



Understanding the digital skills & literacies of UK museum people

Phase Two Report



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one by one

building digitally confident museums

‘One by One’ is a national research project which aims to help UK museums of any size better define, improve, measure and embed the digital skills and literacy of their staff and volunteers in all roles and at all levels.

By introducing a new approach to digital skills understanding and development, the project’s objective is to create new organisational mindsets in museums to help support their digital transformation needs.

The project advocates the use of human-centred design principles, and this is demonstrated within the project’s own methodology: empathising with museum needs, through researching existing museum digital skills provision; defining what museum digital literacies are required to meet museum needs; ideating and prototyping a practical model of digital literacy-building within museums; testing out the prototype model within partner museums of different functions, sizes and locations; and then sharing the final proposed museum digital literacy framework with the sector.

‘One by One’ is funded by the Arts and Humanities Research Council (AHRC) and is led by the University of Leicester in partnership with Culture24, together with a range of museum and academic partners: National Museum Wales; National Museums Scotland; National Army Museum; Museum of London; Derby Museums; and Royal Pavilion and Museums, Brighton; CAMEo (the Research Institute for Cultural and Media Economies), University of Leicester; and the Institute for Employment Research, University of Warwick.

In addition, the project has gathered an important group of strategic stakeholders to represent the needs of all museums, provide vital advisory support, and share and implement the project’s key findings: Arts Council England; Museums Association; Association of Independent Museums; Museum Development Network; National Lottery Heritage Fund; National Museum Directors’ Council; Collections Trust; and Nesta.

The project began in September 2017 and is due to complete in March 2020. ●



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Summary

Phase Two of the One by One project explored the digital skills and literacies that people who work and volunteer in museums need. We looked at ways of defining, articulating and understanding those needs, building upon the findings of Phase One and using a range of research and consultation methods.

Key findings:

Phase Two found that the museum sector's approaches to understanding and building digital skills and literacies need to be:

- **Person-centred**, led by individuals' needs rather than technologies or other external drivers;
- **Purposeful and values-led**, clearly related to organisational missions; and
- **Nuanced and contextualised** – helping people understand and relate skills to their own practice and setting.

Phase Two found that museum people need:

- **Clear, consistent and widely recognised terms and definitions** around digital skills and literacies, but *not* a single, set list;
- **Responses that are both strategic and practical** – helping them to set priorities and plan and track progress and proficiency;
- **Support in recognising and then creating and enabling the conditions** needed for organisational change to happen and thrive; and
- **Guidance, tools and resources** to support them in building their digital skills and literacy effectively.

1 Research question

The stated aim of Phase Two, at the start of the One by One project, was ‘to detail the specific range of digital skills and literacies needed by the UK museum sector’.

The [first phase](#)¹ of the project mapped the UK museum sector’s current digital skills ecosystem, exploring supply, demand, development and deployment. Two key findings, detailed in the [Phase One Report](#) (Barnes, Kispeter, Eikhof, Parry, 2018), were: the ways in which demand for digital skills in the museum sector is shifting, with general and specialist skills being required across a broader set of roles and activities; and Second, that while technical skills are still relevant, digital literacies are also becoming crucial.

Building on those findings, Phase Two’s research sought to understand how those digital skills and literacy needs related to each other and how they could be analysed, discussed and articulated. We also shifted the emphasis from the ‘UK museum sector’ of the original aims to the more explicitly person-centred focus on ‘museum people’.

The research question became *‘How do we articulate the digital skills needs of museum people?’*

By ‘museum people’ we mean all staff and volunteers working for or contracted to all UK museums, galleries or heritage sites. As the Phase One research indicated that digital literacy is needed, to varying degrees, right across museums’ activities and operations, ‘museum people’ encompasses the full range of museum roles including trustees and support staff such as gardeners, security and front of house.

Phase Two findings will:

- Help museum people better articulate their digital skills and literacy needs;
- Inform thinking and planning for One by One’s Phase Three; and
- Inform the digital skills and literacy outputs that One by One will create for the UK museum sector.

¹ See: <https://one-by-one.uk/2018/03/20/phase-1-summary/>

2 Methods

The three main methods used in Phase Two to help us research and articulate museum people's digital skills and literacy needs were desk research, consultation and Literacy Labs.

Desk research

Our desk research looked at existing literature across the museum sector (and wider cultural sector) that evidenced the need for digital skills and literacy. It also looked at literature from other sectors focusing on developing frameworks for digital skills and literacy. These frameworks all sought to rationalise, describe, connect and articulate those skills and literacies.

In all, we identified and analysed sixty-one texts that related to digital skills and frameworks.² Of these, fifty set out specific frameworks whilst the rest were broader research or more general commentaries. The organisations behind them, listed below in Table I, broadly related to four sectors: University, Government, NGOs/Charities and Corporate.

Table 1 Sources of existing digital skills frameworks, grouped by sector type

University	Government	NGOs/Charities	Corporate
University of Leicester	UNESCO	Jisc	Mozilla
Open University	Dept of Education & Skills, Ireland	National Library of New Zealand	Insight for Professionals
University of Queensland Library	British Columbia Board of Education, Canada	Media Smarts (Canada)	Barclays
University of Dundee	European Commission	PDST Technology in Education	
The University of Melbourne	DCMS Digital Skills Report	New Media Consortium (acquired by EDUCAUSE)	
Allabord HE	Llywodraeth Cymru (Welsh Government)	Association of College & Research Libraries	
Virginia Tech University Libraries	UK Government	NCVO	

² See **Section 5** for full set of framework references and sources.

University of Greenwich		Scottish Council for Voluntary Organisations	
University of Sheffield Library		Sheffield Digital	
University of Brighton		DigiLit Leicester	
Anglia Ruskin University		FutureLab	
Deakin University			
University of Bath			
Cardiff University			
Maynooth University			
Australian Catholic University			
Nottingham Trent University			

Those fifty frameworks covered three broad groupings of digital skills and literacies: those for learning, those for work and those for life. None related specifically to the UK museums sector.

Each framework was analysed in these three ways:

- **Locus:** understanding their context, rationale and applicability;
- **Logic:** understanding their hierarchy, structure, and design for use; and
- **Language:** understanding their groupings and descriptions of digital skills.

Sector consultation

One by One's focus is on understanding museum people's digital skills and literacy needs from individuals' perspectives. This differs from much of the existing recent research we identified around museums' and other cultural organisations' digital skills and literacy, which tends to focus on, or emphasise the need for, identifying technical skills gaps at sectoral or organisational levels. This includes the UK Government's *Culture is Digital* report (Department for Digital, Culture, Media and Sport (DCMS), 2018), the Government's *Tailored Review of Arts Council England* (Department for Culture, Media and Sport (DCMS), 2017), Nesta and Arts Council England's *Digital Culture* research (Nesta and ACE, 2017) and the report by the Warwick Commission on the Future of Cultural Value (Warwick Commission 2015).

Our consultation with museum people in Phase Two was carried out in two ways – an online survey and a Twitter conversation.

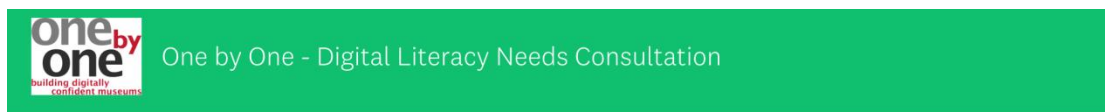
Online survey

The first survey question focused squarely on understanding digital skills and literacy needs, asking 'If you were recruiting a new person to your museum (in any role), what are the top three digital skills or

literacies you think they would need to have?’ The question was framed in this open way, with an emphasis on a *new* person in *any* role, as we were keen for respondents to take the widest interpretation they could of digital skills and literacies needed, and not be restricted to thinking about them in the context of a specific project or role.

The second question asked *‘Ignoring formal training courses, what practical approaches for developing people’s digital skills and literacies have you come across within museums?’* This was posed to gather suggestions of practical digital skills and literacy-building approaches that could inform future project phases and the final outputs.

Forty-eight responses were gathered from individuals working in a range of roles and organisations across the museums sector.³



Share your thoughts on the digital literacy needs of museum people

As part of the current [Phase 2 research](#) of the One by One project, we are looking to understand the specific range of digital literacies needed by the UK museum sector. If you currently work in UK museums or have good experience or understanding of their needs, we'd like to hear from you.

We'd be grateful if you could answer these two simple questions by **Friday 15th June 2018**. This should hopefully take you no more than five minutes.

Your responses to these questions will inform the broader research within the [One by One project](#), specifically the Phase 2 research findings that will be shared in September 2018.

Thank you!

- * 1. If you were recruiting a new person to your museum (in any role), what are the top three digital skills or literacies you think they would need to have?

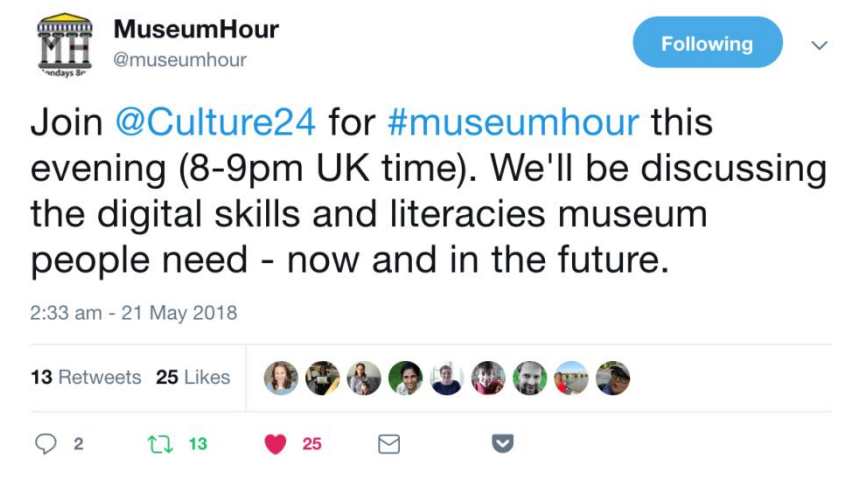
Digital skill or literacy 1	<input type="text"/>
Digital skill or literacy 2	<input type="text"/>
Digital skill or literacy 2	<input type="text"/>

- * 2. Ignoring formal training courses, what practical approaches for developing people’s digital skills and literacies have you come across within museums?

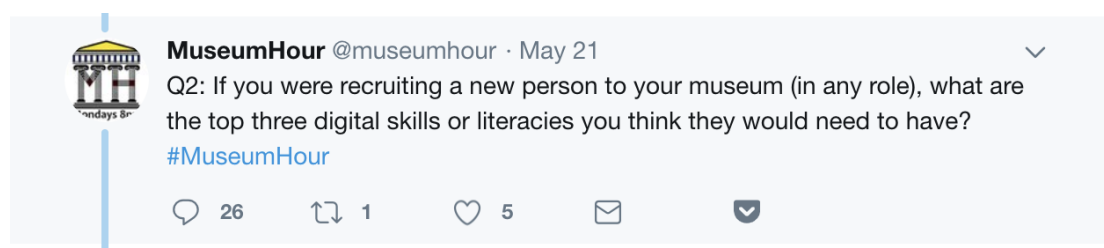
³ For full list of responses see <https://www.keepandshare.com/doc/8237232/one-by-one-digital-literacy-needs-consultation-xlsx-21k?da=y>

Twitter conversation

Culture24 hosted a #MuseumHour Twitter Q&A session which took place for an hour on the evening of Monday 21 May 2018. #MuseumHour is a popular forum for discussion on a range of current topics across the museum sector. Whilst #MuseumHour is open to anyone to join, it typically attracts a community of interest around the particular theme being discussed. We thought this would be an invaluable opportunity to gather the responses of a community of interest around digital skills.



In keeping with the principles of #MuseumHour, the session was planned with the intention of facilitating open discussion and at the same time supporting participants with useful practical suggestions on the topic at hand. It was therefore hosted by Culture24 in their capacity as an Arts Council England-funded Strategic Support Organisation (SSO) for museums, and focused on digital skills and literacy-building more generally in the sector, posing a broad range of questions for wider discussion. Of these, one question was also designed to draw specific insights for One by One, repeating the first question of the online survey.



Literacy Labs

Phase Two's 'Literacy Labs' were workshops designed to reflect on the information gathered via the desk research and consultation, and to drill into elements an articulation of museum people's digital skills and literacy needs might require.

The aim was to obtain rich, qualitative insights into the relevant themes from a number of different perspectives, each time with a small but experienced group of museum-related people with an

interest in digital practice. These Labs took place in Brighton, Edinburgh and Cardiff and involved forty-nine participants.

It is important to record here our thanks to each and every one of the sector colleagues who gave their time, insights, experience and expertise so generously to these Labs. Their input gave an invaluable depth of understanding and authenticity to this process.

The Labs were planned and led by Culture24, bringing their experience, particularly through their Let's Get Real programme of work,⁴ of running collaborative workshops in creative, participatory ways to gather insight into the reflective digital practice and experience of individuals within arts and heritage organisations. Each Lab was designed and run differently, each iteratively building on the learning from the one before. We coined the term 'Literacy Lab' to reflect this collaborative and evolving approach, and to emphasise that this was more than a series of focus groups that adopted simple question-and-response approaches.

- **The Brighton Lab** was designed to explore participants' responses to existing digital skills and literacy frameworks, in the context of museum people's needs.
- **The Edinburgh Lab** explored ways of articulating digital skills and literacy needs with starting points derived from Phase One and the Brighton Lab.
- **The Cardiff Lab** drew both sets of previous Lab insights together and explored how we might set out and organise a museums-focused framework.

The participants were invited based on their knowledge, experience or interest in digital skills and literacy-building in museums, as well as particular knowledge of the workings and functions of one or more museums. Many were in formal 'digital' roles in museums; however, people in curatorial, leadership, visitor services and other roles were also represented. A broad span of museums was involved, ranging from small institutions to large national museums, and also a number of heritage organisations. There were also participants from agencies occupying digital support roles for museums, and some from universities.

Generally, participants were from organisations in or close to each Literacy Lab's location, so there was a good representation of people from Welsh and Scottish museums and organisations. Whilst we were keen to ensure a reasonable spread of museums based on geography, size and type, the choice of Literacy Lab attendees was not intended to be fully representative of the sector. This would have been difficult to achieve, but more importantly, the aim of the Labs was to gather deep, qualitative insight rather than representative statistical feedback.

Brighton Literacy Lab

The Brighton Literacy Lab took place on Thursday 7 June 2018, and was hosted at the Royal Pavilion in Brighton.

The sixteen attendees were:

- **Anooshka Rawden** – Museum Development Manager, South East Museum Development
- **Dan Robertson** – Curator, Royal Pavilion and Museums, Brighton
- **Ioanna Zouli** – Digital Projects Producer, The Photographers' Gallery
- **Jenny Siung** – Head of Learning, Chester Beatty Museum

⁴ See: <https://weareculture24.org.uk/lets-get-real/>

- **John Stack** – Digital Director, Science Museum Group
- **Kati Price** – Head of Digital Media and Publishing, V&A
- **Kevin Bacon** – Digital Manager, Royal Pavilion and Museums, Brighton
- **Kevin Gosling** – CEO, Collections Trust
- **Kirsty Bell** – Digital Collections Project Officer, Southampton City Council
- **Krystyna Pickering** – Digital Development Officer, Royal Pavilion and Museums, Brighton
- **Oonagh Murphy** – Lecturer, Goldsmiths, University of London
- **Peter Pavement** – CEO, Surface Impression
- **Rosie Cardiff** – Senior Digital Producer, The Serpentine
- **Simon Clabby** – Digital Marketing Coordinator, Mary Rose
- **Steph Fuller** – Director, Ditchling Museum.

The Lab explored participants' responses to existing digital skills and literacy frameworks, in the context of museum people's needs.



Participants were split into four groups, with each group being given two different digital skills and literacy frameworks and a particular museum role or activity (marketing, interpretation and learning, curator or director), as well as three different museum contexts (small volunteer-run, local authority and national/major regional).

Each group was asked to consider and discuss the usefulness and applicability of these frameworks in relation to their specific role and museum context, in a series of structured exercises. Participants then fed back their overall thinking (and feelings via emojis) to the wider group, exploring particular questions of each framework such as 'what is missing?', 'what is positive?', 'what is negative?' and 'which is more useful?' before finally engaging in a wider, facilitated discussion about the opportunities and challenges with using digital skills and literacy frameworks for the museum sector.

Edinburgh Literacy Lab

The Edinburgh Literacy Lab took place on Thursday 27 June 2018, and was hosted at the National Museum of Scotland in Edinburgh. The nineteen attendees were:

- **Chad McGitchie** – Head of Visitor Services, Whitworth Gallery and Manchester Museum
- **David McNeill** – Director of Digital, Scottish Council for Voluntary Organisations
- **Kathryn Smith** – Head of Marketing, An Lanntair
- **Michelle Sweeney** – Director of Creative Development & Delivery, On Fife
- **Rob Cawston** – Head of Digital, National Museums Scotland
- **Elaine MacIntyre** – Digital Media Content Manager, National Museums Scotland
- **Adam Coulson** – Digital Product Manager, National Museums Scotland
- **Jamie Gray** – Digital Manager, V&A Dundee
- **Tessa Quinn** – Digital Strategy and Programme Consultant, National Trust Scotland
- **Jen Ross** – Senior Lecturer – Digital Education, University of Edinburgh
- **David Scott** – Digital Manager, The Burrell Collection
- **Chris Ganley** – Digital Content & Design Manager, National Galleries Scotland
- **Lindsey Green** – Co-founder, Frankly Green and Webb
- **Beverley Donaldson** – Curator, Scottish Maritime Museum
- **Kirsty Earley** – Royal College of Physicians & Surgeons
- **Kelly Forbes** – Digital Manager, Museums Galleries Scotland
- **Gareth Jackson-Hunt** – McManus Art Gallery and Museum
- **Julia Morrison** – Digital Content Officer, Historic Environment Scotland
- **Sarah Younas** – Digital Producer, Tyne & Wear Archives & Museums

The Edinburgh Literacy Lab delved deep into the ‘articulation’ element of our research – how would museum people describe and discuss their digital skills and literacy needs, in their very specific contexts? What words would they use and what areas would be covered? Starting points for this Lab included Phase One findings, the wider consultation thus far and findings from the Brighton Lab.

Working in small groups, the participants focused on specific museum use cases or contexts (collections management, driving footfall, interpretation and storytelling or leadership) and worked through exercises to identify the range of relevant digital skills and literacies that would be needed. These were then discussed across the wider group to identify common themes and/or gaps. Finally each group was asked to focus on a different museum context and come up with a convincing articulation of digital skills and literacy needs that could be presented to a director of such a museum. The museum contexts were:

- **Large regional/national museum**, multiple departments, 300+ staff;
- **Medium-sized museum** sited within local authority arts and culture directorate, sharing many services, 40+ staff;
- **Small independent museum**, 2.5+ paid staff, many active volunteers; and
- **Rural museum** incorporating heritage buildings, collection and grounds, 15+ staff.

These presentations were then role-played to test out this ‘articulation’ in a practical context.

Cardiff Literacy Lab

The Cardiff Literacy Lab took place on Friday 3 July 2018, and was hosted at the National Museum Cardiff. There were fourteen attendees:

- **Tom Webster Deakin** – Property Content Manager, National Trust Midlands
- **Sarah Madden** – Digital Museum Development Officer, South West
- **Adam Koszary** – Programme Manager and Digital Lead, Museums Partnership Reading
- **Zak Mensah** – Head of Transformation, Bristol Culture
- **Rick Lawrence** – Digital Media Officer, Royal Albert Memorial Museum
- **Helen Adams** – Digital Engagement Lead, Gardens Libraries and Museums (GLAM) Oxford
- **Dafydd James** – Head of Digital Media and Technical Services, National Museum Wales
- **Graham Davies** – Digital Programmes Manager, National Museum Wales
- **Katie Mortimer-Jones** – Senior Curator, National Museum Wales
- **Victoria Rogers** – Museum Manager, Cardiff Story Museums and Welsh Museums Federation
- **Lisa Matthews-Jones** – Portfolio Manager, Arts Council of Wales
- **Ceri Williams** – Learning and Engagement Manager, Oriel Ynys Môn
- **Dafydd Tudur** – Head of Digital Access Section, National Library of Wales
- **Rheinallt Jones** – Programme Manager, People's Collection Wales

The Cardiff Lab drew on the learning developed over the previous two Labs and the wider project thus far, exploring the challenge of articulating digital skills and literacies in useful, structured ways. It interrogated overlaps between the existing digital literacy frameworks from other sectors and the museum-specific contexts, thinking about ways we might organise and set out a museum-focused framework.

The Lab was designed in two parts. Firstly, participants worked in groups on a card-sorting exercise. They were handed a number of cards, each with a different museum digital skill or literacy need listed on it (sourced from the Phase Two consultation and the Edinburgh Literacy Lab brainstorming exercise). They were tasked with organising the cards with a logic that made sense to them and then feeding this back to the wider group.

For the second part of the Lab, participants were each given a different museum context (similar to those provided to the Edinburgh group) and were challenged to come up with their own models of digital skills and literacy needs for museums.

Please note that quotes from individual respondents and Lab participants have been anonymised when relayed in this report. ●

3 Findings

Phase Two's research led us to a range of findings, explored and evidenced here, that would go on to inform the planning and focus of Phases Three and Four. They were a mixture of practical needs and values or principles informing strategic approaches.

We found that the museum sector's approaches to understanding and building digital skills and literacies need to be:

- **Person-centred**, led by individuals' needs rather than technologies or other external drivers;
- **Purposeful and values-led**, clearly related to organisational missions; and
- **Nuanced and contextualised** – helping people understand and relate skills to their own practice and setting.

We found that museum people need:

- **Clear, consistent and widely recognised terms and definitions** around digital skills and literacies, but *not* a single, set list;
- **Responses that are both strategic and practical** – helping them to set priorities, plan and track progress and proficiency;
- **Support in recognising and then creating and enabling the conditions** needed for organisational change to happen and thrive; and
- **Guidance, tools and resources** to support them in building their digital skills and literacy effectively.

We will explore each of these findings in turn here, beginning with those around the museum sector's approaches to understanding and building digital skills and literacies.

Person-centred

The need for the sector's approach to be **person-centred, led by individuals' needs rather than technologies or other external drivers** was implicit in the overall rationale behind the One by One project, but was explicitly drawn out during discussions in this phase's Literacy Labs. Lab findings validated the assumptions the project had made around the need to take a person-centred approach but also raised the importance of connecting this to the context of organisational need, as illustrated by this participant's comment:

I worry that the focus on the individual (vital as that is) means that the necessary organisational change is missing from the picture, and that the investment in people won't have as big an impact as it could. My fear is it might absolve the organisation of their commitment to digital transformation.

This concern was also raised when Literacy Lab participants discussed the interdependence between organisational change and individual change – in particular around the organisational conditions necessary to support individual museum people in developing and deploying their relevant digital skills and literacies.

Purposeful and values-led

The need for the museum sector's approach to understanding and building digital skills and literacies to be **purposeful and values-led, clearly related to organisational missions**, had been implicit in the overall approach to the One by One project. As with the need for a person-centred approach, it was validated and underlined throughout Phase Two.

At the Brighton Literacy Lab an analysis of existing digital skills and literacy frameworks in the context of museum work threw up many challenges. In particular, participants felt that most existing frameworks lacked clarity of purpose. They also felt that the frameworks lacked obvious connection to many of the contexts of current museum work, particularly museums' focus on audiences, creativity and storytelling, and to their social and civic purpose.

This last point in particular is important. In seeking to better articulate digital skills and literacy needs, it's easy to get caught up in their operational or business purpose – for example, how museums might foster innovative practice or create new business models. It's vital to take a step back and look at the bigger picture, identifying the particular socio-political-cultural values that are driving the need to develop museum digital skills and literacy in the first place.

One of the key analytical texts relating to the development of digital skills and literacy frameworks that we identified in the desk research was 'A Critical Review of Frameworks for Digital Literacy: Beyond the Flashy, Flimsy and Faddish' by Professor Mark Brown (2017) of the National Institute for Digital Learning, Dublin City University. In it he challenges the driving purpose behind many of these frameworks:

We need to ask who is shaping the current movement and for what purpose. What is missing in the discourse? What theory and research underpins specific frameworks? Whose interests are being served when particular frameworks are being promoted? (Brown, 2017).

He poses the challenge of reimagining how digital skills might be used to shape better futures rather than just to meet the more immediate demands of today's knowledge economy:

How might we reimagine digital literacies to promote critical mindsets and active citizenry in order to reshape our societies for new ways of living, learning and working for a better future – for all? (Ibid.)

This is a particularly relevant challenge for the museum sector. Museums have always been important public and civic institutions, and much recent discussion within the sector is asking what museums represent in today's rapidly changing society (Dodd, 2015; Museums Association 2017; Latchford 2018). This challenges assumptions by some that museums are neutral actors, or that they create social value through their mere existence. Instead, the focus is on how they need to become more actively and conspicuously purposeful in order to address key social issues.

Digital skills and literacy can't exist in a vacuum, viewed as separate from this important discussion around the values, principles and social purpose of museums today. This is particularly so as society itself and the nature of social problems are changing because of digital culture. The social shift is far more profound than simply more people surfing the web or using their smartphones. It's about changes to our identity, our wellbeing, the information we consume, the democracy we participate in and the networks and communities we connect with.

Throughout Phase Two's consultation and conversations these issues and this approach were raised and discussed, amongst the project team and advisors, by online survey respondents, on Twitter and in Literacy Labs. The clear message was that, given the particular social and civic context of museums, it is vital that any joined-up response that museum people receive around building their digital skills is similarly purposeful and values-led.

Nuanced and contextualised

The need for the museum sector's approach to be **nuanced and contextualised** – helping people understand and relate skills to their own practice and setting.

A key reflection coming out of this Phase Two research, particularly through the Literacy Labs, relates to the huge variety of museum contexts, especially in terms of type, size, structure, purpose and resource. Each of these has specific needs when it comes to digital skills and literacy-building. It's impossible to list all these different contexts, but it's important to give museum people ways to understand what the contexts might mean for them.

When we challenged Literacy Lab participants to come up with their suggestions for potential digital skills and literacy models for museum people, they recognised both the difficulty and the importance of remaining relevant to this broad range of different contexts.

This task proved how hard any digital literacy framework was going to have to work. Our team was quite clear that for an overstretched small museum, which relies on volunteers, the practical benefits in terms of money earned, time saved or visitors through the door need to be at the forefront. Other museums with more capacity could focus on overarching strategy.

Some digital things are just another way to do core business, others could be completely new opportunities and more disruptive (in a good or bad way!). Any framework needs to find some way to encompass both.

Creating one-size-fits-all is very difficult because of the range of paid and unpaid roles in museums plus the squeeze on resources and time. Also, without management buy-in nothing may happen. Perhaps any framework needs to be bottom-up and top-down along with a modular approach. For example, a role- and task-based solution might begin with options like 'I'm a team leader', 'I'm a volunteer', 'I've limited time', 'I want to promote my museum', 'I want to create a digital skills plan'.

There needs to be a map where people can locate themselves and project their own context into the framework.

It might be useful to create a guideline framework. Smaller museums don't have the time to write a strategy for their museum, but they can adhere to a best-practice strategy. It's a matter of perspective.

It is clear that any potential museum digital skills and literacy framework can't simply list these different contexts, as there are far too many. It must, however, be dynamic enough to respond to these contexts, by helping museum people understand them better. The desk research around digital skills and literacy frameworks backs this up, identifying a need to recognise and strike an appropriate balance between universal frameworks and the highly situated and contextualised nature of digital skills and literacy in museum contexts.

This second set of findings all related directly to individuals' needs – practical recommendations that were reiterated across all three strands of research: the desk-based, consultation and Literacy Labs.

Clarity and consistency

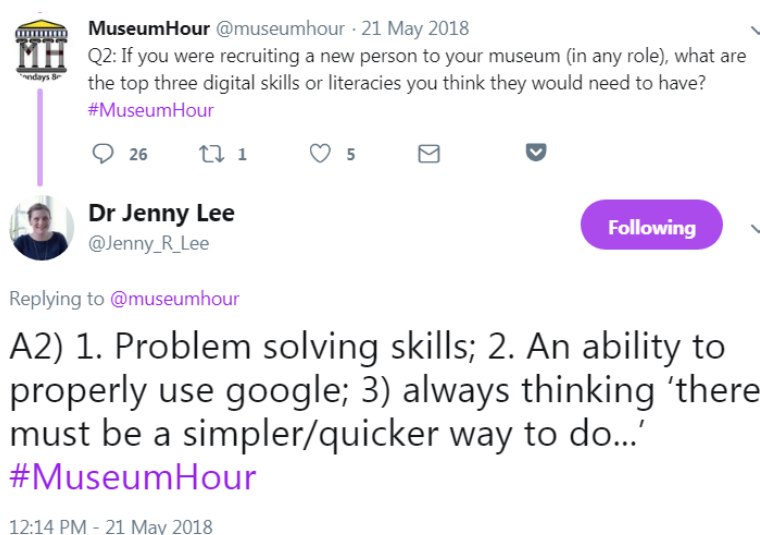
Phase Two found that museum people need **clear, consistent and widely recognised terms and definitions** around digital skills and literacies, but *not* a single, set list.

There was much support across all the Literacy Labs for better ways to develop a shared understanding of the terminology around digital skills and literacy, as illustrated by this remark:

A personal frustration of mine is that whenever I mention digital skills a lot of people assume I'm just talking about social media. Being able to point to a sector-wide definition of key terms, skills and best practice to work towards would save us all a lot of time.

Some of this confusion is caused by the broad range of existing skills-related terminology. The [think piece](#) by Bridget McKenzie (2018), commissioned as part of the One by One project in response to this challenge, explores the subtle distinctions between terms such as ‘literacy’, ‘competency’ and ‘capability’. It highlights the fact that the One by One project’s use of these terms, particularly in any eventual outputs such as frameworks and/or resources, needs to be careful, critical and clear.

In the survey consultation and Literacy Labs we received a broad range of suggested terms to describe the range of digital skills and literacies museum people need.



An example tweet during the #MuseumHour discussion



Brainstorming skills and literacies at the Edinburgh Literacy Lab ©Culture24

The suggestions are listed in full here because they illustrate so well the scale of the challenge at hand.

- Using Microsoft Office programmes
- Using databases
- Scanning
- Basic coding skills
- Digital photography and editing software skills
- Using Collections Management Systems
- Ability to manage and edit websites
- Copyright IP awareness
- GDPR awareness
- Designs and infographic knowledge
- Ability to write/create content for different platforms
- Knowledge of different social media channels and when/how to use effectively
- Typing skills
- Ability to properly 'Google it'
- Working with communication/collaboration tools – Slack, Trello, Google Docs
- Analysing data
- Using analytics software
- Managing information
- Ability to find information from digital sources
- Digital/visual storytelling skills
- Using email effectively
- Ability to project-manage technologists/digital agencies
- Understanding digital production budgets
- Writing a useful technical brief/tender document
- Giving a mandate to your staff to pursue digital options
- Managing existing digital systems
- Empathy
- Resilience
- Communication
- Analytical ability
- Problem-solving skills
- Change management
- Desire to improve things
- Emotional intelligence
- Adaptability
- Responsiveness
- Curiosity
- Openness
- Emotional Literacy – being able to converse, connect, ask questions, mediate dialogue
- Blogging
- Having a clarity of language and terms used
- Understanding issues related to digital identity and personality
- Digital ethics and etiquette
- Being able to relate online
- Understanding how information can move around digitally
- Interest in user interaction with digital tech
- Not seeing digital as a thing apart
- Knowing when digital isn't the right solution
- Knowing what your barriers are internally

- Navigating what is out there re AR and VR and knowing what is useful
- UX (user experience design), user stories and digital design
- Understanding of different devices/platforms and their uses and limitations – must be current
- Understanding structured data
- Digital preservation knowledge
- Storytelling with and beyond objects
- Evaluating impact of ‘digital’
- Not going down the rabbit hole and following the crowd
- Knowing how to develop a content strategy
- Understanding SEO (Search Engine Optimisation)
- Collaborating with colleagues
- Undertaking digital content audits
- Mapping digital assets
- Using email newsletters effectively
- Researching audience needs
- User testing
- Breaking down ‘digital fears’
- Advocating for digital internally
- Awareness of latest digital best practice
- Critical thinking
- Agile working
- Using human-centred design principles
- Managing complexity
- Understanding rules, ethics and conventions in digital platforms
- Awareness of impact on digital technologies on society

Reading through these, it’s clear that this is a broad list, not only in its extent but also in the types of skills and literacies being detailed. At the Cardiff Literacy Lab we attempted to organise those suggestions into some form of typology. Various groupings were suggested, listed here with illustrative examples:

Descriptive

- Technical skills
- General abilities using technology
- Managing systems and processes
- ‘Soft’ skills
- Understanding digital culture inside and outside the museum

Related to different organisational attributes

- Institutional principles
- Systems
- Compliance
- Being a ‘good’ employee
- Users and audiences

Related to different museum functions/teams

- Communications and marketing
- Content creation
- Strategy and planning
- Interpretation

Types of abilities

- Proficiencies
- Capabilities
- Competencies
- Skills

Focus

- Generic to all roles
- Specific to a few roles

Hierarchical

- Optional
- Essential

This isn't a complete list – other groupings could be identified according to the particular context or person doing the organising. Such an approach involves a process of subjective prioritisation, refinement and selection. A similar process was followed in research carried out into the digital skills and literacies of US museum professionals in 2017. This was conducted by Greg Albers, Digital Publications Manager at J. Paul Getty Trust, and Kathryn Cody, Manager of IT Educational Technologies; Project Manager – Getty Digital.⁵ They posed a single question to the museum and cultural heritage technology which was:

What key digital skills and literacies should form a common vocabulary among our staffs at all levels – including collections specialists, content producers and developers, and leadership – in order to drive digital transformation in our institutions?

They received about fifty responses and from those culled the answers into the following broad descriptive topics:

- Critical Thinking in the Face of Relentless Change
- Communicating to Our Audiences
- Communicating to Each Other
- Creating, Manipulating and Managing Digital Images
- Copyright, Licensing and Open Source
- Databases
- Data Management
- Information Systems in Museums
- Digital Fundamentals, or Everyday Tech
- Digital Advocacy, or Everyone Tech
- Outcome- and User-focused Development
- Agile Methodology and Project Management
- UX
- Web

⁵ See for more information:

https://conference.mcn.edu/2017/profile.cfm?profile_name=session&master_key=5193C026-B444-5361-28EA-227265AC2C5F&xdetail&xtemplate and https://docs.google.com/document/d/1Y4LznMWPR_VPYbcR5t92vTOxit2mHyS9qIbMhIrgR1I/edit#heading=h.lfOquOtwfk8z

Following this, they ran a session at the MCN (Museum Computer Network) Conference 2017 to further discuss and refine these groupings. They sought to establish a hierarchy of themes, seeking to identify those that were regarded as the most relevant to the attendees of the session.

This process resulted in six key themes, set out below and detailed in the accompanying image, 'A summary of takeaways from MCN2017 Session, *Musetech 2017: An Ideal Syllabus*':

- Data management
- Agile for management
- Adapting to change
- Communicating
- Digital advocacy
- User-focused

Given the intention of the One by One project to build the digital confidence of *all* museum people, in *any* role and at *all* levels, working in UK museums of *any* size and *any* type, it is less appropriate to follow the prioritisation process MCN undertook, which had a more selective and focused ambition.

Phase Two's findings underline that it would not be useful to over-specify the type of digital skills, literacies and proficiencies required into a single list or standard for One by One's purposes. All seem relevant, depending upon the contexts. A process of prioritisation, refinement and selection is subjective, relying on certain contexts being regarded as more relevant than others. Rather, as has already been noted, museum people need support in making sense of their specific individual professional contexts before determining the type of digital skills they require to fit that context. This approach is further supported when considering the continually contextual and evolving nature of digital technologies.

Strategic and practical responses

Phase Two research also underlined the fact that museum people need responses that are both **strategic and practical – helping them to set priorities, plan and track progress and proficiency.**

Generally, all the digital skills and literacy frameworks reviewed in the desk research sought to help users with at least one of three objectives around digital skills development, namely to:

- Provide a description or **categorisation** of digital skills and literacies;
- Highlight and address particular organisational or sectoral strategic **priorities**; and
- Plan and track individual **proficiency**.

When considered in the museum context through Phase Two, there was clear feedback that museum people need support with all three of these areas.

In terms of strategic support, the second of the bulleted objectives above, there was much discussion about the strategic 'digital change' challenge faced by the museum sector and the importance of helping museum people navigate this strategically. Participants expressed their hope that any outputs of this project would help museum people with this.

Each museum is going to have a reckoning with digital literacy. Unfortunately, this reckoning will not be in the face of a single violent event that can be tackled decisively. Instead, it will be a slow decline in relevance and sustainability that requires a strategic and thought-through remedy. Tackling digital literacy is not easy, though. At a very practical level, many people simply don't know where to start or, worse, don't see the need in tackling the issue at all. My hope is that One By One will provide a blueprint for organisations at the beginning of their digital transformations, and aspirations for those further along.

I would reiterate that this is really important work. We can't keep circling around a fetishised notion of digital that ultimately supports an unsustainable expert culture.

If in some way it can help museums (and other organisations) address the 'digital isn't for me' attitude in a positive way (as opposed to just forcing people to use platforms/technology they're not comfortable with) that will be a HUGE step forward.

A framework should be something that inspires and advocates – as well as providing content.

Whilst much discussion focused on helping museum people guide their museum's strategic priorities around digital change, almost all participants who were presented with the challenge of coming up with potential digital skills and literacy models for museum people focused on producing process-driven 'how to' models that supported scenarios of practical delivery. Most of these were oriented around ways to help individuals plan and track proficiency in digital skills and literacy, presented cyclically with constant evaluation and review steps build in.

There was also a recognition that the need to shape strategic direction around digital skills and literacy *and* the need to plan and track individual proficiency with digital skills and literacy could and should work together.

I think that a strategic framework which can be adapted for museum staff and volunteers to understand their own development needs, but also acts as a national standard (and therefore useful politically) would be a useful thing.

Creating conditions for change

Phase Two found that museum people need **support in recognising and then creating and enabling the conditions needed for organisational change to happen and thrive.**

Through all of the Literacy Labs, but particularly at the Edinburgh event, participants highlighted the fact that any successful development and deployment of digital skills and literacy for museum people could not happen without various organisational conditions in place.

There was discussion about the importance of having proper resources, processes and technical infrastructure, but by far and away the largest focus of discussion was the importance of effective and supportive leadership in museums to create the right internal culture for positive digital skills and literacy-building; for example, the significance and value of giving people the mandate to pursue their digital development. There was also discussion around giving people the space to have an open and honest conversation about the challenges of embracing digital practice including being able to let go of their 'digital baggage'.

The importance of change agents was also highlighted, with a view that people in any role across an organisation, regardless of formal hierarchies, could display good digital leadership.

Museums often have to rely on a person or small group to be agents of change in tackling digital skills, mindsets and systems – whether that's from below, from management or from Boards. For those agents of change to succeed, they need to articulate the challenges, the benefits and the way forward.

People who are good 'connectors' or 'translators' between teams, either because of their formal role or their ability, were identified as particularly useful change agents.

A number of suggestions for ways in which museum people could advocate to leadership for necessary digital capacity-building were put forward. Some articulated the ways in which building digital capacity can create value and some emphasised the potential benefits of reduced cost and time, while others focused on highlighting the current barriers and the dangers of not embracing digital capacity-building. For example:

A good point was raised at the discussion that people see digital work as being less important than any other work, which I think is the biggest barrier to success, especially when it makes the people responsible for doing the work feel guilty for doing their jobs instead of work for other people.

I think the sustainability line will be key in tackling the inevitable pushback of 'why bother?' In many organisations digital has replaced a previous way of working. In culture, it just seems to be an add-on – we continue the old way AND do digital (especially around collections). This cannot be sustained so how do we get the root of this?

We felt that driving footfall to buildings and events is at the heart of the challenge for the digital experience. It's about bringing everything together holistically – re online and offline so both experiences are in balance.

Practical help, tools and resources

Phase Two found that museum people need **practical ideas, tools and resources in order to build their digital skills effectively.**

Literacy Labs participants emphasised the importance of museum people getting good practical help and advice around the development and deployment of their digital skills and literacy that could support them in a range of ways such as continuing professional development, evaluating existing roles, shaping new ones and advocating value to leadership and colleagues.

It is important that the project will have a concrete outcome that can be applied practically.

This was also demonstrated by the practical 'how to' nature of ideas for models (for dealing with digital skills and literacy) generated by some Literacy Labs participants. ●

4 Outputs and next steps

Phase Two's research helped us understand and articulate the needs of UK museum people and the museum sector around digital skills and literacy. In this section of the report we share the outcomes of that work – the outputs designed to inform and shape the action research in Phases Three⁶ and Four.⁷

As we began the Phase Two research we had imagined that we might be ready to produce a draft model or framework by the end of the Phase. However, as research progressed, it became clear that it was too early in the overall One by One project to posit a detailed framework, even in draft form.

Instead, our outputs form a 'blueprint' with four elements – **Principles, Characteristics, Contexts and Actions** – drawn from the research and designed to inform and underpin any future model or framework.

The Principles and Characteristics form the foundations of our proposed approach. They focus on *why* any framework for digital skills and literacy for museum people should exist, *what* it should try to do and *how* it might be constructed. The proposed Contexts are designed to help an individual make sense of their current situation and needs around digital skills and literacies, whilst Actions help them do something about it.

Other digital literacy and skills frameworks we studied, as explored further through the Brighton Literacy Lab (see **Section 3**), tended to lack a critical reflexivity as to their reasons for existing, their chosen approach and their ambitions; we were keen to take a different approach.

Principles

The proposed principles underpinning any digital skills and literacy framework for museums are:

- It is **individual** – person-centred, not organisation- or technology-centred. At the same time it needs to be able to scale and flex to ensure benefits can ripple out from the individual to the wider sector and beyond.
- It is **purposeful** and **values-led** – clear on the value of digital skills and literacy-building for museum people, their museums and their audiences, the public and wider society, and always related to organisational values and mission.
- It is **dynamic** – responsive, evolving and situated, flexing to the sheer variety of contexts within the museum sector.
- It is **active** – enabling any individual to take positive action to effect change.

Characteristics

The proposed characteristics describe how a framework might be logically oriented and used:

⁶ See Phase Three Summary, <https://one-by-one.uk/2018/03/18/phase-3-summary/>

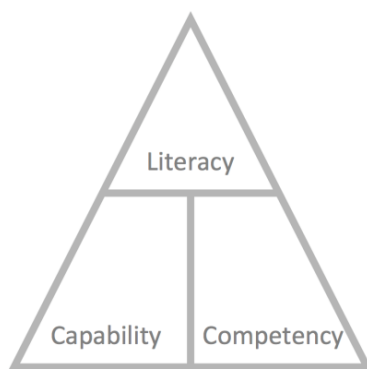
⁷ See Phase Four Summary, <https://one-by-one.uk/2018/03/17/phase-4-summary/>

- It won't be a single, static list of digital skills or literacies.
- It will be multipurpose, seeking to do these three things:
 - It will be **holistic**, seeking to describe digital skills or literacies for museums.
 - It will be **strategic**, working towards a selective, intentional and strategic set of priorities for the sector.
 - It will be **developmental**, supporting an individual's journey towards digital proficiency, by giving them tools to map their progression.

Contexts

Phase Two research highlighted that museum people need to understand the particular contexts within which their digital skills and literacies operate in order to determine which digital skills and literacies they have or need. Any proposed digital skills and literacy framework must support them with this. Whilst it's impossible for any framework to list all the different potential contexts, three useful models emerged from our scoping and research. They cover Skills, Activity and Perspectives.

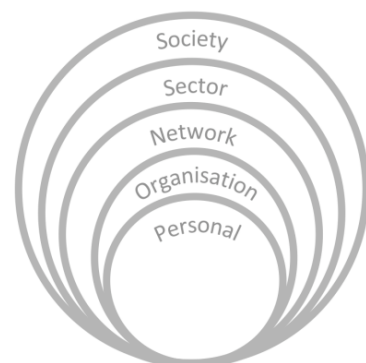
All three models were devised with the individual at the centre. At this stage we aren't proposing any specific mode of use. They will be tested further through the remainder of the project. Each is explored in turn below.



My Digital **Skills**



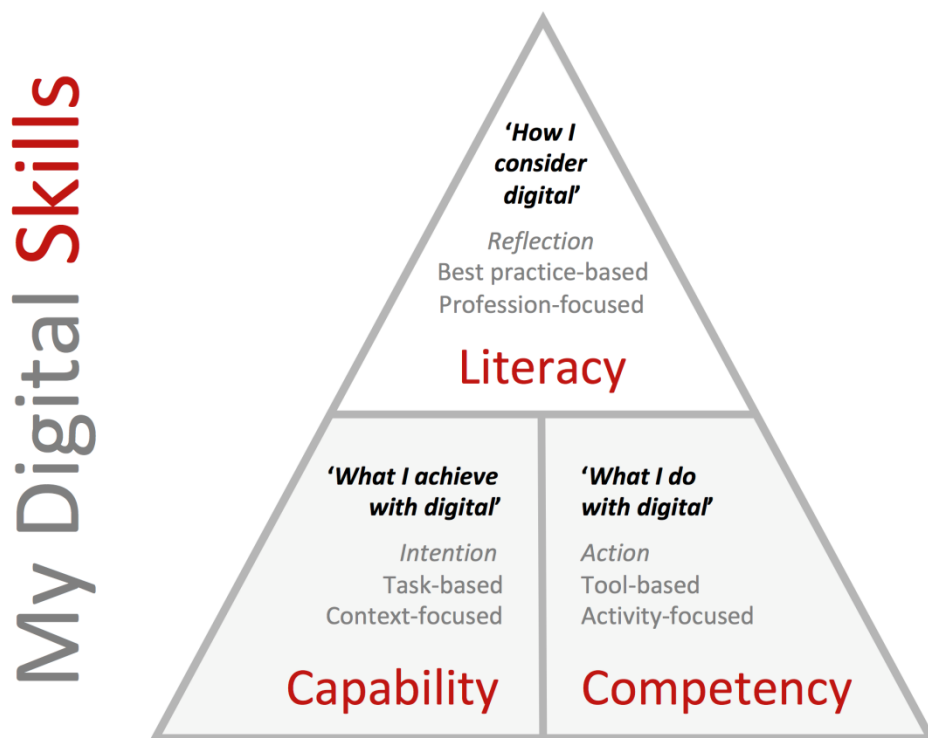
My Digital **Activity**



My **Perspectives**

My Digital Skills

This model focuses on the specific skill that is being used to pursue a particular digital activity, within a particular context. It addresses the challenges raised around skills terminology, explored further through Bridget McKenzie's commissioned think piece.



This approach is intended to help an individual recognise and describe the type of skill they might be using to support a digital activity. It proposes distinctions between a 'competency', a 'capability' and a 'literacy'.

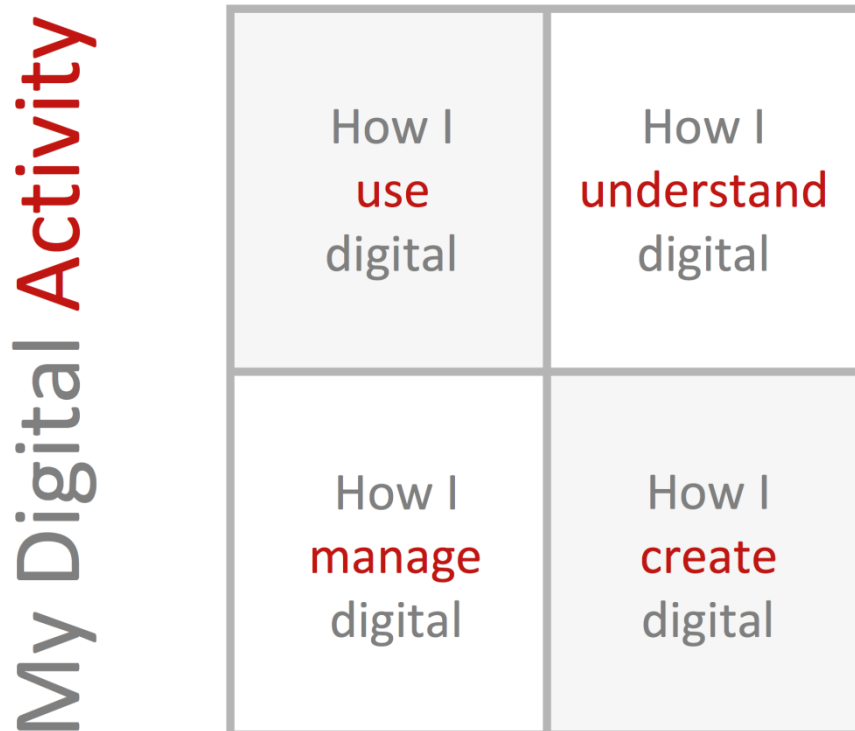
A competency focuses on a particular digital action, with an emphasis on the use of a tool or system. For example, a competency might be knowing how to use Twitter – literally how to create a profile, tweet, retweet, follow, track impressions and so on.

A capability focuses on the particular task on which a particular competency is being put to use. This is much more contextual and achievement-oriented. A related capability for the Twitter competency described above might be to understand the most productive ways in which to use Twitter to raise the profile of your museum.

A literacy, in contrast, is more reflective, about ways in which individuals consider digital in their contexts. Following on from the earlier examples, the relevant literacy in this case might be one that recognises modes of behaviour, best practice amongst museums across Twitter and wider social media.

My Digital Activity

This model focuses directly on understanding the digital components of an individual's activity. It addresses the need museum people have around how to define 'digital', highlighted by the Literacy Labs. By focusing on the term 'digital activity', this model emphasises the importance of an individual defining **their active relationship** with digital, whether as technology, content, system, culture or product, rather than having to specifically define the 'digital' itself.



Our model sets out four 'lenses' through which an individual might consider their digital activities.

How I use digital

This is about an individual's use of particular digital tools, platforms or technologies, for example using Microsoft Office software, taking and editing digital images, or using Twitter or a collections management system.

How I manage digital

This covers the ways in which museum people manage digital systems, workflows, resourcing, projects, partnerships and more. For example, how an individual manages a museum's existing digital systems such as legacy websites, multiple social media accounts, ticketing systems or content management systems. It covers ways in which an individual manages digital projects, deals with digital agencies and writes digital briefs and evaluations. It also covers ways in which individuals manage an internal culture or external partnership that supports digital work, for example by fostering collaboration and communication.

How I understand digital

This relates to ways in which an individual encounters and learns about digital practice and culture. It covers that within the museum context, such as ways to understand changing audience motivations and behaviours, learning about digital best practice in other sectors or recognising wider impacts of digital culture such as its socio-cultural impacts on democracy or employment.

How I create (with) digital

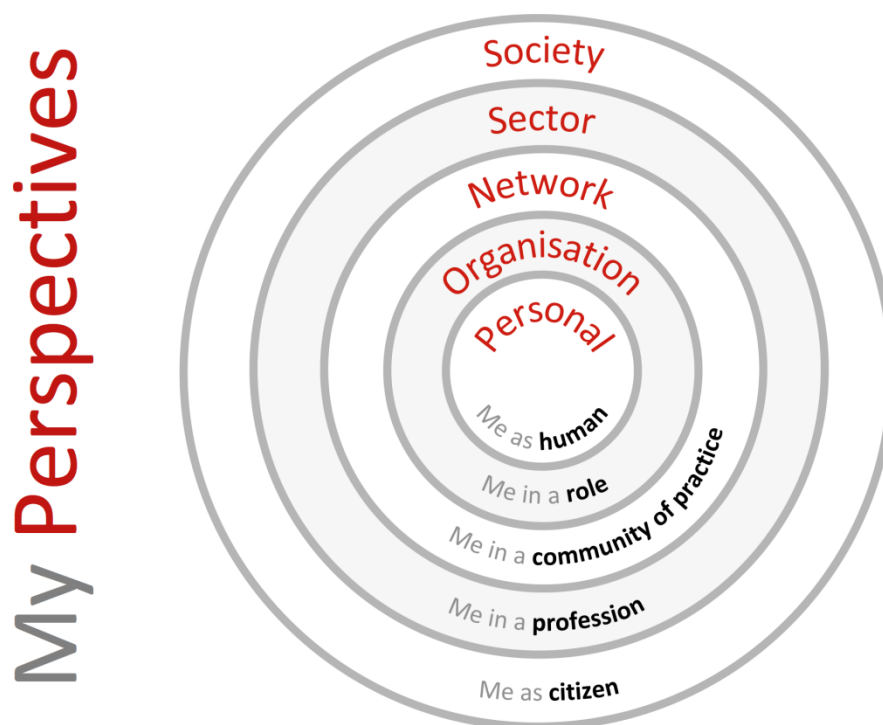
This emphasises a more active and imaginative relationship with digital technology, assets and content than 'how I use digital'. It could relate to designing and making digital products, but it might also equally relate to creating content on digital platforms, for example writing blogs, tweeting interesting stories about collections.

It's important to note that we don't claim these are the only possible groupings of activities. Equally the proposed model, explanations and examples are not intended to be rigid or complete. There will clearly be different interpretations and suggestions. The intention here is to give people ways in to thinking about their context, not to provide complete or fixed definitions of them.

This approach is anchored in museum work, focusing on activities that are more likely to be interpreted within a museum's organisational context, such as manage, understand and create. However, it's also important to note that the groups of activities identified are intentionally general to allow an individual to consider them across a range of perspectives, explored next.

My Perspectives

In essence, this model helps an individual to understand where they are, in terms of the environment in which they use their digital skills and literacy – currently or in the future. This helps them locate relevant spheres of activity, influence and support, and identify appropriate inputs and outputs to support their digital skills and literacy development and deployment. It might help them identify issues that impact on them (e.g. their relevant organisational conditions), sources of support (e.g. relevant communities of practice to guide thinking and work) and opportunities to effect change (e.g. share best practice with their sector).



The five perspectives suggested are intended to challenge the assumption that the only perspective for museum people to consider is the organisational one. When it comes to the use and development of an individual's digital skills and literacy, it's important to recognise that there is little distinction between their personal, professional and social contexts. After all, the personal digital confidence we may develop from, for example, using a particular social media channel in our personal lives can also be applied in our professional, communal and civic lives as needed.

Personal perspective

This is about the individual as a human being, considering their particular skills and needs in the context of digital activity in their personal life. This might consider their human and socio-cultural needs influenced by digital culture, as well as their more functional needs using technology. For example, through the use of social media in their personal life an individual might reflect on the impact this has on their needs relating to their online identity, their privacy or their relationships, as well as the specific technical skills and knowledge they may need.

Organisation perspective

This focuses on the perspective of the individual in their role in a museum, for example as a curator, learning manager, marketing specialist, director, visitor services officer, trustee, or sometimes almost all of those things in the case of small organisations. It's important, however, for the individual to consider not only their primary organisational perspective but other, sometimes less formal, perspectives they hold; for example, in their roles as managers, team leaders, advocates, mentors and so on.

Network perspective

This perspective recognises the highly collaborative nature of the museum sector, and the presence of many effective peer networks of varying degrees of formality and focus – for example, [GEM](https://gem.org.uk/)⁸ (a network of museums and heritage learning professionals), [Museums Computer Group](https://www.museumscomputergroup.org.uk/)⁹ (an association of individuals sharing a common interest in encouraging, improving and influencing best practice in the use of technology and digital platforms within the museum and heritage sector) and [Museum Detox](https://museumdetox.com/)¹⁰ (a network for BAME museum and heritage professionals), to name but a few. It might simply mean a small group of museum people giving informal support and advice to each other around their area of work or interest. These networks can provide a huge variety of potential advice, resources, and opportunities to a museum person in respect of their digital skills and knowledge, but can also be a forum for the museum person to offer, share and reflect on their own experiences and expertise in relation to digital skills and literacy.

Sector perspective

This steps beyond the networks and out to the wider sector, covering the ways in which individuals relate to, have impact upon and are impacted by sector-wide policies, structures, initiatives and modes of operating. So it could, for example, relate to an individual sharing their challenges as a curator coping with new technologies at a sector conference on innovation, the effect of new digital guidance from a national funder on an individual's digital project or the impact of sector funding cuts on resourcing in an individual's museum.

Society perspective

This focuses on the role of an individual in society in their capacity as a citizen. It could relate to a number of formal and informal roles, for example as a trustee of a local charity, a considerate neighbour or a user of the local community centre. For a museum worker, they might also consider this perspective to reflect on their role supporting their museum to be an effective civic agent.

⁸ <https://gem.org.uk/>

⁹ <https://www.museumscomputergroup.org.uk/>

¹⁰ <https://museumdetox.com/>

Actions

At this stage of scoping a suggested framework we propose four areas of practical support or action to help museum people develop and deploy their digital skills and literacies: organisational conditions, activations, tools and resources. These are only outlined at present; the detail will be determined in due course by the outcomes and findings of action research in Phase Four.¹¹

Organisational conditions

This is in response to our research telling us that museum people need help in developing and deploying digital skills and literacies through enabling the necessary organisational conditions for this to happen.

This could mean practical or strategic actions that would help an individual within a museum change or influence organisational conditions such as training, capacity, infrastructure, systems, people and culture, or leadership.

Such actions might include, to give a formal and wide-reaching example, proposing a range of relevant digital skills and literacy needed in all roles and pushing to update job descriptions, person specifications and performance management processes to reflect these. A more informal but also effective action might be having a coffee with certain senior management or trustees and being able to articulate the value of digital skills and literacy-building across the organisation.

Being able to create or take advantage of the conditions necessary for change relies upon an individual's raised awareness of their specific contexts, as discussed previously. Understanding their contexts – the skills, activity and perspectives – might highlight which are the most relevant conditions to support further development, before they can focus on taking action.

Activations, tools and resources

Our research also told us that museum people need practical ideas, tools and resources in order to develop and deploy their digital skills and literacies effectively.

'Activations' is a term used by the One by One project to refer to creative and practical approaches that can be used within a particular setting in order to directly increase the digital confidence of museum people. Examples might include running an informal lunchtime computer club so that museum people can play with different pieces of technology, offering staff small amounts of research and development funding to develop digital ideas, or encouraging colleagues to write blog posts to reflect on their practice or express personal perspectives.

In terms of tools and resources, the challenge is not in their provision; after all, there are many around that focus on digital skills-building. Rather it is about providing useful and relevant tools and resources for museum people that are contextualised according to their particular use and value. We are addressing this by looking to the action research and testing phase of the One by One project to help identify the main types of tools and resources needed, thereby ensuring that museum contexts and needs will drive the particular tool or resource, rather than the other way around.

¹¹ See: <https://one-by-one.uk/2018/03/17/phase-4-summary/>

Next steps

Phase Two's findings and outputs will now inform One by One's next phases. In Phases Three¹² and Four¹³ we will scope, plan and run practical action research interventions for defining, improving, measuring and embedding digital skills and literacies, within the specific contexts of the project's partner museums.¹⁴ These will provide inspiration for the types of activities that are tested and a frame within which to evaluate these activities more broadly for the sector. These will then in turn inform the overall project outputs, to share with the sector during Phase Five.¹⁵

We believe that Phase Two's findings and outputs, taken on their own beyond the context of the One by One project, can change the way in which the museums sector understands and articulates the challenge of building museums' digital skills and literacies – in particular, finding person-centred, purposeful and contextualised ways of responding to the challenge, according to the different practices and settings found across the sector. This will ensure that the museums sector doesn't simply view digital skills and literacy-building as a thing apart that merely supports its work, but rather as something at the very core of its offer to the wider public. ●

¹² <https://one-by-one.uk/2018/03/18/phase-3-summary/>

¹³ <https://one-by-one.uk/2018/03/17/phase-4-summary/>

¹⁴ <https://one-by-one.uk/project-partners/>

¹⁵ <https://one-by-one.uk/2018/03/16/phase-5-summary/>

5 References

- a. List of digital skills and literacy frameworks (and framework-related commentary) reviewed during desk research.

Name:	Digital Capability Framework	Organisation:	Jisc
Place of publication:	https://www.jisc.ac.uk/rd/projects/building-digital-capability		
Date of publication:	2015		

Name:	Digital Literacy Framework	Organisation:	University of Leicester
Place of publication:	https://www2.le.ac.uk/institution/digital-campus/strategic-priorities/dsc/digital-literacy-framework		
Date of publication:	2017		

Name:	Digital and Information Literacy Framework	Organisation:	Open University
Place of publication:	http://www.open.ac.uk/libraryservices/pages/dilframework/view_all		
Date of publication:	2018		

Name:	Digital Competence Framework	Organisation:	Llywodraeth Cymru (Welsh Government)
Place of publication:	https://hwb.gov.wales/curriculum-for-wales-2008/digital-competence-framework/		
Date of publication:	Originally published 2008 and updated since		

Name:	Global Framework for Digital Literacy	Organisation:	UNESCO
Place of publication:	http://uis.unesco.org/en/blog/global-framework-measure-digital-literacy		
Date of publication:	2018		

Name:	Digital Content – Finding, Evaluating, Using and Creating It	Organisation:	National Library of New Zealand
Place of publication:	http://bit.ly/2JmY4Rx		
Date of publication:	-		

Name:	Curating Content	Organisation:	National Library of New Zealand
Place of publication:	https://natlib.govt.nz/schools/digital-literacy/strategies-for-developing-digital-literacy/curating-content		
Date of publication:	-		

Name:	Information and Digital Literacy: A Strategic Framework for UQ Library 2016-2020	Organisation:	The University of Queensland Library
Place of publication:	https://web.library.uq.edu.au/files/14363/UQL_IDL_StrategicFramework.pdf		
Date of publication:	2016		

Name:	Digital Strategy for Schools 2015-2020: Enhancing Teaching, Learning, and Assessment	Organisation:	Department of Education and Skills, Ireland
Place of publication:	https://www.education.ie/en/Publications/Policy-Reports/Digital-Strategy-for-Schools-2015-2020.pdf		
Date of publication:	2015		

Name:	BC's Digital Literacy Framework	Organisation:	British Columbia Board of Education, Canada
Place of publication:	http://bit.ly/2Yuowft		
Date of publication:	2013		

Name:	Digital Literacies Framework for the University of Dundee	Organisation:	University of Dundee
Place of publication:	http://bit.ly/2VYwkbr		
Date of publication:	2015		

Name:	Scholarly and Digital Framework	Organisation:	The University of Melbourne
Place of publication:	https://library.unimelb.edu.au/teaching/scholarly-literacy/framework		
Date of publication:	2017		

Name:	Person-Centred Digital Literacy	Organisation:	Health Education England
Place of publication:	https://hee.nhs.uk/our-work/digital-literacy		
Date of publication:	2017		

Name:	Digital Skills, Knowledge and Attributes	Organisation:	Allaboard HE
Place of publication:	http://www.allaboardhe.ie		
Date of publication:	2015		

Name:	Digital Literacy Model	Organisation:	Media Smarts (Canada)
Place of publication:	http://bit.ly/2VZqS8i		
Date of publication:	2014		

Name:	Developing Digital Literacy Skills	Organisation:	PDST Technology in Education
Place of publication:	http://www.pdsttechnologyineducation.ie/en/NEWS/Developing-Digital-Literacy-Skills.html		
Date of publication:	-		

Name:	Digital Literacy Skills	Organisation:	Department of Education and Skills, Ireland
Place of publication:	https://www.webwise.ie/teachers/digital_literacy/		
Date of publication:	2015		

Name:	Digital Literacy	Organisation:	Virginia Tech University Libraries
Place of publication:	https://lib.vt.edu/research-learning/digital-literacy.html		
Date of publication:	2018		

Name:	Five Resources Model of Critical Digital Literacy	Organisation:	University of Greenwich
Place of publication:	https://sites.google.com/site/dlframework/		
Date of publication:	2017		

Name:	Information and Digital Literacy: For Education, Employment and Citizenship	Organisation:	University of Sheffield Library
Place of publication:	https://sheffield.libguides.com/employabilityinfoliteracy		
Date of publication:	2018		

Name:	Web Literacy	Organisation:	Mozilla
Place of publication:	https://learning.mozilla.org/en-US/web-literacy		
Date of publication:	2016		

Name:	Three Models of Digital Literacy	Organisation:	NMC
Place of publication:	https://www.nmc.org/publication/digital-literacy-an-nmc-horizon-project-strategic-brief/		
Date of publication:	2016		

Name:	Essential Digital Skills Framework	Organisation:	UK Government
Place of publication:	https://www.gov.uk/government/publications/essential-digital-skills-framework		
Date of publication:	2018		

Name:	Staff Digital Literacies Framework	Organisation:	University of Brighton
Place of publication:	https://blogs.brighton.ac.uk/digitalliteracies/staff-digital-literacies-framework/		
Date of publication:	2016		

Name:	Student Digital Literacies Framework	Organisation:	University of Brighton
Place of publication:	https://blogs.brighton.ac.uk/digitalliteracies/student-digital-literacies/		
Date of publication:	2018		

Name:	Digital Literacy Framework	Organisation:	Anglia Ruskin University
Place of publication:	http://bit.ly/2LFXsbB		
Date of publication:	2016		

Name:	Deakin University Digital Literacy Framework	Organisation:	Deakin University
Place of publication:	https://www.deakin.edu.au/__data/assets/pdf_file/0008/268748/DL_framework_2014-CC_rev-_2015.pdf		
Date of publication:	2015		

Name:	Framework for Information Literacy for Higher Education	Organisation:	Association of College and Research Libraries
Place of publication:	http://www.ala.org/acrl/standards/ilframework		
Date of publication:	2016		

Name:	Faculty of Engineering and Design Learner Digital Literacy Attributes	Organisation:	PriDE Project (University of Bath)
Place of publication:	http://www.bath.ac.uk/lmf/download/55728		
Date of publication:	2011		

Name:	Faculty of Humanities and Social Sciences Learner Digital Literacy Attributes	Organisation:	PriDE Project (University of Bath)
Place of publication:	http://www.bath.ac.uk/lmf/download/55729		
Date of publication:	2011		

Name:	Faculty of Science Learner Digital Literacy Attributes	Organisation:	PriDE Project (University of Bath)
Place of publication:	http://www.bath.ac.uk/lmf/download/55731		
Date of publication:	2011		

Name:	School of Management Learner Digital Literacy Attributes	Organisation:	PriDE Project (University of Bath)
Place of publication:	http://www.bath.ac.uk/lmf/download/55730		
Date of publication:	2011		

Name:	DIGCOMP: A Framework for Developing and Understanding Digital Competence in Europe	Organisation:	European Commission
Place of publication:	http://ftp.jrc.es/EURdoc/JRC83167.pdf		
Date of publication:	2013		

Name:	Information Literacy Framework	Organisation:	Cardiff University
Place of publication:	http://sites.cardiff.ac.uk/ilrb/framework/		
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Name:	Information Literacy Strategy Framework	Organisation:	Maynooth University
Place of publication:	http://bit.ly/2YsAHcK		
Date of publication:	2016		

Name:	Information and Digital Literacy at ACU: A Strategy	Organisation:	Australian Catholic University
Place of publication:	http://library.acu.edu.au/about_the_library/library_policies/information_and_digital_literacy_at_acu		
Date of publication:	2017		

Name:	NTU Digital Framework	Organisation:	Nottingham Trent University
Place of publication:	http://blogs.ntu.ac.uk/digital_practice/2016/01/05/what-is-the-ntu-digital-framework/		
Date of publication:	2016		

Name:	Digital Skills Mapping (page 46)	Organisation:	DCMS
Place of publication:	http://bit.ly/2Vkk9kY		
Date of publication:	2016		

Name:	Digital Skills Framework Example	Organisation:	NCVO
Place of publication:	https://knowhownonprofit.org/tools-resources/building-a-digital-workforce/the-toolkit		
Date of publication:	2018		

Name:	Digital Foundation Skills	Organisation:	Scottish Council for Voluntary Organisations
Place of publication:	https://scvo.org/digital/participation/skills		
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Place of publication:	https://onlinelibrary.wiley.com/doi/abs/10.1111/bjet.12191		
Publication:	Children Learning to Use Technologies Through Play: A Digital Play Framework. <i>British Journal of Educational Technology</i> .		
Date of publication:	2014 (Accessed 25 May 2018)		

Name:	Europass Digital Competencies Self-Assessment Grid	Organisation:	European Commission
Place of publication:	https://europass.cedefop.europa.eu/		
Date of publication:	2015		

Name:	The Essential Elements of Digital Literacies	Author:	Doug Belshaw
Place of publication:	http://www.frysklab.nl/wp-content/uploads/2016/10/The-Essential-Elements-of-Digital-Literacies-v1.0.pdf		
Date of publication:	2015		

Name:	Digital Intelligence	Organisation:	DQ Institute
Place of publication:	https://www.dqinstitute.org/dq-framework		
Date of publication:	2016		

Name:	European Digital Competence Framework (Digcomp 2.1)	Organisation:	European Commission
Place of publication:	http://bit.ly/2Wi7Wle		
Date of publication:	2017		

Name:	Digital and Civic Literacy Skills	Organisation:	Teaching Tolerance
Place of publication:	https://www.tolerance.org/frameworks/digital-literacy		
Date of publication:	2017		

Name:	DigEuLit: Concepts and Tools for Digital Literacy Development	Author:	Martin, A., Grudziecki, J.
Place of publication:	https://www.tandfonline.com/doi/full/10.11120/ital.2006.05040249#_i12		
Date of publication:	2015		

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Place of publication:	https://digitalmarketinginstitute.com/en-gb/the-insider/12-07-17-10-digital-skills-that-can-make-students-instantly-employable		
Date of publication:	2017		

Name:	The Top 10 Digital Skills Tech Companies are Looking for Today	Organisation:	Digital Skills Global
Place of publication:	https://digitalskillsacademy.com/blog/the-top-10-digital-skills-tech-companies-are-looking-for-today		
Date of publication:	2018		

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Place of publication:	http://www.bath.ac.uk/students/careers/choose-a-career/employability/digital-literacy/index.html		
Date of publication:	2018		

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Place of publication:	https://www.jaluch.co.uk/hr-blast/digital-literacy-in-the-workplace-deciphering-the-goobledygook/		
Date of publication:	2018		

Name:	How to Upskill Your Employees in Digital Literacy	Organisation:	Insight for Professionals
Place of publication:	https://www.insightsforprofessionals.com/blog/how-to-upskill-your-employees-in-digital-literacy		
Date of publication:	2017		

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Date of publication:	2015		

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Place of publication:	https://link.springer.com/chapter/10.1007/978-3-319-05822-1_6		
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Place of publication:	https://digitalworkplacegroup.com/2017/05/10/digital-workplace-transformation-starts-digital-leadership/		
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Place of publication:	https://21cif.com/resources/difcore/		
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Place of publication:	https://jobs.barclays.co.uk/wp-content/uploads/Candidate-Competency-Guide-MD.pdf		
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Place of publication:	https://sheffield.digital/posts/proposing-a-digital-policy-framework-for-the-sheffield-city-region/		
Date of publication:	2016		

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Place of publication:	https://lccdigilit.our.dmu.ac.uk/2013/06/19/digilit-framework/		
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Place of publication:	https://www.nfer.ac.uk/publications/FUTL06/FUTL06.pdf		
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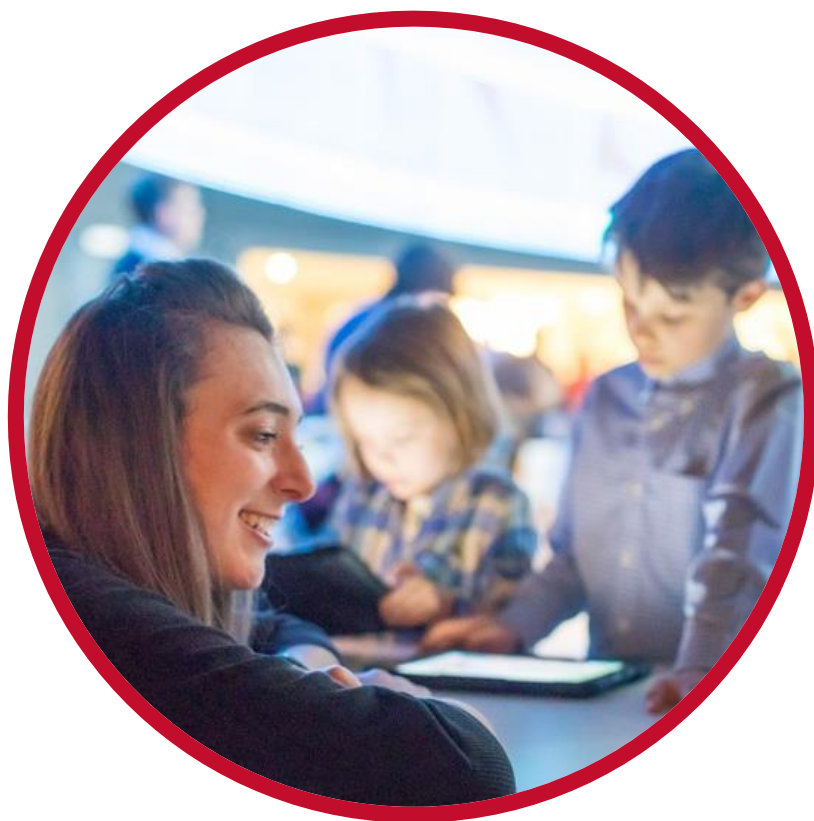
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