THE SCOTTISH LIFE & CHEMICAL SCIENCES SKILLS SUMMIT

Building a Sector on Collaborative Foundations

SEPT 2023

The Scottish Life and Chemical Skills Summit was led and hosted by Edinburgh Napier University (ENU) with support from Skills Development Scotland (SDS) and the Scottish Universities Life Sciences Alliance (SULSA).

We would like to thank members of the steering group, the Life and Chemical Sciences (LCS) Skills Group and the SULSA Skills Committee for their support in developing the summit and for their engagement on the day.

This report is a summary of the outcomes from the summit which, through further collaboration, may inform future planning, investment and policy making in pursuit of the identified opportunities.

> *"We recognise that academic expertise doesn't always match the needs of industry but there are lots of examples of impactful collaboration. There is therefore immense opportunity to build on that to transform the life and chemical sciences skills arena. This summit is an important step in moving that collaboration on to support the sector's growth. Let's move beyond the challenges and focus on solutions."*
>
> Dr Claire Garden, Summit Organiser and Head of Teaching and Learning at the School of Applied Sciences, Edinburgh Napier University.

This report was produced by Helen Maguire (helenmaguire.com) and Claire Garden (ENU).

Table of Contents

Executive Summary

The first Scottish Life and Chemical Sciences Skills Summit was successfully led and hosted by Edinburgh Napier University (ENU) School of Applied Sciences with support from Scottish Universities Life Sciences Alliance (SULSA) and Skills Development Scotland (SDS) on Thursday 28th September 2023. A total of 80 representatives from industry, tertiary education, skills providers, and other key stakeholders, collectively addressed two priority areas previously identified by members of the Life and Chemical Sciences (LCS) Skills Group and the SULSA Skills Committee:

- The work readiness skills of new entrants
- Industry and tertiary education collaborative working

15 recommendations were identified through discussion:

Theme	Recommendation
Integration and Recognition of Wider Skills	*1. A centralised portfolio of tertiary education options and CPD with a mechanism for industry recognition through certification or accreditation.* *2. The introduction of a national life sciences skills passport programme.* *3. A single accessible GxP certified course delivered in partnership with industry.*
Competency Mapping and Review	*4. Secure the future of the Graduate Employability Masterclass - SULSA as a mechanism for university students to gain an understanding of relevant skills, and act as a mechanism to continue industry-tertiary collaboration.* *5. Raise awareness of existing National Occupational Standards (NOS), to enable the development and recognition of demand-led collaborative skills provision.*
Mentoring	*6. The creation of a formal industry-academic mentoring programme and/or improved signposting to existing relevant mentoring programmes.*
Development of Informed Applied Learning	*7. Create a catalogue of co-designed practical teaching scenarios that is accessible to the sector.*
Immersive and Virtual Learning	*8. The creation of a digital platform to host a library of resources accessible to all, which includes information on skills provision and access to virtual training.*
Developing Placement and Internship Opportunities	*9. A centralised log of sector specific placement, internship opportunities.* *10. A centralised bank of opportunities where college/university students have engaged in with industry e.g. joint projects to support sharing of best practice.*
Train the Trainer	*11. A centralised train the trainer programme bringing in opportunities from around the sector.*

Preparation for Recruitment	12. *A centralised bank of recruitment resources for both employers and new entrants.*
Co-Design of Tertiary Pathways	13. *Explore the opportunity to update the existing* Life & Chemical Sciences Workforce Development Portal, *expand the offering to capture the breadth of education provision, and increase awareness.* 14. *More formal links between industry with relevant tertiary providers to plan and deliver targeted, extended pathways encompassing colleges and universities.* 15. *Opportunities for knowledge exchange to leverage tertiary expertise in school and community engagement and widening access.*

These recommendations can be further grouped into two clear needs and solutions:

1. **The need to be more closely connected through a centralised umbrella skills organisation for the sector.** This organisation's role would be to focus collaboration between tertiary educators, industry and other supporting stakeholders such as SDS, to operationalise skills delivery and feed into skills and innovation policy. Further definition and mapping of skills provision was also called for, therefore joined-up leadership through a national organisation could link existing structures together to promote educational pathways and coordinate and consolidate access to skills provision. This would also facilitate:

   - Deeper sector-wide collaboration
   - Wider *cross-sector* collaboration

2. **The need for a sector skills platform for Scotland.** This would gather existing provision in a shared digital and physical warehouse or platform. This would provide the sector with:

   - Access and signposting to skills resources and programmes
   - Shared understanding and recognition of existing standards and competencies

Background to the Summit

The Life and Chemical Sciences sector in Scotland benefits from a highly skilled workforce, however there continue to be skills challenges.

The summit's purpose was to find ways to build upon already successful collaboration between stakeholders in the sector to solve the challenges faced by industry in ensuring both the existing workforce and new entrants are equipped to meet the evolving needs of the sector, and support projected growth.

The context was set by a range of key stakeholders and supporters of skills development in the Life and Chemical Sciences sector. Case studies highlighting effective cross-sector collaboration were shared (featured later in this report), and most importantly participants shared and discussed best practice and potential solutions to the sector's most pressing skills challenges. See Appendix A for the summit agenda and list of presenters.

A Sectoral Overview with Skills at the Heart

Scotland's life sciences sector is world leading and benefits from a highly skilled and internationally recognised workforce. [Scotland's National Strategy for Economic Transformation (NSET)](#) identifies both the bioeconomy and life sciences as sectors of major opportunity. The sector's role in achieving Scottish Government's ambitions of fair and green economic growth was presented by Mr Ivan McKee MSP. Mr McKee noted there are many parts to the jigsaw that need to be joined up such as the life sciences sector export plan, attracting foreign direct investment, streamlining procurement and exploiting innovation. Skills underpins and connects each of the strategies/thematic areas and, without individuals with the right skills, the sector's economic growth potential may not be realised.

Mr McKee also highlighted that soft infrastructure is important and funding should be directed to the right places.

Ivan McKee, MSP, Scottish Government

Sarah Hunt, Key Sector Manager, Life and Chemical Sciences, Skills Development Scotland outlined the sectoral skills landscape (see box 1).

Box 1: Snapshot of LCS Sector Workforce

The sector is on track to increase Life Sciences industry contribution to the Sottish economy of £8 billion by 2025[1] and currently contributes £3 million worth of exports as 2% of Scotland's total economy.

In 2022[2]:

- **24,600 people** were employed in the life and chemical sciences sector in Scotland

- **Productivity (GVA per job) in the sector was more than four times the Scottish average** £228,900 compared with £54,100

- **The sector benefits from a highly skilled workforce** 56% are educated to SCQF Level 7 and above, higher than the national average (53%)

Individuals in the sector are increasingly required to have multidisciplinary skills combining both scientific and non-scientific skill sets such as: meta skills; digital and data; automation, AI and robotics; quality control and regulatory; and commercial skills. These skills needs are in part are being met by industry, academia and public sector collaborative initiatives such as the Graduate Employability Masterclasses and the Advanced Therapies Apprenticeship Community in addition to the wide range of provision available from the apprenticeship family through to college and university level. The online resource My World of Work meets a continuing need to raise awareness of career options beyond solely working in a laboratory environment.

Furthermore, there are many of examples of clusters of activities and investment opportunities throughout Scotland. For example the University of the Highlands and Islands Inverness Campus, with a £9.5m investment in the Life Sciences Innovation Centre, officially opened in April 2023. This centre provides dedicated space including access to high-tech research equipment and laboratory conditions for industry and academia to work in collaboration on innovative life science projects.

---

[1] Life Sciences Strategy for Scotland 2025 Vision
[2] Sectoral Skills Assessment - Life and Chemical Sciences 2022

Summit Key Outcomes

It is widely recognised that the sector plays a significant role in Scotland's economy, and whilst it faces key challenges, there are many solutions taking place in practice - the clear theme of the day's discussion - with an abundance of evidence highlighted throughout this report. However, it is evident that this is happening in silos, pinpointing the need to be brought together and shared. There needs to be sector-wide coordination and engagement, this summit has demonstrated the willingness and appetite to do that.

There were two clear outcomes from the summit which together would fulfil the 15 recommendations identified in the summit's workshop discussion summary (pages 6 -14):

1. The need to be more closely connected through a centralised umbrella skills organisation for the sector. This organisation's role would be to bring together all stakeholders in the sector to facilitate collaboration to drive innovation and operationalise the delivery of skills identified at a strategic level. Further definition and mapping of skills provision was also called for, therefore joined-up leadership through a national organisation could link existing structures together to promote educational pathways and coordinate and consolidate access to skills provision. This organisation would facilitate:

o **Deeper sector-wide collaboration**: there is an appetite for further facilitated, targeted action planning focussed on specific skills interventions. Some are already happening and hidden (for example GxP), others are more difficult to solve, therefore 'do more collaboration' was the clear message at the end of the summit.

o **Wider *cross-sector* collaboration:** deliberate and facilitated cross sector (digital, sustainability, engineering, entrepreneurship) working is needed to solve the more difficult aspects and challenges.

2. The need for a LCS sector skills platform for Scotland. This is the solution to the clear ask for gathering existing provision in a shared digital and physical warehouse or platform with resourced leadership and administrative roles. This would provide the sector with:

o **Access to skills resources and programmes** through virtual resources hosted on a digital platform, and connecting the landscape through signposting to those that exist elsewhere.

o **Shared understanding and recognition of standards and competencies.** A need was highlighted for wider understanding and sharing of agreed competencies such as those contained within the National Occupational Standards (NOS), plus pathways and certification mechanisms for each skill.

A more detailed vision for both the umbrella organisation and skills platform can be found in the section "Two collaborative solutions" (pages 15-16).

Workshop Sessions – Opportunities and Solutions

The following section outlines the opportunities and solutions that were discussed by the summit participants during two workshop sessions. The first workshop explored how to improve workplace entrant readiness skills. The second was focussed on opportunities for academic and industry collaboration. It was evident throughout both sessions that these topics are interconnected with the theme of sector-wide collaboration running through every area explored.

There were three main skills themes discussed with recommendations and examples of best practice shared:

A. Widening the workplace entrant skillset
B. Improving applied learning and recruitment readiness
C. Improving pathways

> *"Let's join up our activities to make them more powerful."*
>
> *"We have got it all; we now need to make sure we take advantage of it."*

A. Skills Theme 1: Widening the New Entrant Skillset

A prominent theme of discussion was the widening of the range of skills in those entering the workplace. It was noted that a shift to more skills and behaviour-focused outcomes at Higher Educational Institute (HEI) level over a knowledge-based outcomes would be welcomed by the sector.

Significant focus was placed on the importance of equipping entrants with meta skills, for example, a range of writing skills from emails and reports to Standard Operating Procedures (SoPs), and those from other disciplines such as business, sales, project management and interdisciplinary team working. It was noted that there can be a language difference between industry job advertisements and that used in education, and that "soft skills" are often not recognised by students as highly valued by employers.

The need for wider data, analytics and digital skills tailored to life sciences was highlighted. With advancements in precision medicine and health data, employers are finding that

students are either science *or* IT qualified, and it is difficult to find candidates with both skill sets. It was noted that more emphasis on quality assurance and control would give more confidence to industry, and sustainability is another area in which skills are in high demand.

Due to the pace of change and innovation the need for flexibility in the curricula was discussed. The challenge of this was acknowledged but it was agreed that closer industry collaboration would help support a more agile approach.

Dr Claire Garden, Associate Professor at Edinburgh Napier University

Identified Solutions

Integration and Recognition of Wider Skills

Integrating different disciplines into learning within the tertiary providers themselves, for example business, computing, sustainability, data and digital skills was identified as one solution e.g. through a combined bioscience and business development degree delivered with industry partners. Alternatively, shorter courses were suggested as an alternative to a master's degree.

Many of these solutions already exist but are not widely known in the sector so it is a case of creating awareness of shorter specialised courses and units, and improving certification and recognition. Inter-sector discussions and events also provide the opportunity to learn.

Students should be given the opportunity to reflect on a wide range of skills they have gained and to realise all the opportunities available to them to become the 'complete graduate.' Often these skills are hidden in the curriculum, therefore recognition through accreditation and other forms of certification can help formalise this.   A skills passport is one idea which has already been developed and shared by Edinburgh Napier University, with Glasgow Caledonian University having a similar approach.

In addition, better training on Good Clinical Practice (GCP), Good Manufacturing Practice (GMP) and Good Laboratory Practice (GLP) was suggested, with a certificate of completion for GxP courses and the possibility of delivering an MSc module on quality control and pharma science, which could also stand alone.

Recommendations:

1. *A centralised portfolio of tertiary education options and CPD with a mechanism for industry recognition through certification or accreditation.*
2. *The introduction of a national life sciences skills passport programme.*
3. *A single accessible GxP certified course delivered in partnership with industry.*

Competency Mapping and Review

Many universities and colleges already place a high importance on understanding the skills needed within industry to ensure a better balance between academic and practical learning. However, the need for further and ongoing national, centralised mapping and collaborative delivery of industry-relevant skills and competencies was identified. There is also the opportunity to work with a range of stakeholders: SQA, LCS Skills Group, innovation centres and others. On the other side it was suggested that industry could carry out and share more workforce profiling.

Recommendations:

4. *Secure the future of the* [Graduate Employability Masterclass - SULSA](#) *as a mechanism for university students to gain an understanding of relevant skills, and act as a mechanism to continue industry-tertiary collaboration.*
5. *Raise awareness of existing National Occupational Standards (NOS), to enable the development and recognition of demand-led collaborative skills provision.*

Mentoring

Both industry and educators highlighted the benefits of mentoring and the need to develop this in the sector. Realising that everyone brings something different, the practice of inter generation, near peer, and reverse mentoring approaches are valued as ways to help develop meta skills as well as emerging disciplines. The opportunity to formally share mentoring initiatives between organisations and build clusters of industry skills for education development was welcomed.

Recommendation:

6. *The creation of a formal industry-academic mentoring programme and/or improved signposting to existing relevant mentoring programmes.*

Case Study: Industry-Led Skills Provision Across the Tertiary Education Sector in Scotland

The Scottish Universities Life Sciences Alliance (SULSA) has facilitated the co-design and co-delivery of demand-led training at a national level for over 3 years, in response to the need to increase talent flow into the skills pipeline to meet growth targets for the sector. SULSA coordinated multiple projects, all of which were co-designed with industry and educators, with delivery supported by colleges, universities and industry partners. Over 3 years SULSA has upskilled over 3,000 learners through the National Transition Training Fund (NTTF), Advanced Therapies Skills Training Network (ATSTN) and the Graduate Employability Masterclasses (GEM). These programs have contributed to the economy through job creation (attendees moving into roles with the sector) and product creation (development and implementation of new training packages into curricula).

Advanced Therapies Skills Training Network (funded by UK Government through Innovate UK and the Cell and Gene Therapy Catapult)

- Practical training delivered as 1 of 4 UK hubs
- Course co-designed with industry and educators
- Delivered by colleges, universities and industry partners
- Subjects covered:
    - Understanding of GLP/GMP practice
    - Gowning and housekeeping
    - Environmental monitoring
    - Preparing reagents
    - End to end bioprocessing
- 221 attendees across 22 courses in 2 years
- 66% attending from university, 24% from a further education college
- 89% participants said they are more likely to apply for roles within the sector

National Transition Training Fund (funded by Scottish Government through Scottish Funding Council)

- Delivered similar model to ATSTN but with a wider spread across life sciences sub-sectors and skills taught.
- Increased visibility of careers in the sector through careers events.
- 600 participants across 13 courses and 3 life sciences careers events.
- 84% participants more likely to apply to the life sciences sector.
- 20 job offers, 70 applications (data from survey of 100 responses immediately after project completion).

- Virtual Reality Cell Culture Training Module co-designed with Merck to demonstrate industry-level GLP/GMP as it would be in the workplace.
- Through SULSA this immersive technology is being made available across 12 Universities in Scotland for implementation into curriculum and a collaborative pedagogy research project is underway.
- (Full Report Available)

Graduate Employability Masterclasses (Unfunded)

- Industry taught masterclasses comprising 6 modules taking the participants through the industry lifecycle to increase awareness of the life sciences companies in Scotland and the roles within them.
- 5 masterclasses delivered in-person across 4 regional cohorts (Greater Glasgow, Tayside, North Grampian, Lothians) and 1 delivered online (including students from Inverness).
- Established in 2014 by Kevin Moore and Ronnie Palin (SDS). SULSA has coordinated the life sciences masterclasses and ScotCHEM the chemistry masterclasses since 2020.
- 25 companies engage per year with 12 universities to upskill >600 students.
- Since 2020 over 50 companies have contributed upskilling >1800 students.

Graduate Employability Masterclasses 2022-23
Industry-led masterclasses for Undergraduate and Postgraduate Students Across Scotland

The success of these projects has demonstrated what is possible across our sector in Scotland: the willingness to collaborate across industry and educators, and what can be possible when a collaborative approach is resourced. Short courses have been shown to be effective to respond to immediate demand for specific skills and the legacy of these courses with the integration into curricula.

Skills Theme 2: Improving Applied Learning and Workplace Readiness

A key theme highlighted was to include more real-life, applied scenarios in learning, particularly at university level, so that graduates are better prepared for employment. With capacity and resources being limited it was agreed that virtual reality (VR) and other immersive learning scenarios can be exploited as a solution.

There was also a call for more practical opportunities for students such as placements and internships, and funding for these especially in relation to SMEs. Industry guest lecturers and industry information sessions are working well in practice across colleges and universities and should be adopted as best practice.

Identified Solutions

Development of Informed Applied Learning

Deeper collaboration and partnership between tertiary education and industry will help to develop practical work in university and colleges to be more like industry, working together to define curricula and train staff.

> **Recommendation:**
>
> *7. Create a catalogue of co-designed practical teaching scenarios that is accessible to the sector.*

Immersive & Virtual Learning

It was agreed that simulation is a good opportunity to teach and give access to meta and other skills and otherwise inaccessible specialist spaces and expertise across the sector. It was acknowledged that this should not replace core science and practical skills like pipetting, however virtual reality and simulation have the potential to give learners access to authentic training experiences previously unavailable to them.

> **Recommendation:**
>
> *8. The creation of a digital platform to host a library of resources accessible to all, which includes information on skills provision and access to virtual training.*

Developing Placement and Internship Opportunities

A wider programme of internships and placements of different durations including summer school and site visits would fulfil different practical requirements. The use of technology for

virtual placements would make these more accessible and again mentoring was raised as a positive solution.

> **Recommendations:**
>
> *9. A centralised log of sector specific placement, internship opportunities.*
> *10. A centralised bank of opportunities where college/university students have engaged in with industry e.g. joint projects to support sharing of best practice.*

Train the Trainer

It was recognised there is need for staff development in their roles as innovators of curricula: linking colleges and universities to local employers for their own STEM skills development, and that this would have a bigger impact on students and improve sustainability of provision. There was an appetite to develop staff industry awareness and a course designed by Roslin CT was given as an example that could be made available for lecturers. Learnings and opportunities can be taken from existing programmes such as the SSERC programme for science.

> **Recommendation:**
>
> *11. A centralised train the trainer programme bringing in opportunities from around the sector.*

Preparation for Recruitment

There was a call to make the recruiting process easier for candidates from the wording of job adverts to having a bank of interview questions and competencies that students can prepare with. It was recognised that the challenge is greater for SMEs that don't have the in-house recruitment expertise.

> **Recommendation:**
>
> *12. A centralised bank of recruitment resources for both employers and new entrants.*

Case Study: Growing your own Pathway by Fife College

In 2009 Fife College established the School of Health Science and Technology (SHST) with a vision to use collaboration with employers and educators to grow pathways to enable a sustainable laboratory workforce for the future. Over 150 life science apprentices have trained through the SHST in a range of different courses.

SHST partnered with a network of organisations to look at the career pathways and develop solutions to identified needs of both employers and learners:

- University of Edinburgh
- University of St Andrews
- Moredun Research Institute
- Q Squared Solutions
- NHS Fife
- NHS Borders
- Scottish Water
- The Institute of Occupational Medicine
- SNBTS
- Bioscience &Veterinary Services
- The North British Distillery Company Ltd

Career Pathway – Vocational vs Academic
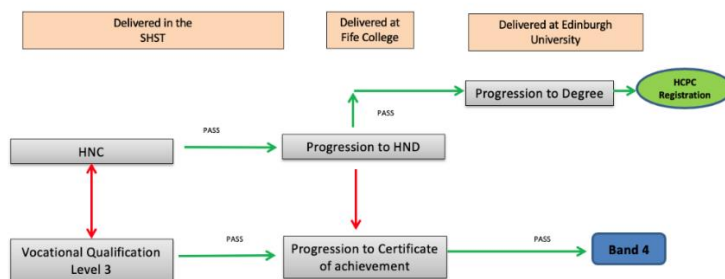
This resulted in the **BSc (Hons) Biomedical Science (Professional Practice)**

- Transition course from HND to the university delivered by the three institutions: NHS Lothian, the University of Edinburgh and Fire College
- 4-year part time programme at the university
- 10 funded places each year
- First cohort graduated in November 2023:
    - 1 1st class degree
    - 5 2:1
    - 1 2.2

- Further courses and pathways have been developed using this co-creative approach in different modes of delivery including technical apprenticeships, the use of distance and virtual learning and the ability to 'hop-on, hop off' to suit both the needs of learners and employers.

Skills Theme 3: Improving Pathways

The summit called for streamlining and developing pathways into life and chemical sciences careers. It was emphasised that there is a need to build on the work already done to raise awareness at school level, particularly early in education requiring improved teacher awareness and access to resources at school and community level.

From the industry side, the need to define and promote non-traditional pathways and help industry to understand them was discussed as well as developing easier pathways for progression whilst in the workplace (for example technician to researcher).

Co-Design of Tertiary Pathways

A co-design approach to curricula such as the Fife College case study [see previous page] shows how routes can be mapped out successfully between skills providers and employers.

Specific ideas highlighted were:

- More connection between local colleges and universities:
  - Creation of regional career pathway template that can be replicated (see NHS Fife case study), with clusters of employers working with local colleges to identify apprenticeship opportunities and follow on degrees.
  - Create a virtual reality academy with immersive learning. For example, a learning space accessible to all pupils and students nationally online or through VR.
  - HND in industrial biotechnology feeding into existing university provision.
  - Explore opportunities for the development of a graduate apprenticeship for the sector.
- Introduce industry challenges that teachers at all levels can use as resources, from an annual grand challenge to simple training for teachers and pupils.
- Build parity of esteem of university and college provision using examples of college-based pathways and their benefits.
- Improve visibility and reach of existing resources, for example My World of Work, that provides information on the jobs and opportunities available.
- Improve access to learning opportunities through funding for transportation and accommodation to make opportunities more accessible and more flexible 'step on, step off' provision with industry placements.

> **Recommendations:**
>
> 13. *Explore the opportunity to update the existing Life & Chemical Sciences Workforce Development Portal, expand the offering to capture the breadth of education provision, and increase awareness.*
> 14. *More formal links between industry with relevant tertiary providers to plan and deliver targeted, extended pathways encompassing colleges and universities.*
> 15. *Opportunities for knowledge exchange to leverage tertiary expertise in school and community engagement and widening access.*

Two Collaborative Solutions

A national organisation bringing together sector stakeholders to operationalise innovation and skills priorities to achieve fair and green economic growth

A clear ask coming through the summit's discussions was the need for all stakeholders to be connected via one sector-wide umbrella skills organisation that can focus collaboration between tertiary educators, industry and other supporting stakeholders such as SDS, to operationalise and feed into skills and innovation policy (see below for details). What has become most evident through all topics of discussion is that there are great examples of effective multi-stakeholder collaboration throughout the sector, but this is often happening in silos.

The sector is supported by a wide range of stakeholders but there is a lack of understanding of what they all do. Attendees noted the need for greater awareness and access to the whole infrastructure of stakeholders in one place, including but not limited to the skills agencies, research pools, innovation centres, knowledge exchange networks, funding providers and tertiary educators. This organisation would give industry greater awareness of, and access to, this infrastructure.

Identified elements of the role of this central organisation could be:
- Supporting strategic level stakeholders to influence policy related to skills.
- Delivering operational activity to support strategic sectoral and cross-sectoral work focussing on priority skills (*recommendations 1 -5, 11, 14, 15*).
  - Mapping the sector skills provision and increasing awareness and engagement in the breadth of organisations and their roles (*recommendations 1, 5, 12, 14, 15*).
  - Highlighting opportunities to share or pool resources, and for wider collaboration *(recommendations 1-5, 7-15).*
  - Coordinating opportunities for skills-based knowledge exchange for example virtual guest speakers and lectures from industry labs, opportunities to train the trainer, GEMS and wider outreach *(recommendations 4, 7-12, 15).*
    - Raising awareness of existing National Occupational Standards (NOS), to enable the development and recognition of demand-led collaborative skills provision and widen the opportunity through certification, competency mapping and sharing *(recommendations 1, 2, 5).*
    - Developing a common 'menu' of required skills for life and chemical sciences to enable standardisation of teaching and easier movement between courses and job opportunities (*recommendations 1, 2, 5, 14*).
  - Regular communication and collaboration between industry and tertiary providers to respond and adapt to changing skills requirements *(recommendation 14).*
  - A formal industry-academic mentoring programme or improved signposting to existing relevant mentoring programmes *(recommendation 4).*

This organisation would require resources in leadership and administrative roles. In addition, there are many impactful, sustainable collaborations that need to be further supported. An optimal funding mechanism would need to be identified, likely bringing together public and private funding streams.

A Sector Skills Platform for Scotland

The summit called for a dedicated life and chemical sciences sector skills platform for Scotland, comprising both physical and digital spaces. This platform would need some degree of oversight from the national organisation outlined above.

The skills platform could comprise:

Digital Space

- A centralised portfolio of education provision and CPD with a mechanism for industry recognition through certification or accreditation (*recommendations 1, 2, 3, 5*).
- Signposting to other existing skills interventions and workforce development resources such as the Life and Chemical Sciences Skills Investment Plan, Sectoral Skills Assessment for Life and Chemical Science ,My World of Work industry pages, , Life & Chemical Sciences Workforce Development Portal (*recommendation 12*).
- A central digital platform for sharing and blueprinting of knowledge, collaboration and best practice in relation to sector specific skills and training (*recommendations 2, 4, 5, 11, 14*).
- Hosting the outcomes of scoping and mapping exercises undertaken by the national organisation e.g. sector skills provision map and other skills assets. *(recommendations 1, 6, 14).*
- Project, placement and recruitment banks *(recommendations 7, 9, 10).*

Physical Space

- A regional co-ordinated skills centre of excellence or skills academy featuring a triple helix focus on skills and training with a cluster of regional warehouses, to create and deliver:
  - A skills package and mock environment for skills training at scale (*recommendations 1-5, 7, 10*).
  - A train the trainer programme to ensure teachers and lecturers are up-to-speed with latest industry knowledge and skills *(recommendation 11).*
  - Life and chemical science skills professional qualifications and ongoing CPD co-designed, delivered and assessed with industry *(recommendations 1, 3).*
  - A place for industry to connect with students, raising awareness of careers, sharing their skills and experience and providing opportunities for mentoring *(recommendation 6).*

This platform would also require resources in leadership and administrative roles, as well as the development and upkeep of the physical and virtual spaces, curating and commissioning content. Again, there is a question over how it would be funded.

Examples in practice that were highlighted:

[National Institute for Bioprocessing Research & Training](#) (NIBRT), Ireland
This is a built facility allowing small companies to start up and hire researchers and other skills as well as providing skills training programmes.

[National Horizons Centre](#), Teesside University
The National Horizons Centre (NHC) is Teesside University's £22.3m centre of excellence for training and innovation in the biosciences and healthcare sector. It incorporates research, partnerships and training at bringing together industry, academia, talent and world-class facilities.

[Scotland Food & Drink Partnership, Food Education Signposting](#)
A digital skills platform for the food and drink sector managed by Scotland Food and Drink Partnership.

Resources

[Advanced Therapies Apprenticeship Community](#)
[Advanced Therapies Skills Training Network (ATSTN)](#)
[Career Converter](#)
[Graduate Employability Masterclass - SULSA](#)
[Life Sciences Innovation Centre](#)
[Life and Chemical Sciences Skills Investment Plan](#)
[Life & Chemical Sciences Workforce Development Portal](#)
[Life sciences Strategy for Scotland 2025 Vision](#)
[My World of Work - Life Sciences](#)
[National Horizons Centre](#), Teesside University
[National Institute for Bioprocessing Research & Training](#) (NIBRT)
[National Plan for Industrial Biotechnology](#)
[NES Healthcare Science postgraduate support](#)
[NHS Clinical Skills, Simulation Based Learning](#)
[NHS Quality Assurance training](#)
[NMIS Manufacturing Skills Academy](#)
[Scotland Food & Drink Partnership, Food Education Signposting](#)
[Scotland's National Strategy for Economic Transformation (NSET)](#)
[Skills Development Scotland Sectorial Skills Assessment, Life & Chemical Sciences 2022](#)
[SSERC programme for science](#)
[STEM Learning Network](#)
[SULSA NTTF Funded Practical Experiences in Life & Chemical Sciences](#)
[World Skills Laboratory Technician: Skills development through competition](#)

Appendix A: Additional Information

About the Organisers

Edinburgh Napier University (ENU), School of Applied Sciences

ENU has more than a decade of experience working collaboratively with companies such as Merck, Charles River, Mentholatum and TMQA on skills development in the sector, as well as developing major national skills projects covering laboratory skills, quality assurance and graduate readiness in partnership with a range of key stakeholders. ENU is the only Scottish University to be involved in the large cross sector upskilling consortium of the Advanced Therapies Skills Training Network (ATSTN).

Contact: Dr Claire Garden SFHEA MRSB, Associate Prof, Head of Teaching and Learning School of Applied Sciences, C.Garden@napier.ac.uk

Scottish Universities Life Sciences Alliance (SULSA)

SULSA is an alliance of twelve Scottish universities and one research institute that aims to advance Scotland's research and innovation in the life sciences through strategic collaboration across institutions, disciplines and sectors. SULSA focuses on increasing research funding into Scotland, supporting post-graduate development and improving the international standing of our life sciences research sector. SULSA is experienced in delivering externally funded projects including those that facilitate demand-led skills programmes co-designed and delivered by industry and educators.

Contact: Dr Alison McIntosh, Director, Scottish Universities Life Sciences Alliance (SULSA), Alison.McIntosh@glasgow.ac.uk

Skills Development Scotland (SDS)

Skills Development Scotland (SDS) is the national skills body supporting the people and businesses of Scotland to develop and apply their skills. The Key Sector Manager for Life and Chemical Sciences works on behalf of industry to inform and influence the skills landscape to ensure employers have access to the right people with the right skills at the right time.

Contact: Sarah Hunt, Sarah Hunt, Key Sector Manager, Life and Chemical Sciences Sarah.Hunt@sds.co.uk

Strategic Groups

Life and Chemical Sciences Skills Group

The Life and Chemical Sciences (LCS) Skills Group is a sub-group of the Life Sciences Scotland Industry Leadership Group. The group is Chaired by Alison McIntosh (SULSA), secretariat support is provided by Sarah Hunt (Skills Development Scotland), and it is comprised of industry, academia, and public sector representatives.

The LCS Skills Group's remit is to provide strategic direction for the implementation of evidence-based skills interventions. The LCS Skills Group also provides an aligned and coherent skills voice for life and chemical sciences in Scotland.

SULSA Skills Committee

The SULSA Skills Committee is comprised of educators within 12 Scottish universities and one research institute (James Hutton Institute) and supports SULSA in its aim to drive collaborative skills provision across Scottish universities for life sciences-related undergraduate and postgraduate programs.

Summit Agenda

Activity	Speakers
Welcome and Opening Address	Dr Claire Garden, Edinburgh Napier University
Keynote	Mr McKee MSP, Scottish Government
Overview of the Skills Landscape	Sarah Hunt, Skills Development Scotland
Case Study 1: Workplace Entrant Skills Advanced Therapies Skills Training Network (ATSTN) and National Transition Training Fund (NTTF)	Dr Alison McIntosh, SULSA
Workshop 1: Workplace Entrants Skills	
Lunch, networking	
Case Study 2: Industry-Academia Collaboration NHS Lothian/ Fife College/ University of Edinburgh IBMS accredited course	Dr Yvonne Bayne, Fife College
Workshop 2: Industry-Academia Collaboration	
Closing remarks	

Appendix B – Shared Examples of Best Practice
Widening the New Entrants Skillset

FE	Others
New College Lanarkshire is building skills by using competitions such as WorldSkills, a UK and international Lab Technician competition (Olympics for Skills), developing resilience, tech skills, problem solving, health and safety, communications and teamworking.	**Lanarkshire Stem Hub** offers cobot training. This is a STEM Lanarkshire/NMIS partnership with Universal Robotics to book a cobot (portable robotic arm).
University of Dundee students take data handling and analysis modules throughout the programme including specifically designed modules for life sciences. They also assist with developing quality assurance and provide near peer mentoring.	**IBioIC** runs a business simulation programme and is looking to roll it out to some schools. **Datalab** runs Data Academy - funded MSc courses and networking events. The 75 MSc students on this programme are funded through the Scottish Funding Council. **NHS** runs a Clinical Entrepreneurship Programme.
Forth College students work on cell culture, health and safety and how to carry out risk assessments. Industry partners give talks, and the college takes students out to industry to see facilities in practice.	**West Lothian College** is looking at working in collaboration with industry and universities to create innovation centres in specialist areas – currently looking into a net zero innovation hub within the engineering school.
University of the Highlands and Islands is looking at a work-placed module offering a full year in industry with support from local businesses and organisations. Students complete their honours dissertation based on their placement work.	**Glasgow University** runs a PhD with an AI focus. **Robert Gordon University** students undertake academic year long modules focused on lab skills which includes data handling and analysis. Students also study a module called Quality Assurance and Regulations for Industry. RGU also holds an industry stakeholders advisory group and a NHS placement provider group to advise on curriculum development. Courses are accredited by appropriate professional bodies. Students develop their debating and communication skills in a Bioscience and Society module. Industry experts come in for guest lectures.
West Lothian College holds an employer advisory group which meets 3 or 4 times a year, with members from industry, schools, university and college programme leads, to help shape the curriculum.	
Edinburgh Napier University also runs a similar employer advisory group to influence the curriculum. In addition, it looks at accreditation, includes industry guest lectures and has a skills passport.	

Improving Applied Learning and Recruitment Readiness

FE	Others
[Alcala University](#) in Spain is good example of making training courses more sustainable by being industry focused. It has gone from 10th to 3rd in world due to its collaboration with clinics and hospitals. Students can only complete the masters programme if there is placement with the company. 90% of the students end up working at their placement company after completing the masters. **Dundee & Angus College** brings industry representatives into college to give skills the students need. **Edinburgh Napier University (ENU)** hosts guest speakers and has a professional practice module for soft skills and industry role awareness with job application as an assessment. Students have a day in industry with Charles River Laboratories (CRL), and representatives from the company visit for a day to give a session on working in industry including quality assurance and regulatory affairs. CRL training labs are used as basis for ENU lab skills sessions. **University of Aberdeen** offers yearlong industrial placements between 3rd and 4th year. **University of the West of Scotland** offers shorter placements (10 days – 2 weeks long) which tend to arise from individual contacts and legacy relationships. **University of Aberdeen** students of the Masters in Public Health programme reach out to international 3rd sector organisations (e.g. in China and Africa), and work with other students virtually	**James Hutton Institute** runs a scheme offering a six-month placement with six new graduates, giving students vital experience. This allows new ideas to be brought to the table and places importance on social and meta skills. **Scottish Government** runs a similar graduate experience scheme. **Charles River** has a rich programme of collaboration and engagement with HEIs and students. This includes hosting visits showcasing the site, providing guest lectures and collaborating on curriculum development. The company actively engages with education partners across Scotland and offers year-long placements and summer schools. It runs workshops on employability skills onsite and in universities. It is also developing modern apprenticeships and looking at creating summer placements of around 8-12 weeks with an appetite to trial with about 12 summer placements next year. It runs a programme to be career ready with schools, starting from primary school inspiring students to get into STEM and tracking progress through their education life cycle. Charles River technicians act as ambassadors with having no academic background. **Cannon MCD Research** runs a training programme and sponsors PhDs and MScs. **Roslin** runs a 4-week training academy for new entrants on lab skills. It also values ATSTN as a valuable opportunity for students to spend a week at Roslin. This was highlighted by many summit participants as a great way to find out what it is like in the workplace, building confidence and helping students to stand out. [Career Converter](#) provides information on the different pathways students can take. It highlights the common skills that recruiters are looking for, pulling information from LinkedIn

that they wouldn't otherwise have the opportunity to work with.

University of Glasgow has recently recruited an Employment Engagement Officer to advise students and staff.

University Of Edinburgh gives students exposure to industry and it is part of the MSc.

University of Strathclyde is working with global pharma companies to support with the delivery of PhD training over 3-6 months. These companies then recruit from this pool of talent.

Robert Gordon University offers 2, 6 or 12-week workplace based placements on a number of our Undergraduate courses.

New College Lanarkshire runs a chemical lab technician competition to help build skills for work in absence of placement opportunities.

West Lanarkshire College hosts guest industry representatives speaking to students and explaining the different opportunities available to them. It is also looking to develop a Personal Development Unit to enable students to build on skills, in person and virtual.

and Indeed on the most common and general skills that are required for a career path and in the job market. Users can upload their CV from which the platform sets out a pathway to particular roles and sectors based on matching of skills.

Turing Funding has replaced Erasmus to allow students to go abroad to gain experience, building industrial and international skills, fostering fresh perspectives, a wider experience and building student confidence.

Life Science Scotland ILG's Innovation fellowships have historically been medical consultants doing PhDs but has widened to allied health professionals and nurses. It is working on how to give people from life and chemical sciences industry access to innovation fellowships.

Entrepreneur Programme is a collaboration between NHS England and Anglia Ruskin University which offers fellowships to attract people with transferrable skills from life sciences and other fields.

University of Greenwich Spark Scheme is a mentor/mentee relationship programme that runs for 12 weeks. It features ongoing conversations about career aspirations and creates a point of contact within industry with flexible programme experience.

Improving Pathways

FE	Others
University of Glasgow is looking to develop Enterprise Champions to encourage infectious behaviours and inspiration to peers.	**CTO Insignia** is account managed by Scottish enterprise which has been useful. The team goes into university for STEM days and demoed tech and career paths taken. School pupils come into the office and demo tech.
West Lanarkshire College offers level 4-7 industry units and young STEM leader industry mentors.	**Education Scotland's** national network for secondary science teachers, including lab skills used to raise awareness of opportunities with

Robert Gordon University have introduced an extra-curricular RGU innovation award, RGU Plus and is aiming to introduce Personal Sustainbility Plans for students.

NHS Education for Scotland collaborates with NHS Scotland Academy to enhance students' understanding of health science and social care careers. Speakers go to school students and encourage them to go to university. Widening access huddles are starting to support with decision-making when it comes to careers with activity across Scotland.

secondary science teachers. It connects with a few innovation centres (e.g. DHI).

SULSA colouring book for kids is aimed at primary school level celebrating different careers in STEM. GEM, Skills Development Scotland's **My world of work** and **STEM ambassador scheme** is where a lot of this happens already (raising aspiration and awareness).

Highland and Islands Enterprise runs a Science Skills Academy at school level.

Appendix C: Sparking Action

One of the most positive outcomes from the summit was participants' enthusiasm and willingness to build on the day's discussions. Below are responses to the question asking "***what actions they would go on to take as a result of the summit***," which demonstrates an appetite to act with the strong theme of collaboration shining through.