Establishing the Digital Portal of the National Manufacturing Institute for Scotland

Author Joe Wilson **Date** December 2018

Abstract

This short paper forms the first package of the work plan for the delivery of the Skills Portal for the National Manufacturing Institute for Scotland. It provides an outline of the available digital skills frameworks for those teaching in Colleges, Universities and a training providers, makes the case for selecting the Jisc Digital Capabilities model and sets out proposals for number of skills interventions to boost digital capability across the stakeholder group.

The overall aims of the project are to:

•Establish an online community of practice with suite of relevant tools to share materials on ongoing basis for those with interest in new forms of manufacturing from across the engineering and design disciplines around a clear web presence.
•Train 50 Ambassadors and 200 staff from across HE, FE and Industry.
• Develop 5 Strategic Skills interventions delivered in variety of flexible formats to develop digital delivery skills
•Create a library of relevant assets to support digital learning and teaching and skills development around manufacturing 4.0 to be sustained at project end by a community of practice.
•Deliver a programme of 50 Webinars and 3 Teachmeets to engage staff around Digital Practice.
•Create and deliver specialist training for ambassadors to sustain a community of practice at end of programme.

Full Text:

HTML , Word , PDF etc

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Contents

Introduction

This paper was commissioned by the National Manufacturing Institute for Scotland (NMIS)[1]

The brief to produce a paper for stakeholders that focuses on using the existing evidence base of available standards that support the development of digital learning and teaching skills that could be used to underpin a training programme for staff working in Colleges, Universities, Training Providers, and Learning and Development and Work-Based Learning functions relating to manufacturing disciplines in Scotland.
Following this, recommendations will be made on the adoption of a specific framework and relevant skills interventions. This will be the basis of the NMIS's offering to build the capacity of staff to make full use of the digital delivery tools available and support the development of a collaborative community of practice. This will enable practitioners to develop the skills to share learning materials and provide support in the development and delivery of skills around advanced manufacturing.

The overall aims of the project are to:

•Establish an online community of practice with suite of relevant tools to share materials on ongoing basis for those with interest in new forms of manufacturing from across the engineering and design disciplines around a clear web presence.
•Train 50 Ambassadors and 200 staff from across HE, FE and Industry.
• Develop 5 Strategic Skills interventions delivered in variety of flexible formats to develop digital delivery skills

•Create a library of relevant assets to support digital learning and teaching and skills development around manufacturing 4.0 to be sustained at project end by a community of practice.

•Deliver a programme of 50 Webinars and 3 Teachmeets to engage staff around Digital Practice.

•Create and deliver specialist training for ambassadors to sustain a community of practice at end of programme.

Paper Scope

This paper is largely based on desk-based research. Through the use of delphi technique, it calls on a pool of expertise from across the College and University sector in Scotland and UK in identifying the available frameworks in the UK and suggesting the relevant skills gaps and interventions. This is not a global review of digital development frameworks for those working in education and training, rather it focuses on the current developments likely to have most traction with the broad constituency of staff who work in the NMIS footprint, working in Colleges, Universities, Schools and Organisations and Training Providers in Scotland. To embrace this wide constituency engaged in training activities, the paper has adopted the term Educator.

In terms of interventions, the aim is to focus on practice and technologies that are open to all and relevant to educators. The aim is neither to be an exhaustive list of all routes to relevant training nor to duplicate training offers available either nationally or within institutions. Most institutions will offer entry level IT competencies to staff and have a virtual learning environment and training that supports the positioning and delivery of courses through this, making specific VLE training and entry level IT skills out of scope. The programme will assume that all participants will have basic digital literacy skills and are able to log into an online programme, login into a webinar and make appropriate contributions.

Overall the focus will be on delivering interventions that match the selected development framework alongside signposts to other support from a range of agencies and suppliers. This to allow participants to become confident contributors to a community that can share and work collaboratively around topics of mutual interest.

Methodology

This report is based on desk research and delphi feedback around the available and accessible frameworks and training interventions that are currently available . This paper will be used in a subsequent poll with the NMIS User group around both the suggested steps in framework adoption and in the selection of suggested interventions based on the recommendations in this report.

Digital Skills Frameworks for Educators in Scotland

The professional groups covered by this work all operate within their own professional frameworks:

- Teachers within the standards set by the General Teaching Council for Scotland[2] and towards the Scottish Government's recent policy of enhancing learning and teaching through the use of digital technology[3]
- Further Education Lecturers within the standards set by the professional development forum[4]
- University staff in a less formal way, towards the standards set by the Higher Education Academy[5]. In terms of digital practice these are quite loose and non prescriptive.
- Those in the training sector to a variety of standards set by a range of professional bodies, working to specific national requirements only where it is a condition of receipt of public funding.

Current Emergent Standards

Across the globe, there have been numerous efforts to engage educators in boosting their digital delivery skills. The offerings come from the private sector in the form of teacher portals and certification, notably from Microsoft[6], Google[7] , Apple[8] and Fujitsu[9] . In addition, there are new national standards initiatives which underpin the continued professional development of staff. These embed a recognised digital skills set usually from governments or relevant professional bodies. Examples of this include the International Society for Technology in Education's [10] framework for teachers and the recent European work [11] establishing a European Digital Competency Framework for Educators.

Across the UK, the most developed framework with a range of support comes from the Jisc[12] digital capability framework. This embraces[13] the broad range of skills required by staff operating in a range of roles. The model and underpinning work is openly available and can be adopted by any sector. The digital discovery tool that accompanies the model allows staff in any UK College or University access to this free tool to map their personal capabilities against this standard for educators. The model also allows staff in a range of management and support roles to map their capabilities. Institutions can choose to invest in a broader survey tool to give them both an institutional survey and provide benchmarking information. The free version of the tool can be accessed here[14].

The most recent development of a standard for educators in the UK is in England. The Education and Training Foundation[15] has produced a digital standard for teachers in vocational education[16]. This is mapped to both the European Competency Framework for Educators and the Jisc Digital Capability Framework. This standard will be accompanied by some open educational support materials in early 2019.

In Scotland, even in sectors with recently refreshed standards, the focus is often on all embracing, yet frustratingly narrow definitions, around the 'appropriate use of technology in learning' rather than detailing the broad skill sets and approaches that educators need to adapt to a more digital world. However, this may change in some sectors if the recommendations of the Scottish Government's policy on Enhancing Learning and Teaching through Digital Technology become more fully adopted.

In terms of live standards for staff development of digital competencies, it is clear that the Jisc framework has gained most traction across HE and FE in the UK. While the ETF standards apply in a regulatory sense to the English vocational sector, the learning materials and framework will be free to be adopted in Scotland.

 Suggested Skills Interventions

The aim of the NMIS training offer is to add value to the collective educational propositions already available to those working in the NMIS footprint, rather than duplicating any current offerings.

There is a broad range of open workshops and online materials available to educators in the UK, from a range of sources. Part of the NMIS resource will signpost staff to these training and development opportunities . We anticipate that during the project delivery, that the resource discovery feature will gradually move from identifying resources to support an understanding of digital learning and teaching, towards a more focused sharing of resources around Industry 4.0 and the innovation in manufacturing.

The initial website for NMIS will reference among others the work of Jisc , College Development Network[17] , Education and Training Foundation[18], Future Teachers[19] , Future Learn [20], The Digital Teacher[21] and events coordinated by the Association for Learning Technology[22], where the events and resources are focused on

developing broad educator skills.   The model for interventions supported by webinars will be based around the model adopted by Edinburgh University and their institutional roll out of Twenty-Three Things[23] .

The appendix to this paper contains suggested interventions. These would take the format of 40-minute Zoom Meetings. The recordings would be available for asynchronous use along with the learning materials. In addition, these materials would all be available under an open creative commons licence. The interventions would also be mapped onto the Jisc Digital Capability Framework. These would be delivered alongside a resource linking to other forms of relevant support, again mapped to the Jisc Digital Capability Framework.

These webinars would be repeated on an agreed schedule and used as a catalyst for the building of a community of practice, along with targeted teachmeets and training for ambassadors.

While we appreciate that some private organisations may choose to share support and learning materials under their own copyright, we will promote open and collaborative approaches in line with the Open Scotland Declaration[24] and UNESCO Policy[25]. There is a growing evidence base that this approach widens participation[26] and promotes collaboration.

Recommendation One

The work of Jisc is accessible to all the NMIS stakeholders. In addition, while the framework and tool set have been developed specifically for an HE and FE audience, it is easily adaptable for employers, training providers and school teachers. This provides the most mature model for adoption by the NMIS project. For some stakeholders the ETF Standard may be more accessible, but both the standard and the emergent learning materials will be mapped against both the Jisc and European Standards.

Recommendation Two

That from a scan of current offerings and an awareness of the skill base in Colleges , Universities , Training providers and employers. The list of interventions attached in the appendix represents the core of a digital educator programme that will build capacity in the sector and can be linked to other relevant initiatives from a range of sources and providers.

That the NMIS steering group review the list of suggested interventions that are mapped on to the most relevant professional frameworks and provide feedback.

Appendix One: Suggested Skills Interventions to form basis of Webinar Support

These are mapped to new College Professional standards and for HE and FE the Jisc digital capabilities framework. There is not a comparable professional standard for HE so digital capabilities framework is the best match . There is not a comparable framework for those operating in Training Providers and Employers.

Each session will be timetabled to be delivered as a webnar in range of timeslots and be recorded for ayschronous access. The recordings and associated resources being available through the NMIS Hub.

Session One Digital Teaching Toolkit and Overview of Programme	Content ● Toolkit intro ● What NMIS is and how to use Google Site and Resources ● An oveview of NMIS programme ● Hybrid courses ● Project-based learning ● Flipped and blended learning ● Sources of further staff development on-line ● Teaching session structure tools e.g. Learning Designer ● Generating evidence of learning ● Challenge ● Digital well-being ● Joining the NMIS community of practice

2018 College Professional Standards mapping	2.2 Learning, teaching and assessment theory and approaches: Understands how to embed a range of digital technologies to enhance learning and teaching and assessment. Understands the rationale for, and how to design, plan, develop, deliver the curriculum effectively and efficiently as an individual and in collaboration with others. 2.3 Technologies and resources for learning, teaching and work: Understands how to embed appropriate digital technology. Understands the safe use of technology and the necessity for cyber resilience and security. 3.3 Creates innovative curriculum design and learning and teaching: Adopts creative approaches to the embedding of appropriate digital technologies for effective planning, delivery and assessment of learning. Works in partnership with colleagues, students and partners including employers, to design and create innovative learning and teaching activities and environments.

Jisc: Building digital capabilities mapping	ICT productivity: An understanding of how digital technology is changing practices at work, at home, in social and in public life. Digital learning: The capacity to participate in and benefit from digital learning opportunities; to identify and use digital learning resources; to participate in learning dialogues via digital media; to use learning apps and services (personal or organisational); 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 monitor own progress: to participate in digital assessment and receive digital feedback; to manage own time and tasks, attention and motivation to learn in digital settings. An understanding of the opportunities and challenges involved in learning online; an understanding of own needs and preferences as a digital learner (e.g. access, media, platform and pedagogy). Digital identity management: 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 and other identity assets such as records of achievement; to review the impact of online activity; to collate and curate personal materials across digital networks. An understanding of the reputational benefits and risks involved in digital participation. Digital wellbeing: The capacity to look after personal health, safety, relationships and work-life balance in digital settings; to use digital tools in pursuit of personal goals (e.g. health and fitness) and to participate in social and community activities; to act safely and responsibly in digital environments; to negotiate and resolve conflict; to manage digital workload, overload and distraction; to act with concern for the human and natural environment when using digital tools. An understanding of the benefits and risks of digital participation in relation to health and wellbeing outcomes.

Session Two On-line assessment	Content ● Online assessment and feedback ● Google Forms ● Google docs ● Digital portfolios via Google Sites and Drive ● Audio and video feedforward ● Digital well-being
2018 College Professional Standards mapping	2.2 Learning, teaching and assessment theory and approaches: Understands how to embed a range of digital technologies to enhance learning and teaching and assessment. 2.3 Technologies and resources for learning, teaching and work: Understands the safe use of technology and the necessity for cyber resilience and security. 3.2 Effective and inclusive practice and engagement with students and partners: Plans, develops and uses a range of learning, teaching and assessment strategies to meet the different needs and learning preferences of students. 3.3 Creates innovative curriculum design and learning and teaching: Adopts creative approaches to the embedding of appropriate digital technologies for effective planning, delivery and assessment of learning.

Jisc: Building digital capabilities mapping	Digital learning: The capacity to participate in and benefit from digital learning opportunities; to identify and use digital learning resources; to participate in learning dialogues via digital media; to use learning apps and services (personal or organisational); 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 monitor own progress: to participate in digital assessment and receive digital feedback; to manage own time and tasks, attention and motivation to learn in digital settings. Digital wellbeing: The capacity to look after personal health, safety, relationships and work-life balance in digital settings; to use digital tools in pursuit of personal goals (e.g. health and fitness) and to participate in social and community activities; to act safely and responsibly in digital environments; to negotiate and resolve conflict; to manage digital workload, overload and distraction; to act with concern for the human and natural environment when using digital tools. An understanding of the benefits and risks of digital participation in relation to health and wellbeing outcomes.

Session 3 YouTube	Content · Creating, editing, embedding, sharing channels and playlists. · Creating cards and captioning · Digital well-being

2018 College Professional Standards mapping	2.2 Learning, teaching and assessment theory and approaches: Understands how to embed a range of digital technologies to enhance learning and teaching and assessment. Understands how to encourage students to work in partnership and collaborate in their own learning and the enhancement/ development of learning. 2.3 Technologies and resources for learning, teaching and work: Understands how to embed appropriate digital technology. Understands the safe use of technology and the necessity for cyber resilience and security. 3.3 Creates innovative curriculum design and learning and teaching: Adopts creative approaches to the embedding of appropriate digital technologies for effective planning, delivery and assessment of learning.
Jisc: Building digital capabilities mapping	Digital creation: The capacity to design and/or create new digital artefacts and materials such as digital writing; digital imaging; digital audio and video, digital code, apps and interfaces, web pages. Digital wellbeing: The capacity to look after personal health, safety, relationships and work-life balance in digital settings; to use digital tools in pursuit of personal goals (e.g. health and fitness) and to participate in social and community activities; to act safely and responsibly in digital environments; to negotiate and resolve conflict; to manage digital workload, overload and distraction; to act with concern for the human and natural environment when using digital tools. An understanding of the benefits and risks of digital participation in relation to health and wellbeing outcomes.

Session 4 On-line collaboration	Content ● Online forums ● Remote team working via Trello and associated tools ● Google Education ● Digital well-being
2018 College Professional Standards mapping	3.2 Effective and inclusive practice and engagement with students and partners: Collaborates and works in partnership with others to ensure that all guidance, advice and support sustains learning and maintains the positive health and wellbeing and safety of all students. 3.5 Critical reflective and collaborative practice in learning and teaching: Facilitates and engages in the use of local and global digital learning communities to enhance opportunities for collaborative practice.

Jisc: Building digital capabilities mapping	Digital innovation: The capacity to adopt and develop new practices with digital technology in different settings (personal and organisational; social and work-based); to use digital technologies in developing new ideas, projects and opportunities.
	Digital collaboration: The capacity to participate in digital teams and working groups; to collaborate effectively using shared digital tools and media; to produce shared materials; to use shared productivity tools; to work effectively across cultural, social and linguistic boundaries. An understanding of the features of different digital tools for collaboration, and of the varieties of cultural and other norms for working together.
	Digital wellbeing: The capacity to look after personal health, safety, relationships and work-life balance in digital settings; to use digital tools in pursuit of personal goals (e.g. health and fitness) and to participate in social and community activities; to act safely and responsibly in digital environments; to negotiate and resolve conflict; to manage digital workload, overload and distraction; to act with concern for the human and natural environment when using digital tools. An understanding of the benefits and risks of digital participation in relation to health and wellbeing outcomes.

Session 5 Webinars	Content • Structure • Engagement • Webinar tools e.g. Zoom, Loom, Google Hangouts • Digital well-being

2018 College Professional Standards mapping	2.2 Learning, teaching and assessment theory and approaches: Understands how to embed a range of digital technologies to enhance learning and teaching and assessment. 2.3 Technologies and resources for learning, teaching and work: Understands how to embed appropriate digital technology. 3.3 Creates innovative curriculum design and learning and teaching: Adopts creative approaches to the embedding of appropriate digital technologies for effective planning, delivery and assessment of learning. 3.4 Effective application of digital technologies to learning, life and work: Promotes and supports the safe and respectful use of digital technologies and the impact on others.
Jisc: Building digital capabilities mapping	Digital communication: The capacity to communicate effectively in digital media and spaces such as text-based forums, online video and audio, and social media; to design digital communications for different purposes and audiences; to respect others in public communications; to maintain privacy in private communications; to identify and deal with false or damaging digital communications. Digital wellbeing: The capacity to look after personal health, safety, relationships and work-life balance in digital settings; to use digital tools in pursuit of personal goals (e.g. health and fitness) and to participate in social and community activities; to act safely and responsibly in digital environments; to negotiate and resolve conflict; to manage digital workload, overload and distraction; to act with concern for the human and natural environment when using digital tools. An understanding of the benefits and risks of digital participation in relation to health and wellbeing outcomes.

Session 6 Curation	Content ● Google Keep ● Google Sites ● Scoopit ● Pinterest ● Padlet ● Digital well-being
2018 College Professional Standards mapping	2.2 Learning, teaching and assessment theory and approaches: Understands how to embed a range of digital technologies to enhance learning and teaching and assessment. 2.3 Technologies and resources for learning, teaching and work: Understands how to embed appropriate digital technology. Understands the safe use of technology and the necessity for cyber resilience and security. 3.3 Creates innovative curriculum design and learning and teaching: Adopts creative approaches to the embedding of appropriate digital technologies for effective planning, delivery and assessment of learning.

Jisc: Building digital capabilities mapping	Information literacy: The capacity to find, evaluate, manage, curate, organise and share digital information. The capacity to interpret digital information for academic and professional/vocational purposes, and to review, analyse and re-present digital information in different settings. A critical approach to evaluating information in terms of its provenance, relevance, value and credibility. Digital wellbeing: The capacity to look after personal health, safety, relationships and work-life balance in digital settings; to use digital tools in pursuit of personal goals (e.g. health and fitness) and to participate in social and community activities; to act safely and responsibly in digital environments; to negotiate and resolve conflict; to manage digital workload, overload and distraction; to act with concern for the human and natural environment when using digital tools. An understanding of the benefits and risks of digital participation in relation to health and wellbeing outcomes.

Session 7 Developing Students' Digital Literacy	Content ● Diagnostic tools ● Screencasting ● Screenshots ● Demos ● Glossaries ● Digital well-being

2018 College Professional Standards mapping	3.1 Ongoing professional learning: Engages with technology and digital literacies to enhance opportunities for collaborative practice and professional learning. 3.4 Effective application of digital technologies to learning, life and work: Promotes and supports the safe and respectful use of digital technologies and the impact on others.
Jisc: Building digital capabilities mapping	Digital teaching: The capacity to support and develop others in digitally-rich settings, to teach, to work in a teaching or curriculum team, to design learning opportunities, to support and facilitate learning, to be proactive in peer learning, all while making effective use of the available digital tools and resources. An understanding of the educational value of different media for teaching, learning and assessment; an understanding of different educational approaches and their application in digitally-rich settings. Digital wellbeing: The capacity to look after personal health, safety, relationships and work-life balance in digital settings; to use digital tools in pursuit of personal goals (e.g. health and fitness) and to participate in social and community activities; to act safely and responsibly in digital environments; to negotiate and resolve conflict; to manage digital workload, overload and distraction; to act with concern for the human and natural environment when using digital tools. An understanding of the benefits and risks of digital participation in relation to health and wellbeing outcomes.

Session 8 The law - Licencing, Accessibility and data	Content ● Image and video copyright ● 2018 public sector accessibility legislation ● Accessible addons for Google Tools e.g. Translator, Google slides live captioning ● Digital well-being ● GDPR privacy and data protection what you need to know as an Educator
2018 College Professional Standards mapping	1.1 Students at the centre: Commits to the safety and wellbeing of all students. 3.4 Effective application of digital technologies to learning, life and work: Engages with, and evaluates critically, the use of technologies and their impact on meeting student needs, and supporting learning, teaching and assessment. Promotes and facilitates wider access to learning and teaching and assessment through the effective application of digital technologies.
Jisc: Building digital capabilities mapping	ICT productivity: The use of ICT-based tools to carry out tasks effectively, productively, and with attention to quality. The capacity to choose devices, applications, software and systems relevant to different tasks, having assessed their benefits and constraints; to adopt and where necessary adapt digital tools to personal requirements such as accessibility. Information literacy: The capacity to find, evaluate, manage, curate, organise and share digital information. An understanding of the rules of copyright and open alternatives e.g. creative commons; the ability to reference digital works appropriately in different contexts.

Endnotes

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Authors : Joe Wilson, Fiona Balloch, City of Glasgow College

Date: 6/12/2018

About : Joe Wilson

Joe Wilson is a UK and international education consultant and the former Chief Executive of the College Development Network. His work mainly focuses on College and work-based education and its structures and practices. He is the former UK Ambassador for the Association of Learning Technology and currently Co-Chair of ALT in Scotland, a board member of Youth Link Scotland and Kelvin College Glasgow and has held a number of public appointments in Scotland over the last 20 years mainly in areas around adult and community education and learning technology. He was previously a school teacher, an adult education tutor, a college lecturer and a senior manager in a number of Scottish Colleges before working for a number of national agencies and non-departmental public bodies.

He has an ongoing interest in Open Education and was one of the co-developers of the Open Scotland Declaration. As Head of New Ventures at the Scottish Qualifications Authority, he secured a public statement of recognition in Scotland for Open Badges as a valid means to recognise achievement in formal and informal learning. Through his consultancy, he remains an active evangelist for open educational practice. He is currently engaged by City of Glasgow College.

www.joewilsons.net