, haptic etc (also 'multimodal literacy'). At higher levels, the capacity to appreciate audience, purpose, accessibility, impact, modality and to understand digital media production as a practice and an industry. To act within digital copyright law.
	<b>Data literacy</b> The capacity to collate, manage, access and use digital data in spreadsheets and other media; to record and use personal data; to ensure data security and to use legal, ethical and security guidelines in data collection and use. At higher levels the ability to interpret data by running queries, data analyses and reports.
<b>Digital creation, scholarship and innovation (<i>creative production</i>)</b>	<b>Digital creation</b> The capacity to design and/or create new digital artefacts and materials; digital writing; digital imaging; digital editing of images, video and audio. At higher levels the ability to code and to design apps/applications, games, virtual environments and interfaces.
	<b>Digital research and scholarship</b> The capacity to collect and analyse research data using digital methods. At higher levels to discover, develop and share new ideas using digital tools; to undertake open scholarship; to design new research questions and programmes around digital issues/methods; to develop new digital tools / processes; to evaluate impacts of digital interventions.
	<b>Digital innovation</b> The capacity to develop new practices with digital technology in organisational settings and in specialist subject areas (professional, vocational and disciplinary); digital entrepreneurship. At higher levels the ability to lead organisations, departments, teams and practice/subject areas in new directions in response to digital challenges and opportunities.
<b>Digital communication, collaboration and participation (<i>participating</i>)</b>	<b>Digital communication</b> The capacity to communicate effectively in a variety of digital media and digital forums; to communicate in accordance with different cultural, social and communicational norms; to design communications for different purposes and audiences; to respect others in public communications; to maintain privacy in private communications.
	<b>Digital collaboration</b> The capacity to participate in digital teams and working groups; to collaborate effectively using shared digital tools and media; to work towards shared objectives; to produce shared materials; to use shared calendars and task lists and other project management applications; to work effectively across cultural, social and linguistic boundaries.
	<b>Digital participation</b> The capacity to participate in, facilitate and build digital networks; to participate in social and cultural life using digital services and forums; to create positive connections and build contacts; to share and amplify messages across networks; to behave safely and ethically in networking situations.

<b>Digital learning and personal/professional development (<i>learning</i>)</b>		The capacity to identify and participate in digital learning opportunities; to use digital learning resources; to participate in learning/teaching relationships via digital media; to use digital tools (personal or organisational) for learning; to use digital tools to organise, plan and reflect on learning; to record learning events/data and use them for self-analysis, reflection and showcasing of achievement; to undertake self-assessment and participate in other forms of digital assessment; to manage attention and motivation to learn in digital settings.
<b>Digital identity and wellbeing (<i>self-actualising</i>)</b>	<b>Digital identity management</b>	The capacity to develop and project a positive digital identity or identities and to manage digital reputation (personal or organisational) across a range of platforms; to build and maintain digital profiles; to develop a personal style and values for digital participation; to collate and curate personal materials across digital networks.
	<b>Digital wellbeing</b>	The capacity to look after personal health, safety, relationships and work-life balance in digital settings; to use personal digital data for positive wellbeing benefits; to use digital media to foster community actions and wellbeing; to act safely and responsibly in digital environments; to manage digital stress, workload and distraction; to act with concern for the human and natural environment when using digital tools; to balance digital with real-world interactions appropriately.



## Rationale

The Jisc '7 elements of digital literacy' model is well used and recognised (93% recognition from survey April 2015). Most other frameworks and definitions can be fitted comfortably into one or more of the elements as originally defined. However, since it was first devised, two issues have emerged as critical in living, learning and working effectively with technology: *data literacy* in an age of proliferating personal data, big/deep data and data hacking, and various aspects of '*well-being*' (health, safety, work-life balance, relationships, personal safety and privacy) in an increasingly hybridised (real/virtual) environment. Some of the original elements also look a bit dated as digital practice has moved on and as discourse about digital literacy has become more nuanced and widely shared. The most significant change is to combine 'information' with 'media' literacies, as feedback suggests that users have difficulty distinguishing between the two.

This version has been adapted considerably from an earlier version in response to detailed feedback from 16 stakeholders (over 40 were consulted over the initial version) and broad brush feedback from consultation events, which are ongoing.

There was consensus over the need for shared language and an appetite for a shared framework, but one that was mapped carefully to other frameworks such as the SCONUL 7 pillars, CILIP, ANCIL, UK PSF, Vitae digital lens etc showing how and where these representations add detail to the broader picture.

The framework was seen as most useful to:

- ^ bridge staff and student digital capabilities (i.e. supporting discussion about and planning for both in departments and services)
- ^ plan for embedding digital capabilities into specific subject areas (for which the 7 elements are already well used)
- ^ map digital expertise across different staff roles, e.g. by HR in role description or in individual staff review
- ^ structure professional development

Respondents said:

*'[A] mechanism for having discussions about digital capabilities within a common framework – would add some consistency whilst allowing for flexibility when identifying capabilities or fluency goals for particular roles / disciplines.'*

*'It's a useful background document with the potential to expand narrow conceptions! That the majority of the framework is not about technical skills is great – as such it could be useful as an enlightenment document :)'*

*'1. To frame research into existing provision at institutional and national level (primarily of interest to educational technology providers and professionals) 2. To structure professional development and capacity building at individual/departmental/institutional level (primarily of interest to practitioners and those responsible for staff and organisational development at both strategic and operational level).'*

*'Perhaps HR in particular could use this as part of the review process for different performance related elements but also to reconsider what job specifications might be necessary in a digital age. Some of the other frameworks do a similar job but are perhaps more complex and harder to take in.'*

Several experienced respondents suggested that a smaller number of elements would aid recognition and local contextualisation. Separate versions for staff and students were seen as desirable, though with a common underlying structure and elements. There was also interest in whether different levels would need to be applied to the different elements for them to be instituted in a diagnostic or developmental way.

The different elements are dealt with in more detail below as there was considerable feedback on each.

### **The six elements**

There is some confusion about **'ICT proficiency'** (fluency, capability, skills, techno-literacy etc) being included as a separate element with the same status as others. ICT proficiency is widely seen as a pre-requisite for or backbone of all the other capabilities and has been removed from some local examples of the 7 elements for this reason. The Beetham and Sharpe development pyramid – widely referenced by people surveyed for this project – has 'functional skills' with ICT as the foundation of more complex abilities and practices. This element has been retained but visually it is placed in the centre, overlapping with all the other elements, to indicate its foundational status.

After feedback particularly from the library community, and bearing in mind international efforts to combine them (e.g. [UNESCO's Media and Information Literacy framework](#)) **'information literacy'** and **'media literacy'** have been brought into alignment. There remain at least two distinct discourses at play here, one focused on information and/or management (affiliated with librarianship and computer science) and the other on making meaning with/from digital media (affiliated with communications and media studies). Students and academic staff with different subject backgrounds will therefore understand this element differently. There was strong support for the inclusion of **'data literacy'** but the boundaries between this and 'information' are also difficult to determine. In educational settings there is an established sense that 'data' is the raw material of research and organisational accountability while 'information' has undergone some secondary analysis. As data becomes more ubiquitous in human thinking and as operations on data become more automated, this distinction is more difficult to keep open. Information, media and data literacy are therefore considered as distinct but closely related elements of digital capability with *critique or judgement, analysis* and *informed use* being important in all of them. This mindset towards the raw materials of digital engagement – data, information and messages in different media - could be summarised as **'critical use'**.

**'Digital research and scholarship'** was seen as too narrow a term to encompass the many ways in which staff and students generate original ideas and outcomes. Staff in vocational and professional subjects for example are often innovating practices rather than ideas. This element has been expanded to include 'innovation' more broadly and other forms of creativity such as design. Although original thinking is central to research as a practice, researchers require other capabilities (see the Researcher profile below), and other staff / students undertake original thinking and development in the digital space. Staff and students can be innovators in their organisational setting as well as in their specialist subject areas. The focus is on the use of digital technologies to develop and propagate ideas/practices that are new not just to their originator but in a wider context. This element now includes creativity and innovation as separate but related capabilities and could be summarised as **'creative production'**.

**'Learning'** has been expanded to include planning, reflection and all aspects of self-development (personal and professional) in a digital setting, to allow the framework to include the growing area of e-CPD and to be relevant to staff as well as students. Although support of learning is central to teaching as a practice, teachers require aspects of all the other capabilities too (see the Teacher profile below). Teaching staff have a particular responsibility and capability related to the learning of *others* but all individuals can develop themselves through conscious engagement with digital opportunity. 'Learning' remains a somewhat weakly delineated element. Conceptually it could be assimilated to identity as 'self-development' or 'self-realisation', or like 'ICT proficiency' be regarded as foundational; or it could be distributed across all the other capabilities as a particular kind of outcome. However, the precedent is for frameworks describing digital capability in/for educational settings to highlight learning separately, and this

makes them more distinctive and powerful to effect change. There are specialised learning/teaching/assessment systems to be mastered, specialised digital resources to be consumed in ways that support learning (e.g. quizzes, animations, virtual worlds) and applications of more general technologies that support good learning habits e.g. recording, curation, note-taking and annotation, discussion, collaboration, commenting, giving/receiving feedback etc. All of these are comprehended in this element.

**'Participation'** has been added to **'communication and collaboration'** to reflect the fact that so many aspects of social and cultural life now have an online component. Several commentators felt that this aspect of digital capability needed to be emphasised more strongly and defined more extensively. The practical aspects of citizenship come under this element, though developing and expressing personal values through citizenship activities could be seen as an aspect of identity. While critical use and creative production can be undertaken by an individual using digital tools, participating can only be undertaken in relation to other people – typically mediated through digital networks and interfaces. **'Participating'** summarises these elements.

**'Wellbeing'** was considered important enough to be added as an additional element, though eventually it has been combined with **'identity'**. Just as ICT proficiency can be seen as the foundation of the other capabilities, identity and wellbeing can be seen as their capstone. If capabilities express 'what I can do' then digital identity and wellbeing express 'who I am when I am doing it'. In developing (or 'actualising') the self as a digital person, one develops one or more manifestations of digital identity, styles of digital participation/use, and values or critical stance specifically in relation to digital opportunities. Identity and wellbeing are seen surrounding or giving meaning to all the other capabilities.

If identity is the apex of the development pyramid, and ICT proficiency is the base, then the other four elements are all examples of situated digital practice.

There is no attempt to define 'critical thinking' or 'academic literacies' separately from the ways in which they are manifested in digital practice. These were essential aspects of education before the digital revolution and remain so. The 6 elements focus on digital technologies, practices and media specifically, and refer to the ways critical thinking and academic practice are manifested differently in these digital settings.

### **Further work**

The base model describes in general terms the digital capabilities that a wide range of commentators and professional bodies see as relevant in post-compulsory education. Several versions of the base model follow, for learners, teachers, and researchers, in response to feedback that the base model alone does not provide enough detail to support embedding into local contexts of practice. These versions are examples of how the base model could be used and are not meant to be definitive. A next step would be to map them to existing role definitions and standards, i.e. the UK PSF/ETF professional standards for teaching staff, and the Vitae Researcher Development Framework for researchers, bearing in mind of course that in HE, academic staff will typically have both roles. Further versions could of course be devised for a range of other roles, for specific institutions, and even for subject specialists.

The model remains focused on individuals because it is intended to be used primarily for individual development, but it is flexible enough to be used to describe the digital capabilities of teams and organisations. In any case many of the elements, especially under 'learning', 'participating' and 'creative production', make sense only in relation to other people.

## Example learner profile

<b>ICT proficiency</b>	<p>I can: use ICT-based devices (laptops, tablets, smartphones, desktop computers, digital instruments and equipment); use a mouse, keyboard, touch screen, voice control and other forms of input; use screens, microphones, haptic feedback and other forms of output; use basic productivity software (text editing, presentation, spreadsheet, basic image editing); use a web browser and search engines; use digital capture devices such as a camera, video camera, audio recorder, and associated editing software; download and upload materials to the internet or cloud or institutional shared spaces; manage digital files; tag digital materials; sign on to and use the university/college digital systems; sign on to and use a range of personal digital services.</p> <p>I can choose, adapt and personalise apps and services to suit my needs. I can decide whether to adopt new devices and services based on their value to me; I can find solutions and work-arounds when things go wrong; I stay up to date with digital technology as it evolves.</p> <p>(At higher levels) I understand basic computational ways of working, e.g. algorithms, coding, app development.</p>
<b>Information, media and data literacy (<i>critical use</i>)</b>	<b>Information literacy</b> <p>I find, manage and organise digital information. I search using search engines, indexes or tag clouds. I find information in wikis, blog posts, scholarly journals, e-books and online. I organise information using files, bookmarks, reference management software and tagging.</p> <p>I judge whether information online is trustworthy and relevant to my needs. I distinguish different kinds of information e.g. academic, professional, personal, political. I use information for writing assignments and presentations. I share information with other students and with people in my subject area. I use curation tools such as pinboards, social bookmarking, personal aggregators to bring information together in new ways. I record and manage information for future access and use.</p> <p>I know the rules of copyright and plagiarism and I use appropriate referencing for online materials.</p>
	<b>Media literacy</b> <p>I make sense of messages in a range of digital media – text, graphical, video, animation, audio, haptic, multimedia. I access digital media for entertainment and cultural enjoyment.</p> <p>I appreciate how digital messages are designed e.g. for particular audiences, purposes, effects.</p> <p>I edit and upload digital media for sharing.</p> <p>I act within the rules about digital media use and within digital copyright laws.</p>
	<b>Data literacy</b> <p>I collate, manage, access and use digital data in spreadsheets and other media; I record and use personal data to support my own learning and personal development; I ensure my personal data is secure and use privacy settings appropriately. I use legal, ethical and security guidelines when I am using other people's data.</p> <p>(At higher levels) I interpret data in databases and spreadsheets by running queries, data analyses and reports.</p>
<b>Digital creation, scholarship and innovation (<i>creative production</i>)</b>	<b>Digital creation</b> <p>I design and create new digital materials e.g. posts, podcasts, web pages, wiki entries, digital video, digital stories, presentations, infographics.</p> <p>I capture, edit and produce digital media e.g. video and audio.</p> <p>(At higher levels) I code and design apps/applications and interactive elements. I design digital games, virtual environments and interfaces.</p>
	<b>Digital research and scholarship</b> <p>I collect research data using digital tools e.g. data capture, video, audio.</p> <p>I design online surveys.</p>

		<p>I analyse research data using qualitative and quantitative tools          (At higher levels) I make new discoveries and generate new hypotheses and ideas.          I share scholarly and professional ideas in a range of digital media.</p>
	<b>Digital innovation</b>	<p>I find and promote new ways of doing things with digital tools, apps and media          I see new opportunities that arise from digital developments.          (At higher levels) I act as a digital change agent or champion in my subject area.</p>
<b>Digital communication, collaboration and participation (participating)</b>	<b>Digital communication</b>	<p>I communicate with other people in a range of digital media e.g. email, presentations, blog posts, video conference, photo sharing, text, twitter, understanding the differences between these media.          I respect the different ways of communicating in different media and in different spaces e.g. personal, social, academic, professional          I design digital communications for different purposes e.g. to persuade, inform, entertain, guide and support          I respect others in all my public and private digital communications, recognising that digital media can be used to intimidate, shame and harass and that it is my responsibility not to engage or allow others to engage in these activities          I respect the privacy of private communications and events</p>
	<b>Digital collaboration</b>	<p>I work in digital teams, groups and projects to produce shared outcomes or meet shared goals          I use collaborative tools e.g. file sharing, shared writing/drawing tools, project management tools, shared calendars and task lists          I take part in collaborative online environments e.g. webinars, discussion groups, flash meetings          I work comfortably online with people from different cultural, social and language backgrounds</p>
	<b>Digital participation</b>	<p>I participate in a range of online networks to do with my subject of study and my personal interests          I share digital resources e.g. links, bookmarks, images, text          I post reviews, comments, 'likes' etc on public forums          I build, value and manage my online contacts          (At higher levels) I help build networks e.g. support conversations, retweet/repost, answer questions, collate answers, create new connections between people</p>
<b>Digital learning and personal/professional development (learning)</b>		<p>I find and participate in digital learning opportunities e.g. online courses, podcasts, TED talks, discussions, tweetfests          I use digital learning resources e.g. quizzes, online tutorials, simulations          I use digital media to discuss with tutors and other students; use digital tools (personal or organisational) for learning; use digital tools to organise, plan and reflect on learning; record learning events/data and use them for self-analysis, reflection and showcasing of achievement; undertake self-assessment and participate in other forms of digital assessment.          I manage my attention and motivation to learn in digital settings.</p>
<b>Digital identity and wellbeing (self-actualising)</b>	<b>Digital identity management</b>	<p>I manage my digital profiles carefully and make sure they are suitable for different networks e.g. personal, professional, academic          I think about my digital reputation when I am posting and communicating online          I manage privacy settings          I maintain a current digital CV or portfolio of my work, and/or a personal blog          I make sure outcomes of my learning and other achievements are available in digital form to prospective employers etc</p>

	<b>Digital wellbeing</b>	<p>I use digital technologies in ways that support my well-being and safety, and respect the well-being and safety of others.</p> <p>I track and use personal or learning data to help me live and learn more effectively</p> <p>I use my digital media to support community action, volunteering, political action and/or other things I care about</p> <p>I act respectfully, ethically and responsibly in digital spaces</p> <p>I recognise that digital information and media can cause distraction and stress: I manage my time and attention and I switch off when I need to</p> <p>I manage online and real-world interactions in ways that support my relationships with other people</p>
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## Example teacher profile

<b>ICT proficiency</b>	<p>Use ICT-based devices, applications, software and services; use basic productivity software, web browser, and writing/presentation software; use digital capture devices such as a camera; use learning, teaching and assessment systems as required.</p> <p>At higher levels, choose, adapt and personalise ICT applications and systems; critically assess the benefits/constraints of ICT applications for learning, teaching and assessment; recover from failures; stay up to date with ICT as it evolves and adopt new systems, applications and approaches into teaching practice.</p>
<b>Information, media and data literacy (<i>critical use</i>)</b>	<p><b>Information literacy</b></p> <p>Find, evaluate, manage, curate, organise and share digital content for learning, teaching and assessment; Support learners in their use of content, including academic, professional and open content. Interpret information for academic and professional purposes. Act within the rules of copyright and intellectual property. At higher levels, critically assess digital content for its learning design features and its suitability to specific outcomes and groups of learners; develop a personal information environment.</p>
	<p><b>Media literacy</b></p> <p>Critically read and interpret messages in a range of digital media – text, graphical, video, animation, audio, etc. Support learners in their use of digital media, enabling them to appreciate issues such as audience, purpose, accessibility, impact, modality. Choose and use media resources suitable to students' different learning needs Act within digital copyright law.</p>
	<p><b>Data literacy</b></p> <p>Collate, manage, access and use digital data in spreadsheets and other media. Record learner-related data in digital systems as required. Use learner data and data analytics to support learning and progression of individual learners Use learner data and data analytics to support curriculum design and review and responsive teaching for cohorts of learners. Ensure data security and use legal, ethical and security guidelines in data collection and use. At higher levels, interpret data by running queries, data analyses and reports; manage data relevant to the KPIs of a service, department or institution; share data openly for learning and teaching research.</p>
<b>Digital creation, scholarship and innovation (<i>creative production</i>)</b>	<p><b>Digital creation</b></p> <p>Use a range of digital media – text, images, video, audio, digital presentations, podcasts and screencasts, blog and web posts – to communicate educational ideas. Edit, remix and repurpose digital media to meet specific learning needs. Design and create digital materials to meet specific learning needs. Design digital tests, quizzes and assessment tasks. At higher levels, design interactive digital materials for learning e.g. learning apps and applications, educational games and animations, virtual environments and interfaces, interactive tutorials.</p>
	<p><b>Digital research and scholarship</b></p> <p>Collect and analyse evaluation data using digital methods e.g. online surveys, data capture tools, video and audio recording, social and sharing media, qualitative and quantitative data analysis tools, data visualisation. At higher levels, investigate/evaluate new digital approaches to learning and teaching; publish in open/digital formats on the scholarship of learning and teaching; present the outcomes of educational research in open/digital formats.</p>
	<p><b>Digital</b></p> <p>Discover and implement new learning/teaching ideas using digital tools and media.</p>

	<b>innovation</b>	At higher levels, develop new practices with digital technology in learning, teaching and assessment; lead organisational change projects; lead departments and teams in new directions in response to digital challenges and opportunities.
<b>Digital communication, collaboration and participation (<i>participating</i>)</b>	<b>Digital communication</b>	Communicate ideas effectively in a variety of digital media (e.g. text, email, skype, chat, social media, blog posts) and in accordance with different cultural, social and communicational norms Design digital communications for different purposes and audiences. Support learners to communicate effectively in academic and professional contexts and to understand the different norms of communication in different settings Respect others in public communications; maintain privacy in private communications; model this to learners.
	<b>Digital collaboration</b>	Participate in digital teams and working groups e.g. around curriculum development and review Collaborate effectively in digital spaces e.g. building shared resources, sharing calendars and task lists Support learners to collaborate using shared digital tools and media, and to work effectively across cultural, social and linguistic boundaries.
	<b>Digital participation</b>	Participate in, facilitate and build digital networks of learning and teaching practice. Create positive connections and build contacts. Share and amplify messages across networks; share links and resources; encourage learners to do the same. Behave safely and ethically in networking situations; encourage learners to do the same.
<b>Digital learning and personal/professional development (<i>learning</i>)</b>		Design and deliver digital learning opportunities Facilitate learning in digital settings e.g. online Use digital technologies to support in-class learning e.g. polling tools, live curation/sharing tools Support learning via digital communications e.g. skype, webinar, email Guide learners to use their own digital devices, services and apps in support of learning, in class and independently. Adapt teaching in response to feedback from learners collected or facilitated digitally (e.g. polling, learning environment data) Use digital tools to organise, plan and reflect on learning and support learners to do the same. Use digital tools to record learning events/data and support learners to use these records for review and self-assessment. Use digital tools in support of assessment including quizzes, polls, self-assessment, peer assessment, and to give feedback. Use digital tools to collaboratively plan, design and review courses of study. Use digital tools to undertake professional development as a teacher.
<b>Digital identity and wellbeing (<i>self-actualising</i>)</b>	<b>Digital identity management</b>	Develop and project a positive digital identity or identities as an educator and manage digital reputation (personal or organisational) across a range of platforms Build and manage digital profiles. Collate and curate professional materials (e.g. learning and teaching materials) across digital networks. Publish open materials relevant to learning and teaching. Support learners to manage their own digital identities.
	<b>Digital wellbeing</b>	Look after personal health, safety, relationships and work-life balance in the digital organisation: model this to learners Act with respect for the health of others and of the natural environment when using digital technologies: model this to learners Ensure equality of access to digital opportunity; use digital technologies to support access and inclusion Balance digital with real-world interactions appropriately to support learning and teaching relationships

## Example researcher profile

<b>ICT proficiency</b>		Use ICT-based devices, applications, software and services; use basic productivity software, web browser, and writing/presentation software; use digital capture devices such as a camera; use institutional systems as required. At higher levels, choose, adapt and personalise ICT applications and systems; critically assess the benefits/constraints of ICT applications for specific research activities; recover from failures; stay up to date with ICT as it evolves and adopt new systems, applications and approaches into scholarly practice.
<b>Information, media and data literacy (<i>critical use</i>)</b>	<b>Information literacy</b>	Find, evaluate, manage, curate, organise and share digital content for research and scholarship Undertake secondary research/literature reviews by searching across a range of databases, journals, indexes, portals, digital archives as appropriate, including grey literatures and open data. Critically assess digital content sources and services for their relevance, accuracy and scholarly value. Act within the rules of copyright and intellectual property. At higher levels: develop a personal research information environment.
	<b>Media literacy</b>	Critically read and interpret scholarly messages in a range of digital media – text, graphical, video, animation, audio, data visualisations. Choose and use media resources to express scholarly ideas with an awareness of design, audience, impact. Act within digital copyright law.
	<b>Data literacy</b>	Collate, manage, access and use digital data in spreadsheets, databases, archives, corpora and other formats Record research-related data in digital systems as required. Ensure data security; follow general and local guidelines on research ethics and apply to the relevant ethical bodies for permission to collate and use research data; follow legal and security guidelines in data collection and use.
<b>Digital creation, scholarship and innovation (<i>creative production</i>)</b>	<b>Digital creation</b>	Use a range of digital media – text, images, video, audio, visualisations, infographics, presentations, podcasts and screencasts, blogs and web posts – to communicate research findings and scholarly ideas. Design scholarly materials.
	<b>Digital research and scholarship</b>	Collect research data securely and responsibly using digital methods where appropriate e.g. online surveys, data capture tools, video and audio recording, social and sharing media. Analyse data using qualitative and quantitative tools suitable to the research issue. At higher levels, share research data openly, involve the public in research and scholarship via digital sites and networks, repurpose/reuse the data of other researchers where appropriate.
	<b>Digital innovation</b>	Develop new research questions, hypotheses and explanations relevant to the digital age. At higher levels, develop new research methods and practices with digital technology; identify digital challenges and opportunities in a field of scholarship; lead research teams, centres and departments in new directions.
<b>Digital communication, collaboration</b>	<b>Digital communication</b>	Communicate about research and scholarship in a variety of digital media (e.g. text, email, skype, chat, social media, blog posts, presentations) Design digital communications for different networks, purposes and audiences. Communicate respectfully across boundaries of nationality, culture, specialism.

<b>and participation</b> <i>(participating)</i>	<b>Digital collaboration</b>	Participate in research teams using virtual environments and tools e.g. project management tools, shared calendars and tasks lists. Produce scholarly outputs using online collaboration tools. At higher levels: build research partnerships, develop collaborative bids and project processes using digital collaboration tools.
	<b>Digital participation</b>	Participate in, facilitate and build digital networks around scholarly issues and concerns. Create positive connections with researchers in your own and other fields. Share and amplify messages across networks; share links and resources. Behave safely and ethically in networking situations.
<b>Digital learning and personal/professional development</b> <i>(learning)</i>		Use reference management, bookmarking, collation and other study tools effectively to support the research process Undertake personal development as a scholar/researcher using online opportunities and resources. Use digital tools to record events in the research process for planning, reflection and review.
<b>Digital identity and wellbeing</b> <i>(self-actualising)</i>	<b>Digital identity management</b>	Develop and project a positive digital identity or identities as a researcher. Manage your CV and publications record; collate and curate scholarly materials across digital networks and platforms. Engage in open scholarship.
	<b>Digital wellbeing</b>	Look after personal health, safety, relationships and work-life balance in the digital organisation and team. Act with respect for the health of others and of the natural environment when using digital technologies in the research process.