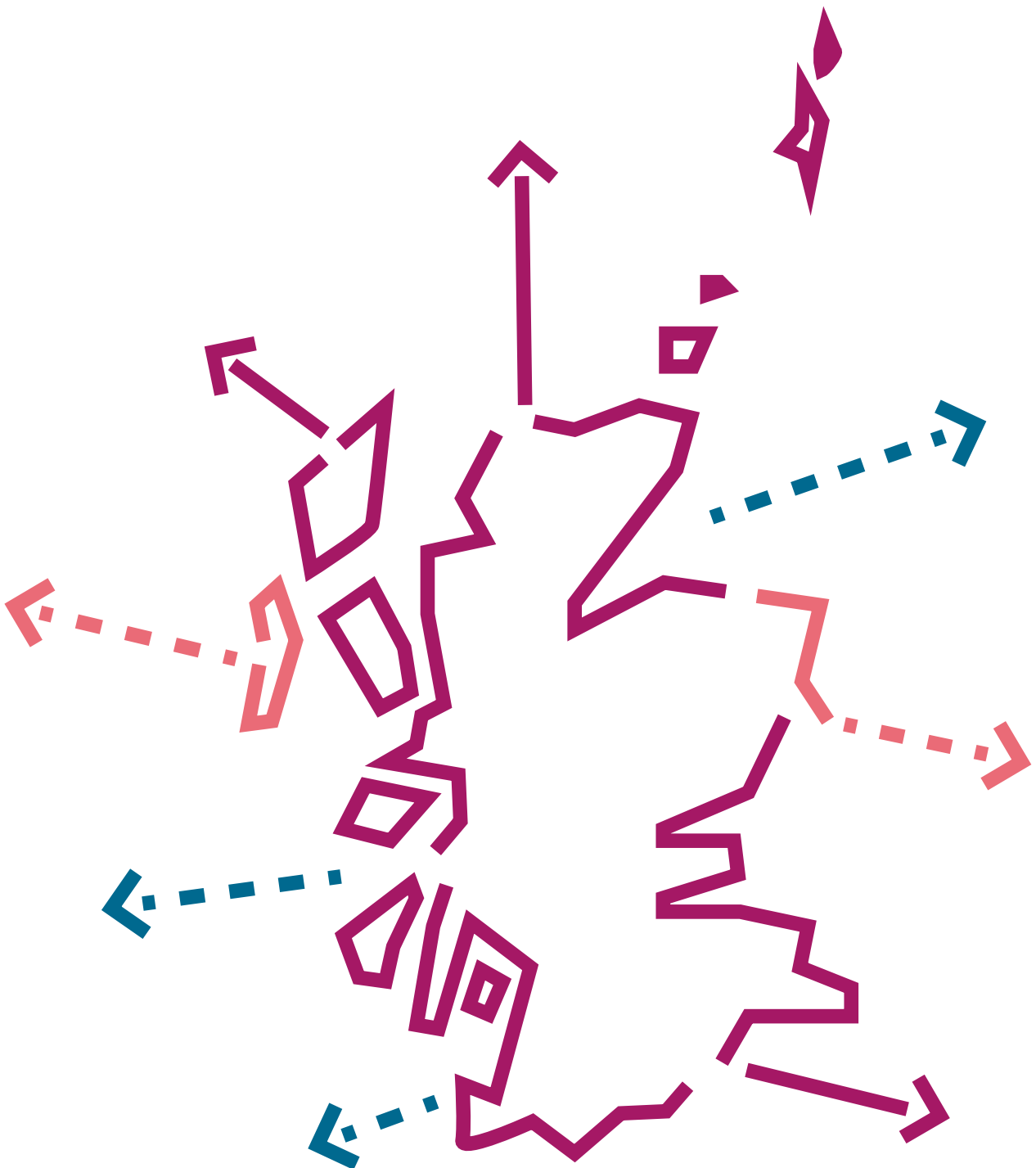


# A Trading Nation: An Export Plan for Scotland's Life Sciences Sector



Developed in partnership with the Life Sciences Scotland Industry Leadership Group, Scottish Development International and the Scottish Government's Directorate for International Trade and Investment



# Contents

1. Introduction	1
2. Background	2
2.1 Policy context	2
2.2 Analysis and consultations	2
2.3 Underpinning enablers of export growth	2
2.4 Scotland's life sciences company base	3
3. Opportunities to Increase Scottish Exports	4
3.1 Companies	6
3.2 Subsector prioritisation	8
3.3 Target markets	9
4. Actions and Next Steps	11
5. Appendix	13

# 1. Introduction

Scotland has one of the largest life science clusters in Europe and our companies, universities and research centres have an international reputation for excellence. This ecosystem has been the foundation for a successful life sciences sector that makes a significant contribution to Scotland's economy and has ensured global success for its products and services. The sector is forecast to continue growing and much of this will be driven by increased exports.

Through the lens of companies, subsectors and markets, this plan explores the support needed, from across the ecosystem, for our life science companies to maximise their export potential. By maintaining an inclusive and consultative approach with industry during its development, we have been able to make better-informed decisions as we assess and respond to opportunities for export growth.

Developed in partnership with the Life Sciences Scotland Industry Leadership Group, public sector and government, the plan outlines a set of interventions that the life sciences sector has said will enhance its export performance.

## 2. Background

### 2.1 Policy context

This plan has been developed to align with the existing policy framework. It is part of the delivery function for [A Trading Nation: A Plan for Growing Scotland's Exports \(ATN\)](#) and will help ensure that the life sciences sector maximises its contribution towards the ambition to grow Scotland's exports to 25% of Gross Domestic Product by 2029.

It will also make a direct contribution to the internationalisation ambitions in the industry-led [Life Sciences Strategy for Scotland - Vision 2025](#) and help maximise the sector's contribution to Scotland's overarching [National Strategy for Economic Transformation](#) (NSET). It is underpinned by Scotland's [Vision for Trade](#) which identifies opportunities to improve the trading environment, in line with the Scottish Government's principles.

### 2.2 Analysis and consultation

Development of the plan was overseen by the Life Sciences Scotland Internationalisation Workstream and involved analysis of Export Statistics Scotland life sciences sector export data (2010–2019; the latest available dataset); an assessment of future opportunities; and extensive consultation with Scottish companies, GlobalScots, Scottish Development International (SDI) market specialists, trade associations and other relevant organisations.

### 2.3 Underpinning enablers of export growth

Industry consultation highlighted a number of areas that are fundamental to growing Scotland's life sciences sector's exporting capabilities, but are beyond the scope of this export specific plan (see Figure 1). The Life Sciences Scotland Industry Leadership Group, public sector and government commit to continuing to work together across the ecosystem to ensure Scotland has a strong environment for growth and companies can build on these enablers to maximise their export potential.

#### Figure 1: Enablers of export growth

- **NHS as an important partner** – supporting innovation by validating and adopting Scottish products and services
- **Inward investment** – attracting and retaining global companies
- **Skills** – access to the right skills and attracting global talent
- **Access to funding** – enabling scaling and investment in international markets
- **Availability of appropriate property** – to allow companies to grow, including access to manufacturing and lab space
- **International connectivity/logistics** – access to logistics operators and direct routes to key markets
- **Trading environment** – working with the UK government to ensure the UK's trade negotiations and policies support Scotland's life sciences sector
- **International regulatory cooperation** – reducing barriers to trade whilst maintaining high regulatory standards, using opportunities for regulatory cooperation with like-minded trading partners

## 2.4 Scotland's life sciences company base

Scotland's life sciences company base is diverse, comprising multi-nationals, small and medium-sized enterprises (SMEs) and innovative start-ups. This diversity has been the foundation for exports to reach £3 Bn in 2019 – an 82% increase from 2010. International trade is already embedded in the sector with available data indicating that a high proportion of companies already export (see Appendix 1 for further information about the export data analysis).

**Figure 2: Sector profile (2019)<sup>1</sup>**

Employment: 30,600
No of Enterprises: 707
Turnover: £7.4 Bn
International sales: £3.0 Bn

With an established track record of international growth, and a sector well-positioned to deliver on future opportunities across life sciences, further interventions to increase exports will only add to the strength of the sector in Scotland.

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<sup>1</sup> [Life Sciences Cluster - Scottish Government](#)

### 3. Opportunities to Increase Scottish Exports

The world faces unprecedented challenges as it seeks answers to the problems of delivering sustainable, affordable, and effective healthcare globally, managing the risks of potential future pandemics and responding to climate change. Life sciences will be at the forefront of finding solutions to these key issues and Scottish companies are already delivering in these areas.

The scale of these societal challenges presents an opportunity for the Scottish life sciences sector. With its internationally recognised strengths in medical technologies, pharmaceutical services, digital health and care, animal health, aquaculture and agritech (AAA), and industrial biotech, the sector is well-placed to take its innovative products and solutions to a global customer base (Figure 3). The proposed interventions in this plan are designed to support our companies to do this by building on the existing trade support ecosystem.

**Figure 3: Life sciences sector drivers and potential growth opportunities for Scotland**

<b>Sector drivers</b>	
<ul style="list-style-type: none"> <li>• An ageing global population</li> <li>• Demand for value-based healthcare to address rising costs</li> <li>• Advances in ‘omics’ and big data driving a move to personalised treatments</li> <li>• Development of advanced therapeutics</li> <li>• Digitalisation of healthcare delivery</li> <li>• Advancement of the ‘One-health’ agenda</li> <li>• Drive to next zero and sustainability</li> </ul>	
<b>Growth opportunities</b>	
<p><b>Pharma Services</b></p> <ul style="list-style-type: none"> <li>• Global market for drug discovery and early development outsourcing is forecast to reach \$28 Bn by 2026<sup>2</sup></li> <li>• Global market for Contract Manufacturing and Development Organisations is forecast to reach \$115 Bn for small molecules and \$20 Bn for biologics by 2026<sup>3</sup></li> </ul>	<p><b>Medical Devices and Diagnostics</b></p> <ul style="list-style-type: none"> <li>• Global revenue for medical devices is forecast to reach \$641 Bn by 2027<sup>4</sup></li> <li>• Global revenue for <i>in vitro</i> diagnostics (IVD) is expected to reach \$128 Bn by 2027<sup>5</sup></li> </ul>
<p><b>Digital Health</b></p> <ul style="list-style-type: none"> <li>• Global market for healthcare IT is forecast to reach \$289 Bn by 2026<sup>6</sup></li> <li>• Global market for telehealth is forecast to reach \$72 Bn by 2026<sup>7</sup></li> </ul>	<p><b>Animal Health, Aquaculture and Agritech (AAA)</b></p> <ul style="list-style-type: none"> <li>• Global animal therapeutics and diagnostics market is forecast to reach \$49 Bn by 2030<sup>8</sup></li> <li>• Global aquaculture market is forecast to reach \$415 Bn by 2030<sup>9</sup></li> <li>• Global agritech market is projected to reach \$23 Bn by 2025<sup>10</sup></li> </ul>

2 [Frost & Sullivan. \(2021, August 16\). Global Drug Discovery and Early Development Outsourcing Growth Opportunities.](#)

3 [Frost & Sullivan. \(2021, September 13\). Global Small Molecule Contract Development and Manufacturing Organization \(CDMO\) Growth Opportunities.](#)

4 [Frost & Sullivan. \(2021, June 17\). Global Biologics Contract Development and Manufacturing Organizations Growth Opportunities.](#)

5 [Medical Devices – Worldwide. Accessed: October 14, 2022](#)

6 [In Vitro Diagnostics – Worldwide. Accessed: October 14, 2022](#)

7 [Frost & Sullivan. \(2022, March 23\). Global Digital Health Outlook, 2022](#)

8 [Statista Worldwide animal therapeutics and diagnostics market size](#)

9 [Frost & Sullivan. \(2022, August 30\). Global Aquaculture Market Growth Opportunities](#)

10 [Statista Worldwide agricultural technology market value by region](#)



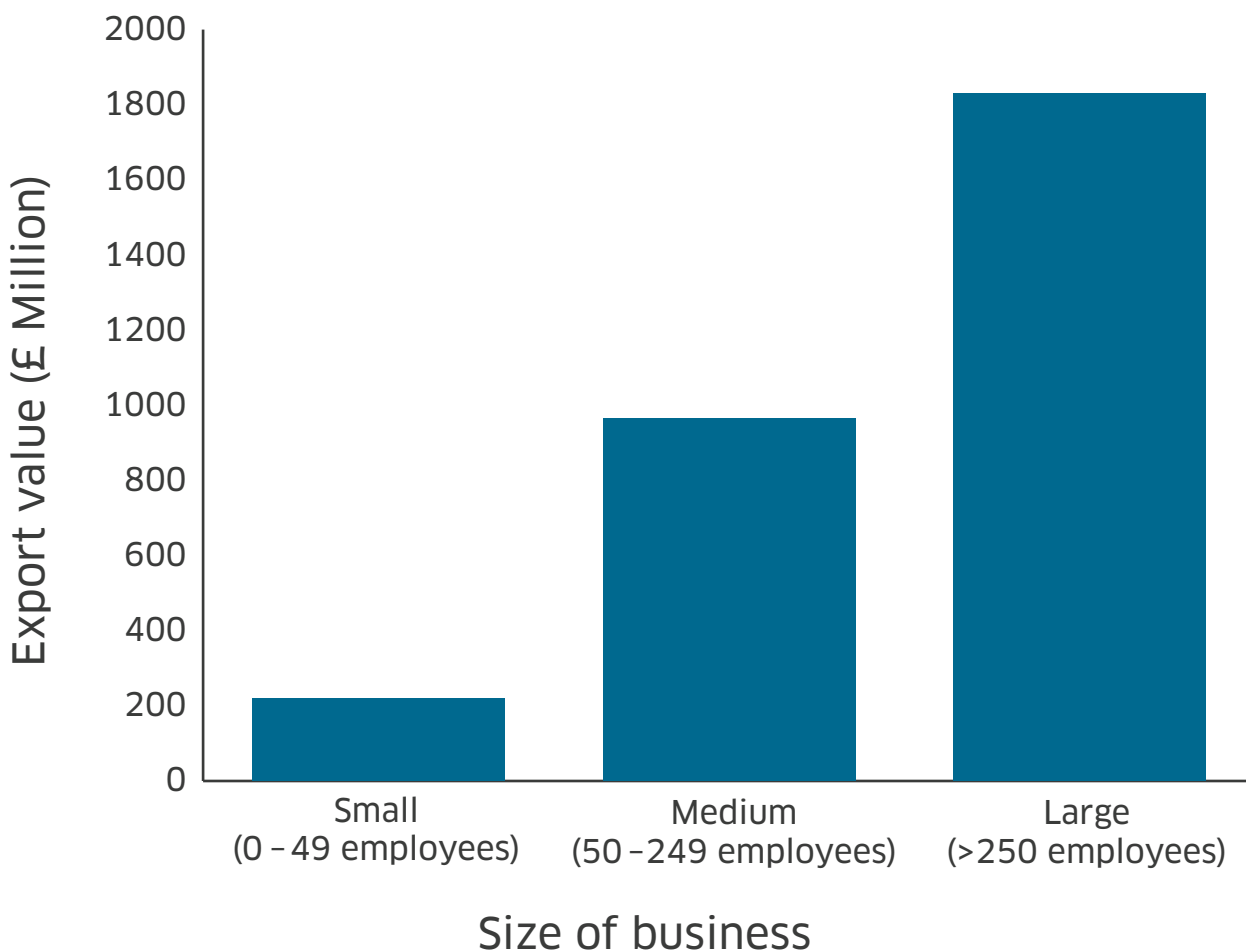
### 3.1 Companies

ATN outlined an approach to tailoring the export support delivered by SDI and Scottish Government through smart segmentation, a data-driven approach ensuring that exporters get the right support when they require it. It recognised the different needs of established exporters and those companies at an earlier stage in their exporting journey.

SDI and Scottish Government will continue to deliver this segmented approach to ensure Scottish exporters can access future trade opportunities and can take advantage of routes to overseas markets to increase export growth, and in turn, drive increases in Scotland's exports.

Large companies (>250 employees) are vital to the sector's export performance, accounting for approximately 60% of Scotland's total life science company exports in 2019 (Figure 4). Many of these are inward investors, attracted to Scotland because of our strong skills base, expertise, and track record of innovation. These companies are experienced exporters and will continue to be supported to flourish in Scotland through the [Shaping Scotland's Economy: Scotland's Inward Investment Plan](#). By sharing their experience and knowledge, these companies can provide a valuable source of insight to less experienced exporters.

**Figure 4: Estimated export values for life science companies by company size (2019)**



See Appendix 1 for information about the export data analysis

While large companies are important drivers of exports, more than 95% of companies in the sector are SMEs. In 2019, SMEs contributed approximately 40% of the overall sector exports; with small companies (<50 employees; 83% of companies) contributing just 7%.

An important focus of this plan is to help more of our ambitious SMEs exploit global opportunities by accelerating their successful entry into new markets and/or helping them grow in existing markets. A thriving SME company base is the foundation for companies to grow and to increase their contribution to exports. It can also encourage further inward investment as international businesses look to Scotland for opportunities; supporting expansion and creating jobs.

SMEs need the right skills and capabilities to be able to successfully export. Many life science companies need help to navigate the international regulatory and reimbursement landscape (as also highlighted in [The Campbell Report: a roadmap to investment for health innovation life sciences and healthtech](#)). Others need support to access and engage effectively with the right customers, in the right markets. For some, it is about understanding the complexities of doing business in international markets, particularly following the UK's departure from the European Union (e.g., understanding business culture or managing international tax or employment legislation).

There is support available via the existing ecosystem to help companies access relevant expertise, including from the international arm of Scottish Enterprise, SDI; its sister agencies Highlands and Islands Enterprise and South of Scotland Enterprise; Skills Development Scotland; the Department of International Trade (DIT); Scottish Chambers of Commerce; GlobalScots; Scottish Government's Trade & Investment Envoys; and trade associations.

To help companies address gaps in specific knowledge we will:

- Pilot a **support mechanism** in the life sciences sector to help SMEs undertake market research, market visits and/or attend specialist in-market events
- Work with enterprise agencies and partners to develop an approach to support companies to access expertise to help them **navigate the regulatory frameworks** in international markets
- Explore developing a **database of technical expertise** to support companies with commercialisation and exporting (e.g. international finance, tax, culture, legislation, regulatory and health economics)
- Partner with agencies, industry bodies and relevant experts to deliver a **programme of networking events** to build knowledge of markets and opportunities, and to develop exporting skills amongst businesses. This will focus on encouraging peer-to-peer learning

## Case Study 1: Waire Health

Founded in 2015, Edinburgh-based Waire Health (formerly Sentinel) produce advanced medical grade, wearable vital signs monitors, delivering an unparalleled insight into the daily health and activity of patients/users in hospitals, care settings and at home. Its core team has 75 years combined experience in electronics systems design, project management in large scale digital roll outs across multiple markets.

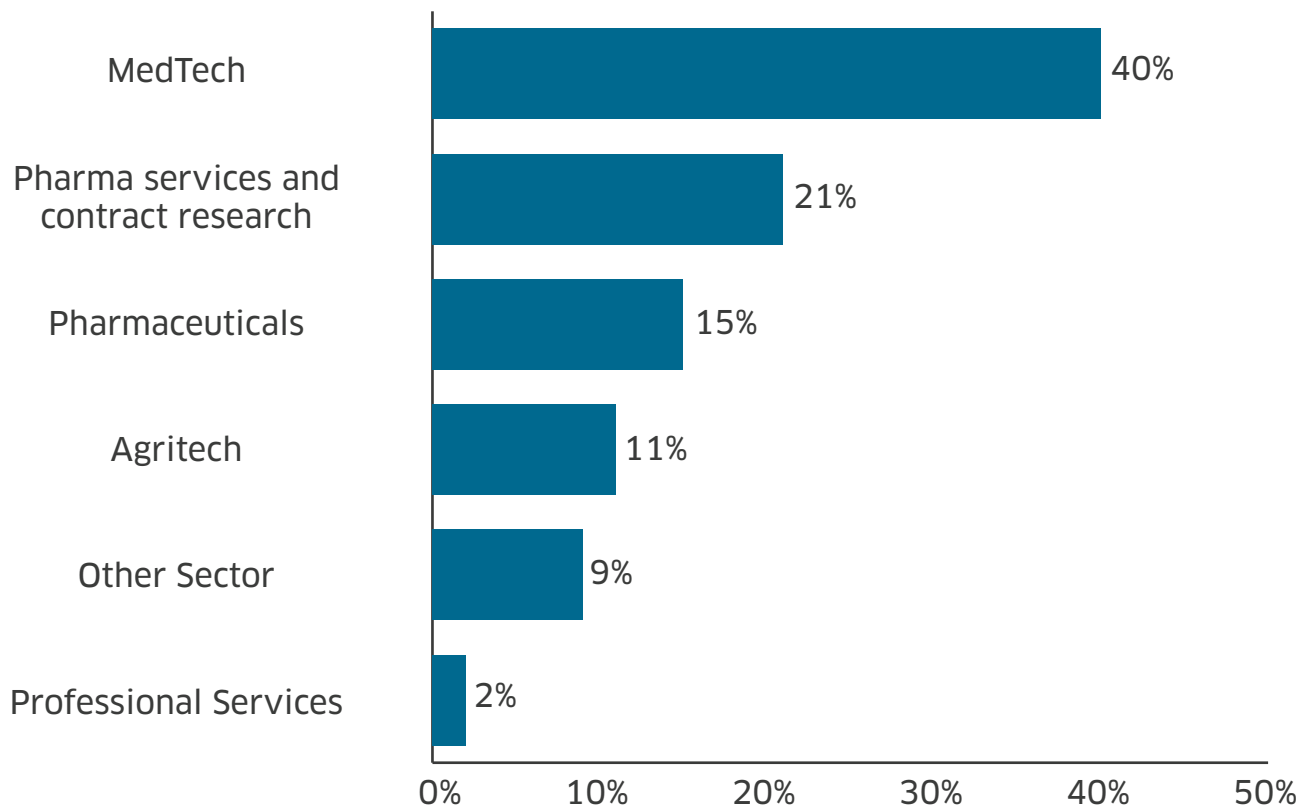
Waire Health has ambitious plans for global growth, which have been supported by Scottish Enterprise and its SDI trade specialists both here in Scotland and overseas. Support includes overseas market development, advice on import and export regulations and attending SDI 'Meet the Buyer' events, resulting in meaningful in-market connections being made by the company.

*"We have a whole team at Scottish Enterprise that helps us explore and see where innovation fits in to the markets. This has resulted in contract negotiations with companies."* Kathrina Skinner, Co-founder, Waire Health.

### 3.2 Subsector prioritisation

In 2019, medical technologies made the largest contribution to Scotland's life science company exports, followed by pharma services and pharmaceuticals. These are subsectors with an established company base in Scotland.

**Figure 5: Percentage of Scotland's life science exports by subsector (2019)**



### Percentage of life sciences exports in 2019

See Appendix 1 for information about the export data analysis and subsector definitions

As these companies continue to innovate, there will be opportunities to deliver export growth in areas such as contract research/manufacturing for biologics and advanced therapeutics; and by supporting new approaches to the treatment, diagnosis, and management of disease, including in the delivery of precision medicine.

Scotland also has a growing cluster of companies focussing on digital solutions for healthcare delivery. These companies sit at the intersection of health and social care, information technology and mobile technology. The scale of the opportunity in areas such as remote monitoring and telehealth, and the capabilities of the Scottish cluster, make this an exciting prospect to deliver future export growth. These companies typically need assistance to develop and refine their market entry and commercialisation strategies in key markets.

Similarly, while Scotland has expertise in animal/fish health and plant science, and a company base that is already exporting, there is an emerging cluster of early-stage companies developing solutions across the AAA space. These companies have the potential to be at the centre of the green and circular economy, with innovation that can help make better use of our land, deliver sustainable food supply chains and improve animal health and wellbeing. Given the company base potentially spans the life sciences, technology, and food and drink sectors, and the global nature of the opportunities, further work is required to identify the priority markets that offer the best opportunity for Scottish companies.

To ensure Scottish companies are best placed to exploit these emerging opportunities we will:

- Design and pilot an **advisory panel** for early-stage companies to help them refine their commercialisation and market entry strategy in the **digital health** space (initially US-focussed)
- Promote **collaboration across the sectors** (life sciences, technology, food and drink) to further explore and validate priority opportunities and markets for the AAA subsectors to support export growth

### 3.3 Target markets

Following analysis undertaken as part of this plan, and industry consultation, the US was identified as the priority market for the pharma services, medical technology and digital health subsectors based on the scale of opportunity, ease of doing business and openness to innovation. In the longer-term, the investment in pharma/biotech innovation in Asia offers potential growth opportunities for the pharma services subsector, and the Middle East and Africa could be exciting future markets for Scotland's medical technology and digital health companies. Europe and Asia Pacific are important regions for the AAA subsectors, with the priority market depending on the specific subsector, product or service.

New, emerging markets are likely to be less well-known to most Scottish companies and SMEs in particular need access to trusted advisors to help them understand the markets and how to navigate them in a compliant way.

SDI and Scottish Government will continue to work with countries and institutions across the world and have a **network** who work to promote Scottish interests overseas and strengthen Scotland's international relationships. This includes Scottish Government's ongoing work to develop trade and investment relationships with US states, such as through identifying opportunities for the life sciences sector in state-level memorandums of understanding.

To reflect the importance of the US market to Scottish life science companies, and to help companies to take advantage of opportunities in the market, we will:

- Build on SDI's current US presence by recruiting an additional SDI **in-market specialist in the US** and develop new strategic partnerships in key states to support Scottish companies to enter and grow in the market
- Promote Scotland's innovation and expertise, and build relationships with decision makers in the US, by re-establishing Scotland's international trade and investment presence at the annual **BIO International Convention**. We will also explore how Scotland can best leverage opportunities at **AdvaMed**

To help companies take advantage of opportunities in other countries that require tailored market knowledge and insight (including emerging markets) we will:

- Leverage existing relationships and work with partners in **emerging/growing markets** to monitor opportunities for the Scottish life sciences sector and build awareness of the changing global landscape for life sciences

### Case Study: Deepmatter

Glasgow-based deepmatter® focuses on SmartChemistry® and believes the way that molecules are made matters. The company has built a cloud-based platform to easily capture, access, share and exploit the vast amounts of data created in chemical reactions from the laboratory to enable medicines to be made better and more quickly. It combines proprietary chemistry data and existing proven software with new components to provide a scalable, efficient, safe, extensible and performant platform for the chemistry community, underpinned by proven cheminformatics solutions and tools.

deepmatter® participated in the 2022 BIO International Convention as a means to meet with customers and partners in the pharma space. This is a key target market for the company with companies tackling how they collect and use their data to improve scalability, productivity and sustainability. deepmatter® participated in a number of pre-arranged meetings as well as meeting contacts at events and receptions during the event. deepmatter® has followed up the discussions and held several demonstrations of its platform to contacts made at BIO 2022.

*"It is not just the meetings at the event itself that have had an impact on our sales activities. The opportunity to represent ourselves at such a key meeting in the pharma calendar has meant an increase in market penetration and impact for our marketing efforts. We believe we will reap the benefits of attending the meeting over the coming years both through direct connections made at the event and increased market awareness of our tools and innovative approach to helping understand why the way we make molecules matters." Kate Rowley, Chief Business Officer, deepmatter®*

## 4. Actions and Next Steps

The actions in this plan address four key themes:

- support for Scottish companies to take advantage of the global opportunities in life sciences;
- support to access key skills and specialist advice;
- leveraging the benefits of peer-to-peer learning; and
- enhancing support in the US.

Support in these key areas will deliver further export growth for Scotland's life sciences sector and the actions are summarised below.

### Figure 6: Summary of key actions

#### Company/opportunity support

1. Pilot a support mechanism in the life sciences sector to help SMEs undertake market research, market visits and/or attend specialist in-market events
2. Design and pilot an **advisory panel** for early-stage companies to help them refine their commercialisation and market entry strategy in the **digital health** space (US-focussed)
3. Promote **collaboration across sectors** (life sciences, technology, food and drink) to further explore and validate opportunities and priority markets for the animal health, agritech and aquaculture subsectors to support future export growth
4. Leverage existing relationships and work with partners in **emerging/growing markets** to monitor opportunities for the Scottish life sciences sector and build awareness of the changing global landscape for life sciences

#### Skills and Expertise

5. Work with enterprise agencies and partners to develop an approach to support companies to access expertise to help them **navigate the regulatory frameworks** in international markets
6. Explore developing a **database of technical expertise** to support companies with commercialisation and exporting (e.g., international finance, tax, culture, legislation, regulatory and health economics)

#### Peer Learning

7. Partner with agencies, industry bodies and relevant experts to deliver a **programme of networking events** to build knowledge of markets and opportunities, and to develop exporting skills amongst businesses. This will have a focus on encouraging peer-to-peer learning

#### US Market Support

8. Build on SDI's current US presence by recruiting an additional SDI **in-market specialist in the US** and develop new strategic partnerships in key states to support Scottish companies to enter and grow in the market
9. Promote Scotland's innovation and expertise, and build relationships with decision makers in the US, by re-establishing Scotland's international trade and investment presence at the annual **BIO International Convention**. We will also explore how Scotland can best leverage opportunities at **AdvaMed**

This plan aims to assist companies who work in the Scottish life sciences sector to realise their export ambition. It is anticipated that the plan will be reviewed annually and will be adapted to respond to developments in the sector (e.g., changes in market-specific conditions), to reflect growing opportunities (e.g., industrial biotechnology as a driver of a bio-based economy) and to align with aspects of other Scottish Government strategies, such as [NSET](#) and [Scotland's Vision for Trade](#), which will help drive the sector forward and contribute to inclusive growth.

The Scottish Government, alongside key agencies working with SDI, will work together to deliver this plan via the Life Sciences Scotland Industry Leadership Group and its themed internationalisation workstream. This sets this plan within the heart of industry and ensures that all partners – public sector, industry, and government – remain accountable for the delivery of the actions in this plan to assist the Scottish life sciences sector to realise its export ambition and support economic growth.

We will also ensure coherence of this plan with steps being taken in delivering Scotland's Vision for Trade to improve the trading market for goods and services with a relevance for life sciences.

To help deliver these opportunities for economic growth, the Scottish Government will use the [Scottish Government's trade board](#) as the key vehicle for ministerial oversight.



## 5. Appendix

### Data source

- The data in this analysis comes from Export Statistics Scotland (ESS) 2019, which represents official estimates of the value of Scotland's exports for 2019
- ESS estimates the value of exports of both goods and services. It excludes exports of oil and gas although it does include support services to this sector
- ESS includes information on international exports, including EU and non-EU, as well as exports to the rest of the UK (although this analysis is based on international exports only)
- More information on this data is available via the link below  
[Export statistics Scotland: 2019 – gov.scot \(www.gov.scot\)](http://www.gov.scot)

### Life sciences sector definition

- The figures on export value and number of exporting businesses for the life sciences sector used in this plan were estimated using the following method:
- Scottish Enterprise (SE) maintain a database of companies involved in research, product and technology development, services, and support within the life sciences sector
- The businesses in this database were matched into the ESS 2019 data based on their reporting unit:
  - there was a 90% successful match, so 10% of businesses from this database were not included and there are a variety of potential reasons for this that we are still exploring
- In addition to the businesses from this list, we included all businesses in the ESS 2019 data that fall under the core life sciences SIC codes:
  - SIC 21: Manufacture of basic pharmaceutical products and pharmaceutical preparations
  - SIC 26.6: Manufacture of irradiation, electromedical and electrotherapeutic equipment
  - SIC 32.5: Manufacture of medical and dental instruments and supplies
- [Standard Industrial Classification \(SIC\) 2007 codes](#) are used to classify business establishments by the main type of economic activity in which they are engaged

### Subsectors:

- All businesses under SIC 21 are categorised as pharmaceuticals
- All businesses under SIC 26.6 & 32.5 are categorised as medtech
- All remaining businesses are allocated by SE to a subsector among: medtech, pharma services & contract research, agritech (plant science and animal and fish health), professional services, digital health, therapeutics, other

Based on this definition, the estimated total value of Scotland's life sciences exports from 2010 to 2019 is published here: [Life sciences cluster](#).



Further detailed breakdowns are available below.

### Estimated export value for Scotland's life sciences businesses in 2019

Sector/subsector	Estimated export value (£ million)	Percentage of life sciences total exports
MedTech	1,210	40%
Pharma Services and contract research	630	21%
Pharmaceuticals	450	15%
Agritech	330	11%
Other subsectors	280	9%
Professional Services	65	2%
Digital Health	-	-
Therapeutics	-	-
<b>Life sciences total</b>	<b>3,010</b>	<b>100%</b>

Source: Export Statistics Scotland 2019

### Estimated export value and number of businesses in Scotland's Life Sciences sector by size of business in 2019

Size of business	Estimated export value (£ million)	Percentage of life sciences total exports	Number of businesses	Percentage of total businesses
Small (0 - 49 employees)	220	7%	510	83%
Medium (50 - 249 employees)	965	32%	90	14%
Large (>250 employees)	1,830	61%	20	3%
<b>All life sciences businesses</b>	<b>3,010</b>	<b>100%</b>	<b>620</b>	<b>100%</b>

Source: Export Statistics Scotland 2019

## Top five destination countries for Scotland's life science exports in 2019

Rank	Destination country
1	USA
2	Germany
3	Netherlands
4	France
5	Switzerland

Source: Export Statistics Scotland 2019

Note: Values in these tables have been rounded to the nearest £5 Million and subsectors which do not have exports greater than £50 Million are shown as “-”.



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