North East Innovation
Cross sector collaboration – the link between the pharmaceutical, automotive sectors and beyond

Katherine Forbes – Health & Life Sciences Programme Lead, North East LEP

Rachel Chambers – Chief Operating Officer, Driving the Electric Revolution
What do you know about the North East LEP?
The North East Strategic Economic Plan

The Plan aims to create more and better jobs
Our aim is to have 100,000 more jobs in the North East economy by 2024 than there were in 2014 and for 70% of these to be better jobs. We define better jobs as managerial, professional and technical roles.

Reduce the gap in private sector employment density by 50% by 2024

Close the gap in the employment rate for people aged 16-64 by 50% by 2024

Reduce the gap in economic activity for people aged 16-64 by 50% by 2024

Reduce the gap in productivity by 50% by 2024

Four areas of strategic importance

- Digital
  Software, tech, gaming and computing

- Advanced manufacturing
  Specialising in automotive and medicine manufacturing

- Health and life sciences
  Responding to an ageing population and excelling in clinical research and translation

- Energy
  Expertise in offshore energy and subsea technologies, regional energy and demonstration and innovation

A place that works

Four service sectors to support growth and better jobs

- Education
- Financial, professional and business services
- Transport and logistics
- Construction

Digital transformation

Five delivery programmes

- Business growth
- Innovation
- Skills, employment, inclusion and progression
- Transport connectivity
- Investment and infrastructure
Local Industrial Strategies will build on local strengths and deliver on economic opportunities” – Relationship with North East Strategic Economic Plan

- Increase the number of jobs by 100,000 by 2024
- 70% of all jobs created between 2014 and 2024 will be better jobs
- Close the gap with England excluding London in the employment rate for people aged 16-64 by 2024
- Reduce the gap with England excluding London in economic activity for people aged 16-64 by 50% by 2024
- Reduce the gap with England excluding London in private sector employment density by 50% by 2024
- Reduce the gap with England excluding London in GVA per hour worked by 50% by 2024

Delivery mechanism to increase productivity and living standards

Maximise North East assets and opportunities to address our challenges.
Sector insights:
Health and Life Sciences in the North East - an Area of Strategic Importance

- Large GVA and employment footprint
- Major manufacturing capabilities/ niches/ innovations
- Local Science, Research and Development expertise and capabilities
  - including ‘golden assets’ e.g. CPI’s Photonics Centre, NICA, NICD
- Growth potential of the sector
- Excellent healthcare and innovation in the system
Size and contribution of health and life sciences sector to North East

Office for Life Sciences published data on biopharma and medtech at regional level (2018)

• The sector contributes £1.5bn to the regional economy.

• Our region is one of the strongest in the UK for exports of medical and pharmaceutical products- 86% of finished products are exported. 64% of those are exported to the USA.

• North East region employment was 7,928 in 2018 (3.2% of UK total)

• Employment increased by 1,814 since 2009
  – Equivalent to 30% increase, compared to 8% nationally
North East LEP Vision for Health & Life Sciences

To position the North East to be the UK leader in developing, testing, manufacturing and adopting patient centred treatments, therapeutics and medicines at a time of demographic change

By 2030.......

- Double the number of jobs - 16000
- Double the number of businesses in the sector - 350
Pharmaceutical Manufacture
- High potency
- Continuous manufacturing ability
- Smart meds/wearable technologies
- Cell and gene therapies

Digital Health/AI Innovation Challenges
Systemised Collaboration (e.g. Northern Alliance)

Ecosystem enablers

CPI Smart Meds

Cluster Development

OPPORTUNITY

ENABLING PROGRAMMES
- Innovation & Business Growth/
  Access to Finance
- Infrastructure/ Investment
- Communications
- Skills
- Logistics & Connectivity

OPPORTUNITY

Health & Science
- NHS/ ecosystem/ adoption
  - Translation environment
  - Spin outs/ start ups
  - Clinical research/ trials
  - adoption

Northern Accelerator

e.g. NE Digital Evaluation Ecosystem platform

Covid 19 ‘North Shoring’
Our workforce projections show, by 2030, the sector is likely to need...

19,300 jobs in Biopharma R&D

6,400 jobs in Biopharma manufacturing

8,000 jobs in Med Tech R&D

46,500 jobs in Med Tech manufacturing

52,400 Service & Supply jobs across the Life Sciences

60% of the workforce at qualification level 6 (degree level) or above

55,000 workers to replace retirees across the Life Sciences
Our workforce projections show, by 2030, the sector is likely to need...

The skills mix may change over the next 10 years but, all other things remaining equal, the projections indicate the sector will require:

- an additional 119,000 people qualified at levels 2 to 7 by 2030.

Of the 119,000 people with level 2-7 skills required by 2030

- around 39,000 (33%) will be required at level 6 (degree level)
- 32,000 (27%) will be required at level 7 or above (postgraduate level).
The Science Based economy in the UK
What is your understanding of innovation?

Professor Roy Sandbach:
“matching what is possible with what is needed, to create economic or social value”.
Innovation scouts help viable idea generation

Expert legal support to help with patent

Business intelligence expertise to assess/understand market

Assistance with funding streams

Facilitate evidence generation & economic argument

Facilitate discussions between NHS and innovators to expedite adoption

Success = patient outcomes & economic growth
“Immersive technologies emulate or enhance physical worlds through digital technology”.
Where do Technicians feature in this?

• Over 1.5 million technicians are employed in the UK working across engineering, science, health and technology.

• However, an aging workforce means that 50,000 of our technicians are retiring every year, and forecasts show we will need as many as 700,000 more technicians in the next decade to meet demand from employers.

The role of Technicians in innovation will be key to the future success of the UK economy going forward.

The Gatsby Foundation’s research shows:
- Technicians have the knowledge to enable to drive innovation.
- Technician experience means you can provide suggestions on how things can be improved - that’s innovation in practice.
North East Skills - Health and life sciences – challenges and opportunities

Opportunities driven by:
- Covid 19 (yes, really!)
- Innovation (it’s a driver of growth)
- Cross sectoral collaboration

Have you worked out the link between Pharma and Automotive yet? Or even......Aerospace, Rail, Energy etc?
North East Innovation

Cross sector collaboration – the link between the pharmaceutical, automotive sectors and beyond........

Rachel Chambers, Chief Operating Officer
The North East Strategic Economic Plan

The Plan aims to create more and better jobs
Our aim is to have 100,000 more jobs in the North East economy by 2024 than there were in 2014 and for 70% of these to be better jobs. We define better jobs as managerial, professional and technical roles.

Four areas of strategic importance
- Digital
  - Software, tech, gaming and computing
- Advanced manufacturing
  - Specialising in automotive and medicine manufacturing
- Health and life sciences
  - Responding to an ageing population and excelling in clinical research and translation
- Energy
  - Expertise in offshore energy and subsea technologies, regional energy and demonstration and innovation

Four service sectors to support growth and better jobs
- Education
- Financial, professional and business services
- Transport and logistics
- Construction

Digital transformation
Five delivery programmes
- Business growth
- Innovation
- Skills, employment, inclusion and progression
- Transport connectivity
- Investment and infrastructure

Driving the Electric Revolution Industrialisation Centres
North East | South West & Wales | Midlands | Scotland
Advanced Manufacturing in the North East – an Area of Strategic Importance

- Large GVA and employment footprint
- Major manufacturing capabilities/ niches/ innovations
- Strong regional Research, Development and Innovation expertise and capabilities within our Universities – the regions ‘golden assets’
- Growth potential for supply chain
- Increased investment from Government
Size and contribution of the manufacturing sector to the North East

The region has a buoyant manufacturing sector;

- 117,000 jobs = 9.8% of the regional workforce and 15.5% of the region’s output – this is well above the national average!
- GVA from Manufacturing – 14.8% of the regions output (UK average 4.3%).
- Productivity is 87.6% of the UK average – ranking 6th out of 10 UK regions.
- Employment in ‘high tech’ manufacturing is steady at circa 48,000 (4.8% of the workforce) but growing.
- North East Manufacturing sectors comprises of over 3,500 registered businesses.
- 59% of all exports are to the EU – Average in England being 50%
North East Skills - Challenges in Manufacturing

▪ An ageing workforce - there is a need to replace many highly skilled employees approaching the end of their career.

▪ New product technology, automation, and industrial digitalisation – rapidly changing work in advanced manufacturing is demanding new and higher level skills.

▪ Skilled technicians are already scarce in the region, and across the UK.

▪ There are insufficient advanced apprentices in training to meet the near-term requirements of the sector.

▪ Falling net-migration in to the UK is impacting the ability to attract skilled employees from outside the region.
What does being an engineer in manufacturing mean to you?
The future for engineers in manufacturing and the Future of Manufacturing
## Future skills required for engineers in Manufacturing

<table>
<thead>
<tr>
<th>Future Skills of Engineers</th>
<th>Emerging Engineering Roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automation/robotics</td>
<td>Artificial Intelligence/Virtual Reality etc.</td>
</tr>
<tr>
<td>Cybersecurity and forensics</td>
<td>Biochemical</td>
</tr>
<tr>
<td>Data analytics</td>
<td>Data</td>
</tr>
<tr>
<td>Digital manufacturing skills / Industrial IOT</td>
<td>Energy</td>
</tr>
<tr>
<td>Industrial UI/UX</td>
<td>Mechatronics</td>
</tr>
<tr>
<td>Programming</td>
<td>Microsystems</td>
</tr>
<tr>
<td>Quality Assessment</td>
<td>Nanosystems</td>
</tr>
<tr>
<td>Design</td>
<td>Robotics</td>
</tr>
<tr>
<td>R&amp;D, Innovation</td>
<td>R&amp;D, Innovation</td>
</tr>
</tbody>
</table>

*Driving the Electric Revolution Industrialisation Centres*  
North East | South West & Wales | Midlands | Scotland
North East Skills - Opportunities in Manufacturing

The North East Innovation Centre was set up to support technicians/engineers across all sectors to develop the skills required for the future of manufacturing.

- Access to industry (this is key), to provide real industrial case studies using a cross sector approach - to support future employment opportunities.
- Bridging the gap for SMEs by supporting the engagement with advanced apprenticeships
- Target funding in support of apprentice development
- Development of new technologies - enhancing manufacturing processes
- Encouraging greater participation in STEM subjects in the region’s academic institutes and uplift in skills of advanced manufacturing
North East Skills - Opportunities in Manufacturing

The North East Innovation Centre will be the catalyst to establishing a pipeline of skilled engineers by:

- Supporting the development the **next generation engineering skills** from Level 3 through to Level 7
- Provide a clear ‘line of sight’ - **Bringing academic institutions and industry together** to provide a mechanism where they can collaborate and develop an integrated learning pathway for learners

However, significant leadership is required to engage across multiple stakeholders to successfully deliver change; encourage secondments, cross sector working etc.
Expected benefits to both the North East and UK

- Delivering huge economic impact to the North East region – Expected Regional GVA growth from £280m to >£500m in 5-10 years
- Delivering long term industrial growth and developing North East and UK supply chain
- Create higher value jobs
- Growing engineering talent to meet industry needs and future workforce requirements
- Bringing together and strengthening regional and UK capability e.g. Pharma, Manufacturing, Electrification, Chemicals, Battery, Digital etc
- Increase inward investment
- Skills Development – increase capability within the region.
Ask the audience time........

1) How can you apply your skills?

2) What opportunities can you see to innovate and make improvements in other sectors?
So, have we answered the question:

‘What is the link between the pharmaceutical, automotive sectors and beyond…….?’

- Innovation
- Cross sectoral collaboration
- Digitalisation
- Future opportunities and your possible career pathways
- It’s about YOU!
Thank you....we hope you enjoyed our session

Katherine Forbes
Mobile: 07557 609810
Email: katherine.forbes@nelep.co.uk

Rachel Chambers
Mobile: 07471 144104
Email: rachel.chambers@newcastle.ac.uk