Digital Fluidity Across the Energy Sector

Workshop Report
Summer 2022

Cross-Industry Learning

NDA

OEUK OFFSHORE ENERGIES UK

Contents

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Introduction

Digital fluidity describes the base digital competence and capability required by anyone working in a modern economy to perform their role efficiently and effectively, whether it be in the use of digital tools and devices in day-to-day work, setting digital strategy, or working in a fully digital role.

The Energy Sector has identified a challenge in measuring the level of digital fluidity within their workforce, and in designing the interventions that are appropriate and welcomed in closing any gaps that emerge. This digital fluidity challenge exists across multiple sectors. Net Zero and decommissioning opportunities are driving an ongoing requirement for clarity and competence in digital skills. Solutions are being worked upon independently in multiple forums. This presents an opportunity to collaborate on the common areas to allow a cross-sector view to be obtained. This will then permit a common solution to be jointly progressed and established.

Digital fluidity is an enabler for business agility that allows continual change to be embraced and turned into a competitive advantage. In this workshop report it is used to refer to digital skills within a workforce and how these are defined, measured, and managed.

Working collaboratively across sectors in this way is more efficient and provides additional tangible benefits such as use of a common terminology, common digital needs assessment and facilitating sector workforce mobility.

This engagement focused on civil nuclear, offshore and onshore energy generation and storage. It was designed to be applicable to both reskilling of current workforces as well as workforces transitioning to new opportunities. Relevant learning from other ongoing programmes was included to reduce duplication of effort and to allow others to take on board learning from different areas.

The requirements and deliverables for ongoing collaboration was front and centre of the required output of the discussion which ensured that sector views on digital needs assessment, common terminology for digital skills, digital literacy and digital expertise, could be incorporated.

1 Cross-industry learning: Sharing Good Practice Across Industrial Sectors

At the NDA, we've been working with Offshore Energies UK (formerly OGUK), the North Sea Transition Authority (NSTA, formerly the Oil & Gas Authority), the Environment Agency, the National Nuclear Laboratory, Defence and Renewables, to organise a series of workshops and seminars to stimulate cross-industry learning.

This collaborative working was initiated in early 2018 when the NDA recognised that it was too inwardly focused on its own mission and lacked an outward leaning posture from a learning perspective.

Initially, a number of shared common themes were identified between the NDA and the offshore energy industry which were the topics of some early round table events and workshops. Over time, several themes of common interest have been identified from a wider decommissioning industry perspective. New themes are now commissioned via our Cross-Industry Steering Group in response to when multiple industries are keen to collaborate on a specific topic for mutual benefit.

The organised cross-industry engagements have been designed to bring together not just different industries, but also a cross-section of organisations from within each industry.

Workshops and seminars have comprised relatively small, hand-picked, invited-only participation, strongly facilitated and conducted under the Chatham House rule to encourage openness. Throughout these events we have witnessed a continued drive and determination to share decommissioning lessons learned and good practice.

Going forward we will continue to aid the discussion and identification of cross-industry themes of common interest, as well as encouraging collaborative projects.

We believe that different industries have much in common when it comes to decommissioning, and that we all stand to benefit from cross-industry sharing of expertise and learning.

We connect; we share; we learn

2 Executive Summary

Operating under Chatham House Rule this collaborative engagement on digital fluidity brought together nuclear, energy, and educational establishments to share best practice and forward strategies.

Preparations for the workshop had highlighted the similarities in the digital fluidity challenge across different sectors and all participants were keen to understand the challenge from different sector viewpoints. Timing for this workshop coincided with the development of several different strategies across the energy sector. A sharing of these strategies and forward directions of travel reinforced the areas of similarity and revealed areas of most importance. The resonating theme was that the digital fluidity challenge was not unique to a specific sector and there were many opportunities to work together to allow cohesive and connected strategies to be defined. Importantly, there was the desire to be more efficient by working together. The benefit of ensuring transferability across the whole sector was seen as a particularly strong advantage of such working.

Speaker presentations gave a thorough and rich overview of the "as is" position. They reflected the group's aspirations to work more collaboratively and provided participants with a rich amount of information that was utilised to fully input into the discussion groups. These targeted discussion groups enabled current shared areas of interest to be highlighted and the identification of potential additional areas for further cross-industry collaborations. They centred around:

- How do you assess your organisation's digital needs?
- How do you ensure that your workforce has the correct digital skills?
- How do you ensure digital skills are transferable so that it is applicable to different industries?
- How do you maintain the digital skills pipeline whilst promoting and ensuring diversity in digital?

Key learning points were extracted from these discussions. Somewhat surprisingly in that what could be considered a very technical area, fundamental learning centred around the basics such as terminology. It became clear that terminology was important, and it was acknowledged that there was not a standard definition of common items. This was seen as a potential blocker not just in working across the sector but even within a single organisation.

Digital fluidity was consistently referenced as a key enabler for Energy Transition which is a focal area for many sectors. A possible advantage of this relationship is that continued support for digital fluidity should be acknowledged as vital. Linked to this is the understanding that the quality and applicability of data and use of digital skills must be acknowledged as critical to a step-change in performance within an organisation. This can be forgotten as data and digital are sometimes taken as a given.

Similarly, an organisation must be able to assess its digital needs such that priority can be given to ensuring that a workforce has the skills for digital and digital skills needed for it to be competitive. The ability to define, maintain and manage an organisation's digital skills was paramount and teamed with this is the tacit knowledge that digital skills must be seen as a key lifelong skill, hence the transferability of such skills must also be a given. Such behaviour around digital skills will automatically aid in the promotion of the desire to maintain the digital skills pipeline.

Participants defined success for this workshop as a tangible output consisting of clarity and agreement on arrangements for an ongoing multi-sector collaboration. This was to include agreement on areas where there are opportunities for collaborations and agreement on areas where there are not opportunities. Participants utilised what they had heard and learnt in the workshop to define the following four areas to take forward:

1. Executive Education – providing leaders the capability and confidence to set their organisation's digital direction.
2. Community – a unique, cohesive community to progress the digital fluidity challenge across industries.
3. Academic opportunity – greater integration of universities into industry thinking and working.
4. Assessment of organisations' digital capability – identification of a common approach.

3 Nuclear sector context

Within the NDA it is believed that digital transformation is the future of asset management. Development of the strategy will drive estate-wide improvements for asset management in a digital world and will deliver digital outcomes that are aligned to NDA strategic vision and goals.

NDA's digital transformation roadmap has recommended a range of actions which are focused on:

- **Organisational & people** – Culture, capability, leadership, structure, and supply chain.
- **Strategy & planning** – Strategic asset management plans.
- **Risk & review** – Asset health and performance, risk management, assurance, change.
- **Asset decision-making** – Investment decisions, lifecycle value, resourcing, and shutdowns.
- **Lifecycle delivery** – Asset creation, operation and maintenance, faults, and disposal.
- **Asset Information** – Asset information strategy, standards, systems and data management.

Organisational & people: Culture, capability, leadership, structure, and supply chain.

Core to the success of the digital strategy is the organisational and people component. It is a key part of the ongoing discussions between EDF Energy and NDA concerning the transition of the Advanced Gas-cooled Reactor (AGR) fleet to the NDA.

Within the digital strategy a number of opportunities for synergies have been identified and these provide initial areas to share and discuss with other sectors.

Identify pockets of digital excellence from others to learn from and consistently apply them across the NDA and its Operating Companies (OpCos)

Minimise duplication of effort when the same or similar digital challenges exist across the NDA and OpCos

Share resources in trialling, adopting and embedding new digital approaches and technology

Standardise data, information, processes, and systems to enhance collaboration, knowledge sharing and reporting

Improve communication around the digital vision and digital goals that are common across the NDA and OpCos

3 Nuclear sector context

The NDA Group Digital Vision and Strategy is captured pictorially on a single page. The most important elements are intrinsically interdependent with each other and produce a powerfully effective strategy. In the image the themes of governance, people & culture, process, technology, and information & data are highlighted. These themes are not nuclear specific. The vision also resonates with the knowledge that although a challenging topic, the benefit that can be realised from success will have positive implications across all aspects of the organisation.

NDA Group Digital Vision & Strategy

Digital Strategic Objectives

We have an unprecedented chance to change our culture...

...a culture where change is celebrated & promoted

Governance	People & Culture	Process	Technology	Information & Data
Strategically aligned, requirements & benefits-led decision making	Mobilised and upskilled workforce with new, easier ways of working	Automated and standardised processes using common approaches	Pursuit of modernised technology with reduced barriers to innovation	Structured, easily accessible data to enhance decision making

Sellafield Ltd

Magnox

Dounreay

NTS Nuclear Transport Solutions

Nuclear Waste Services

NDA

Unstructured data

Structured data

Digital Principles

- *Active estate-wide value*
- *Collaborative*
- *Get ahead*
- *Data & intelligence driven*
- *Opportunity & outcome based*
- *Keep it simple*
- *Educate, educate, educate*
- *Remove silos*
- *Trust*

MODERNISE · JOIN UP · SIMPLIFY

Review & develop in 3-month cycles

Benefits lead business change, iterating towards the group digital operating model

Sellafield · Magnox Dounreay · NTS · NWS · NDA Corporate Centre

Mission: Transform how NDA Group delivers

Resilient · Efficient · Digitally upskilled

Aligned to wider NDA Group strategy

Leadership is driving the convergence

Our design principles ensure we will work in a common aligned way, identifying commonality & wider business benefits

Culture change

Balancing each organisation's autonomy while becoming digitally aligned

Digitally enabled workforce

Flexible workforce

Group Leadership Team

Quick & effective data-driven decision making

Knowledge transfer & upskilling

Natural language

Self Service

Store, share & access

VR

Virtual training

Robotics

New ways to engage stakeholders & customers

Regulators

Customers & supply chain

Asset managers

Operators

Reduced risk, increased safety

Remote access to data through dashboards

Share learnings & collaborate

New customer platforms & products

Digital asset management

Digitalising our workflows

Operational technology

Digital twins

Simulate scenarios

AI

Analytics

Re-imagined operations & processes

Safe and cyber-secure

Scriberia

4 Offshore & Onshore Energy context

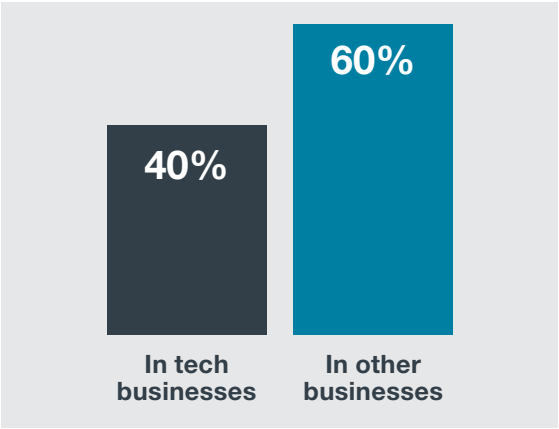
In the offshore and onshore energy sector, digital and data strategy is being developed with a particular focus on:

- **Minimising the environmental footprint of ongoing oil and gas exploration and production activity**
- **Supporting the movement of the workforce between oil and gas, wind, and other energy and construction sectors**
- **Measuring and meeting sectoral goals for Net Zero by 2045/2050**
- **Developing digital leadership capability in the sector to deliver the above**

Focusing on cross data digitalisation and skills leadership, particularly in sharing data across the energy sector is seen as paramount to success. There is a desire to link with further sectors including nuclear. It is recognised that these challenges are not unique to a specific sector; they are applicable to all sectors and hence mechanisms need to open up for exploiting opportunities.

There is a particular focus on the digital technology landscape within Scotland and a recognition that it is necessary to digitally enable the Scottish workforce and in doing so fully exploit their available potential.

Digital Tech Sector in Scotland



1
Tech is one of fastest growing sectors in Scotland.

3x
Tech businesses are growing 3x faster than all businesses.

100,000
Around 100,000 people work in digital technology roles.

13,000
Scotland needs an additional 13,000 new tech professionals every year.

Demand for tech skills outstrips supply

5,200
Computing Science Graduates every year businesses

13,000
Technology job opportunities every year

Enabling the Scottish workforce includes provision of support across all stages of the employee lifecycle as well as provision of continuing digital development and upskilling. As part of this the question of training and certification including evidence-based acceptance of training in digital skills is required.

Within Scotland an evidence based, forward looking Digital Economy Skills Action Plan (DESAP) is being developed and this will:

- Collate and analyse the evidence base about supply and demand for digital technology skills
- Describe the contribution that digital technology skills can make to Scotland's economy
- Identify the strengths, challenges, and skills gaps in the Scottish technology skills ecosystem
- Describe how success will be measured and monitored from the current baseline

It is acknowledged that this work, although focused on Scotland, has applicability across the UK and across other sectors. It serves as a useful case study on possible progression areas.

5 Approach, Participants & Agenda

Approach

This was to be one of the first face-to-face events held following over two years of online meetings due to the pandemic, but with the inclusion of a dial-in Teams option. This engagement was hosted by the National Decommissioning Centre (NDC) in Newburgh, north of Aberdeen. The NDC is a unique facility, co-funded by the University of Aberdeen and the Net Zero Technology Centre (NZTC) as part of the Aberdeen City and Region Deal. The aim of the NDC is to undertake fundamental research and development work to assist in cost reduction and safe, environmentally responsible, and sustainable decommissioning.

The topic of this workshop complements the NDA's[1] ongoing work under the strategic theme of Critical Enablers: "Delivery of our mission is only possible through a stable and effective operating environment", particularly 8.7 Asset management, 8.6 People and 8.8 Supply Chain.

Participants

- Bath University
- DSRL Ltd
- EDF Energy
- EnergyREV
- Energy Transition Zone Ltd (ETZ)
- Jacobs
- Magnox Ltd
- National Decommissioning Centre (NDC)
- National Nuclear Laboratory (NNL)
- National Skills Academy Nuclear (NSAN)
- Net Zero Technology Centre (NZTC)
- North Sea Transition Authority (NSTA)
- Nuclear Decommissioning Authority (NDA)
- Offshore Energies UK (OEUK)
- Offshore Petroleum Industry Training Organisation (OPITO)
- Robert Gordon University (RGU)
- Sellafield Ltd
- Skills Development Scotland (SDS)
- TotalEnergies
- University of Aberdeen

[1] Nuclear Decommissioning Authority Strategy effective from March 2021 - GOV.UK (www.gov.uk)

Agenda

Welcome

Key note addresses: NDA, OEUK

Sector "As Is" Position

Summary presentations on current situation and direction of travel

- Nuclear Decommissioning Authority
- Offshore Energies UK
- Skills Development Scotland

Breakout Sessions facilitated by the NDA:

Topic 1: Assessing an organisation's digital needs

Topic 2: Ensuring that your workforce has the correct digital skills

Topic 3: Ensuring digital skills are transferable so that it is applicable to different industries

Topic 4: Maintaining the digital skills pipeline whilst promoting and ensuring diversity in digital.

Next Steps: Interactive session to identify commitments and follow up mechanisms

Closing remarks

Participant Feedback

6 Key Learning Highlights & Actions

The Energy Sector is an industry in action and Digital Fluidity has a key role to play in the Energy Transition.

The UK North Sea Transition Deal[2], the first by a G7 country, will accelerate the energy transition, reduce UK emissions, and create new jobs across the UK. The offshore energies industry is an industry in action, helping to:

- **Make Net Zero Happen** – In becoming a Net Zero basin it will contribute to the UK achieving its Net Zero targets.
- **Grow the economy, jobs, and places** – High skilled jobs will be sustained, and new energy businesses will be attracted to develop local regions. This will attract investment and positively impact exports.
- **Provide energy and industrial security** – The supply of the UK's oil and gas demand to 2050 and beyond will be provided, while ensuring operations are Net Zero.

Data & Digital are the next step-change in performance for the whole energy industry and one that we cannot ignore.

Attention needs to be on the entire ecosystem that brings multiple solutions together in pursuit of the real goals: increased value, efficiency, reliability, and the reduced emissions and transformational technologies that will enable Net Zero.

[2]The North Sea Transition Deal Offshore Energies UK (OEUK)

6 Key Learning Highlights & Actions

What does "Digital" mean? Digital terminology is an enabler for success.

A shared, standard definition of common digital terms is critical for success in managing digital skills both within an organisation and wider. Without this foundation in place, assumptions and understanding of the issue can be destructive and divergent with the outcome being a blocker not just in working across the sector but even within a single organisation.

Quality data is a business asset and needs to be managed as such.

Data is the most important value driver for digital, a priority for many organisations. 61% of companies surveyed have a Data Management Strategy, with only 49% stating data is well owned. UKCS Survey Data and Digital, survey response to the devolved administration policy towards new nuclear[3].

Digital Skills must be recognised as a key lifelong skill.

It is important that adults have the digital skills they need to participate fully in modern society and thrive in traditional non-digital roles[4].

An organisation must be able to assess its digital needs.

Many organisations attempt to do this, but it is not being done in a robust or consistent way and no framework for this assessment has yet been identified. This assessment does not need to be company/industry specific, and a standard framework would be beneficial. This assessment itself must cover the entire organisation from senior leaders down and support identification of skills needs at leadership level, in the general workforce, and in those working in digital roles. The benefits to the organisation arising from the assessment must be clear, and lead to actionable improvements.

Ensuring that a workforce has the correct digital skills is a priority.

The best workforces have the correct skills, and this includes digital skills. Digital must be thought about in the same way as traditional tool-competency and in a similar vein the prioritisation of digital skills required needs to be clear. HR has a key role in sustaining this by embedding digital requirements within job descriptions, role profiles and training programmes.

[3] UKCS Data Digital Maturity Survey - Report 2020 – Offshore Energies UK (OEUK)
[4] UK Digital Strategy – GOV.UK (www.gov.uk)

Digital skills must be transferable so that they are applicable to different industries.

In appealing to a wider workforce, the transferability of digital is advantageous. Recognition for skills already achieved must be in place along with clear definitions of “basic” and “advanced” skill levels, and acceptance of standardised accreditations across multiple industry sectors.

The digital skills pipeline must be maintained whilst promoting and ensuring diversity in digital.

Forward business strategies need to encompass the growth and expansion of digital skills while also maintaining required levels of competence. This challenge is common within all sectors and companies. There is an opportunity to work closely with ED&I colleagues to include diversity as a factor to be embedded within pipeline plans.

7 What Next?

The initial main areas of commonalities in digital fluidity across sectors are focused on identifying an organisation's digital needs; obtaining, maintaining, and demonstrating a digitally competent workforce; and enabling movement of digitally skilled people across industries.

Areas to take forward

1. **Executive Education** – This area requires a clear problem definition and business case that can be developed. It aims to provide to leaders the competence and confidence to set their organisation's digital direction, either independently, or through use of external support and consultancy. It will be possible to look for pockets of excellence and share such that there is clarity on "what good looks like". This needs to cover the whole supply chain and as such will need to fit with the style of organisation.
2. **Community** – There is a definite need for an ongoing, cross-industry forum where sharing, networking and questions are possible. Linked to this is an ability to store and share information such as case studies. Many networks and organisations already exist and an understanding of the remit and participation of these is needed. The requirement is for a cohesive community that will provide leverage to encourage larger organisations to share with us.
3. **Academic opportunity** – This is an area that is currently under-utilised. Universities are excellent at collaborating with industry and obtaining funding. By articulating clearly what we want there is an opportunity to integrate universities into industry thinking and working, particularly in addressing fundamental challenges of digital skill assessment and approaches to skill gap closure.
4. **Assessment of an organisation's digital capability** – This area exists as a common gap and presents a great opportunity for a common approach to be defined, likely benefiting from substantial, novel academic input and expertise.

Areas not to take forward

It is necessary to ensure no overlap or duplicate with existing forums/organisations. Any conversations need to be vendor agnostic.

Equality, diversity, and inclusion need to be embedded and considered in forward plans and embedded within defining principles.

8 Continuing to Share Good Practice Across Industrial Sectors

The backdrop for collaborative learning is fuelled by a desire to reduce decommissioning costs and improve the schedule of risk reduction. The UK government has challenged the nuclear sector to reduce the cost of decommissioning by 20% and the cost of oil and gas decommissioning by 35%. It is recognised that by working together we stand a better chance of delivering these savings. We will continue to facilitate cross-industry engagements and collaborative projects based on themes of common interest.

Shareable write-ups, post workshop webinars and other forms of dissemination have ensured the wider availability of learnings to those who could not be in the room, and this report adds to this body of material.

A back catalogue of reports can be found at **www.decomnorthsea.com/knowledge-hub/cross-industry-learning-nuclear-decommissioning-authority/**

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