

A wide-angle photograph of Edinburgh, Scotland, taken from a high vantage point on a rocky cliff. In the foreground, several people are standing on the cliff edge, looking out over the city. The city below is densely packed with buildings, including the Edinburgh Castle on a hill in the distance. The sky is filled with soft, golden light, suggesting a sunset or sunrise. A faint, white grid pattern is overlaid on the image, creating a digital or data-like aesthetic.

# Edinburgh's path to data excellence

On the journey to become the data capital for Europe

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# Introduction 01



**By Stuart Chalmers & David Caskie**

Joint Managing Directors  
Accenture | Scotland

The drive for Edinburgh to become the data capital for Europe was one of the ambitions of the Edinburgh and South-East City Region Deal.

Launched in 2018, this collaboration between the UK and Scottish governments, six local authorities and the city region's universities, colleges, businesses and third sector announced a £661 million Data-Driven Innovation (DDI) Programme to harness the area's strengths in digital technology and enhance its data capabilities. The goal is to be recognised as the European centre of excellence for artificial intelligence (AI) and data science.

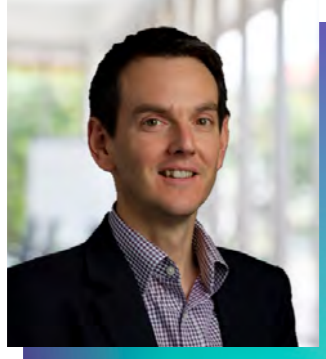
For those living in Scotland and working in Edinburgh, it was an aspiration within reach—a goal worth pursuing. The turmoil caused by the unforeseen global events of the past three years has undoubtedly slowed progress but the opportunity for Edinburgh and Scotland to take such a lead remains compelling.

Since the ambition was first set, the Scottish Government has committed to driving forward digital technology and AI in particular. Its 2022-2023 Programme for Government includes actions designed to build public trust in data, upskill digital skills among professionals and create a skilled digital workforce. In 'A Changing Nation,' its updated Digital Strategy for Scotland, Scottish ministers set out key actions to support the journey towards being a digital nation.

On AI specifically, Scotland's AI Strategy has the vision that Scotland will become a leader in the development and use of trustworthy, ethical and inclusive AI, outlining several actions to realise that vision.

Against this backdrop, the Accenture Applied Intelligence team in Scotland has taken a moment to pause and reflect on what it means for Edinburgh to be the data capital, to understand what progress has been made and what is needed to push through to the final desired destination, and how Accenture can contribute to this ambitious target.

# Introduction 02



**By Mark Byrne**

Head of Applied Intelligence  
Accenture | Scotland

Throughout our research, we found that many of the assumptions about the strengths of Edinburgh as a centre of data excellence were justified and could be evidenced.

Fundamentally, Edinburgh has a strong and growing digital technology sector and workforce that make a valuable contribution to the economy. This is complemented by government support and inward investment.

But critically, we asked what makes a data capital and whether we are all focused on those goals.

When the ambition was set out in the DDI Programme, there were references to targets to 'support, enhance and improve talent, research, commercial adoption and

entrepreneurship through better use of data.' This was the baseline for our research which has pulled together all the existing available information. Then to build on these broad themes, we also conducted in-depth interviews to identify the characteristics that businesses and subject specialists felt made a place a data capital.

This report looks in depth at the pillars essential to claim the title of 'data capital'—business demand for data expertise, the economic environment, the talent pool, innovation, and clarity of purpose—in order to spark a debate about what needs to be done to overcome any lingering barriers and challenges for Edinburgh to step up and into the role as a European leader of all things data.

Overall, we found that both heart and head say that Edinburgh is moving in the right direction. Progress is gathering pace, there is a huge opportunity in the sector and its shining ambition to shape the city's future as the data capital for Europe remains undimmed.

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# Building the path to Edinburgh's data destination

# 01

## How does Edinburgh rank for data and AI?

### What we found

#### Reputation is everything

'2023 marks the 60th anniversary of AI research in Edinburgh. Academics and increasingly businesses have been working on AI since 1963, building a leading legacy in this domain. Connected with Edinburgh's existing service and knowledge-based economy, this legacy creates a unique foundation when it comes to reaping the benefits of new data opportunities.'

#### Innovation Centre

In comparison with other cities in Europe, Edinburgh is consistently rated highly on its data and AI capability, ranking within the top five to ten cities in Europe.

However, in the absence of a single, consistent set of benchmarks, a definitive conclusion for which city is 'leading' is hard to reach.

Aside from some of the major centres of population (London, Berlin, Paris), the key comparators for Edinburgh include smaller cities like Dublin, Amsterdam and Stockholm. These cities are also in nations that consistently rank highly for digital performance, making them natural rivals to Edinburgh for the title of data capital for Europe. On a per-capita basis, Edinburgh performs well in terms of its level of research and teaching expertise, its level of research output, and its number of job postings. Yet there is also an opportunity for the city to catch up with its competitors across some measures, such as the number of AI startups, investment and salary levels.

In terms of AI specifically, Edinburgh is rated as one of the top cities in Europe. In 2021, the Harvard Business Review published its list of the top 50 global cities for AI, based on a framework that measures talent pool, investment, diversity of talent and digital infrastructure.<sup>1</sup> Of the European cities that featured on the list, Edinburgh ranked 5th, after London, Paris, Berlin and Amsterdam. Of these cities, Edinburgh has the lowest population, highlighting a comparatively strong reputation for a city of its size.

In the Global Cities AI Readiness Index, Edinburgh ranked 8th in Europe.<sup>2</sup> This was based on four measures designed to understand cities' ability to adapt and thrive in AI: the city's vision, stakeholders, assets, and trajectory in AI.

Together, these two sets of findings highlight that Edinburgh performs well in terms of AI reputation, but each is measured differently leading to a lack of consistency and therefore certainty in how Edinburgh is ranked.

Fig 1: **50 Global Hubs for AI Talent, 2021, (European cities only),**  
Harvard Business Review

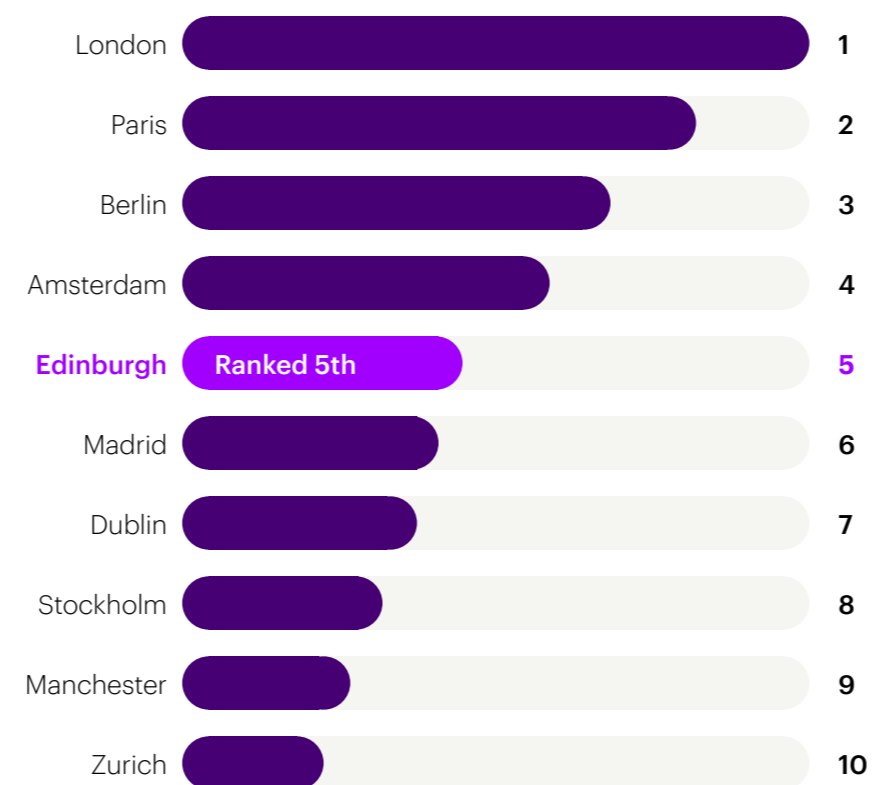


Fig 2: **Global Cities AI Readiness Index, 2019, (cities with populations <3 million only),**  
Oliver Wyman Forum

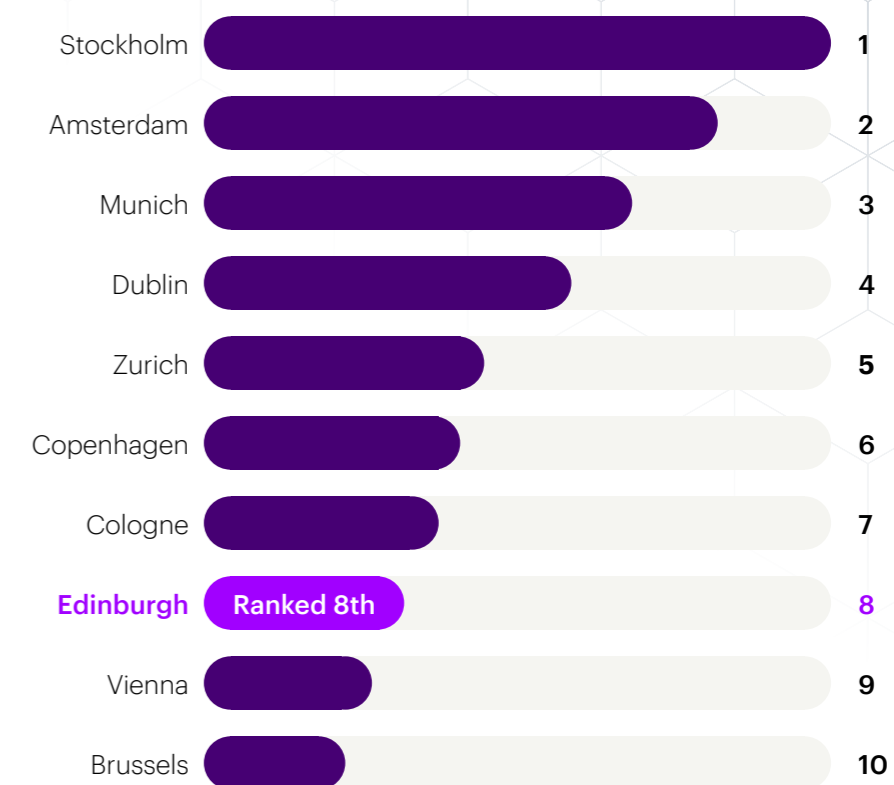


Fig 3: **The data and AI landscape across 4 comparable European cities**

	Edinburgh	Dublin	Amsterdam	Stockholm
<b>Population</b>	c 525,000 (1.4 million in the Edinburgh and South East City Region Deal area)	c 555,000 (c. 1.2 million in the surrounding urban area)	c 883,000 (with 1.6 million in the surrounding urban area)	c 980,000 (with 1.6 million in the surrounding urban area)
<b>Teaching</b>	2 universities offering MSc courses in AI and 3 in Data Science	3 universities offering MSc courses in AI and 2 in Data Science	2 universities offering MSc courses in AI and 2 in Data Science	2 universities offering MSc courses in AI and 2 in Data Science
<b>Graduate retention rate</b> <sup>3, 4, 5</sup>	53%	90% in Ireland (rate for Dublin not known)	50% in Netherlands (rate for Amsterdam not known)	Unknown
<b>Publications</b> <sup>6</sup>	1,250 AI publications from Edinburgh universities in 2022	1,036 AI publications from Dublin universities in 2022	1,572 AI publications from Amsterdam universities in 2022	1,033 AI publications from Stockholm universities in 2022
<b>Tech investment ranking 2022</b> <sup>7</sup>	>20th	18th	6th	4th
<b>No. of tech startups</b> <sup>8</sup>	323	Unknown	Unknown	Unknown
<b>No. of AI startups</b> <sup>9</sup>	54	142	203	162
<b>Job postings (on LinkedIn, Nov 22)</b> <sup>10</sup>	1,602 AI and/or Data Science	1,619 AI and/or Data Science	2,967 AI and/or Data Science	1,250 AI and/or Data Science
<b>Average salary (on Glassdoor, Nov 22)</b> <sup>11</sup>	£47,400 for Data Scientist	£51,700 for Data Scientist	£62,600 for Data Scientist	£84,000 for Data Scientist
<b>Other factors</b>	5 Data/AI Research centres; home to Scottish AI Alliance; DataLab and CodeClan; fintech hubs	European headquarters for Facebook and Google	Hosts the annual World Summit AI; home to the National Innovation Centre for AI	Hosts TechFest and Tech Week; scored highest in Europe on AI readiness among cities with population <3M





## What this means

### Reputationally, we're not there yet

Data is multifaceted and can mean different things to different businesses. What distinguishes a data capital is equally hard to pin down.

Measuring and benchmarking any city's performance as a data capital is complicated but important in establishing progress towards that goal. Our research shows that a range of factors can be used to compare relative successes and weaknesses. If we want Edinburgh to keep being successful, we need to accept this and determine where best to focus improvement. If we can clearly evidence our greatest strengths, we can celebrate and promote them and attract further inward investment.

It is also clear from our research, however, that Edinburgh's status is boosted by the reputation fostered by Scotland's wider centres of technology excellence.

Across Scotland, there are hubs of activity working on different but complementary specialisms. Where Edinburgh is world renowned for its financial services sector, Glasgow is establishing a centre of excellence for manufacturing and life sciences. In Dundee, there is a focus on healthcare and cybersecurity, in addition to its world-renowned strengths in gaming. St Andrews and Aberdeen are home to exceptional research activity. All draw on data science and embrace artificial intelligence.

Our interviewees felt that Edinburgh could and should make a stronger case about its data credentials but there was also the acknowledgement that there was a similar focus on data and AI across all regions, raising the opportunities for sharing and amplifying expertise, knowledge and experience. Questions were raised about where the strengths lay—with Edinburgh singularly or with Scotland as a whole.

## What we can do

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01

### Define 'data capital'

The term 'data capital' is used as an aspiration, but not with the conviction that comes from the clarity of purpose needed to galvanise support. A clear definition of 'data capital,' including underpinning benchmarks, needs to be established. With a definition in place, the title of 'data capital' can be confidently claimed.

02

### Collaborate to co-create

Business and government should collaborate to co-create the definition of 'data capital,' establishing the respective roles each must play to realise this goal.

03

### Use our strengths

On this journey to 'data capital,' we must continue to take every opportunity to make the most of Edinburgh's strengths in the marketplace for global inward investment. We have a compelling offering to businesses coming to Edinburgh and we need to be confident and consistent in how that is presented.

04

### Investment opportunities

Making Edinburgh more attractive to growth companies is seen as a significant factor in elevating Edinburgh's (and Scotland's) credentials as a technology hub. Against a backdrop of rising investment in the digital technology sector both in the UK and in Europe, additional research is needed to identify what else must be done to bring a greater share of investment into the capital and encourage a dynamic and expanding data business community.

05

### Emphasise lifestyle benefits

Salary levels appear to be another area where Edinburgh is at a disadvantage, however, more should be done to put this in a wider 'quality of life' and 'cost of living' context, emphasising the lifestyle benefits of being located in Scotland.

06

### Elevate the ambition

Elevate the ambition to the national level, consistent with the National Strategy for Economic Transformation. Reframe Edinburgh as the 'data capital' of a digital nation, within a symbiotic, interconnected ecosystem of cities; Glasgow, Dundee, Aberdeen and St Andrews. These should be seen as complementary centres of excellence working in unison to amplify and enhance the benefits of each.

# 02

Using the demand for data to create opportunity

## What we found

**We're right to invest in Edinburgh's potential as a data capital; the role of data for businesses will be critical to their long-term competitiveness**

Throughout our research, there was an overwhelming recognition by industry specialists and businesses that data is integral to the operation and success of organisations in both the public and private sectors. Scotland's trade and foreign investment agency, Scottish Development International, commented, 'Data is the future, and that's why Scotland is investing £661 million into securing our capital city—Edinburgh—as the Data Capital for Europe.'

In the interviews carried out with several global businesses from the financial services, technology, and telecommunications sectors, all had a data presence in, or close to, Edinburgh.

The businesses had a wide range of data expertise within their teams, including AI and machine learning, data science, analytics, visualisation, architecture, engineering, quality, business intelligence, governance, and ethics. Data was seen as playing an important role for businesses in many ways. It helped to inform decisions about products, sales strategy, customers, supply chains and human resources.

**'They say "data is the new oil". Everything we do is based on how to help [business] customers store, process, and analyse data to make their business better. It underpins everything.'**

**Technology and Communications Business**

While data was seen as integral to many aspects of business, however, it was also suggested that companies could do more to strengthen their data skills and to encourage a more widespread understanding of the role data can play.

### **Strength in the financial services sector creates a compelling demand for data and AI expertise**

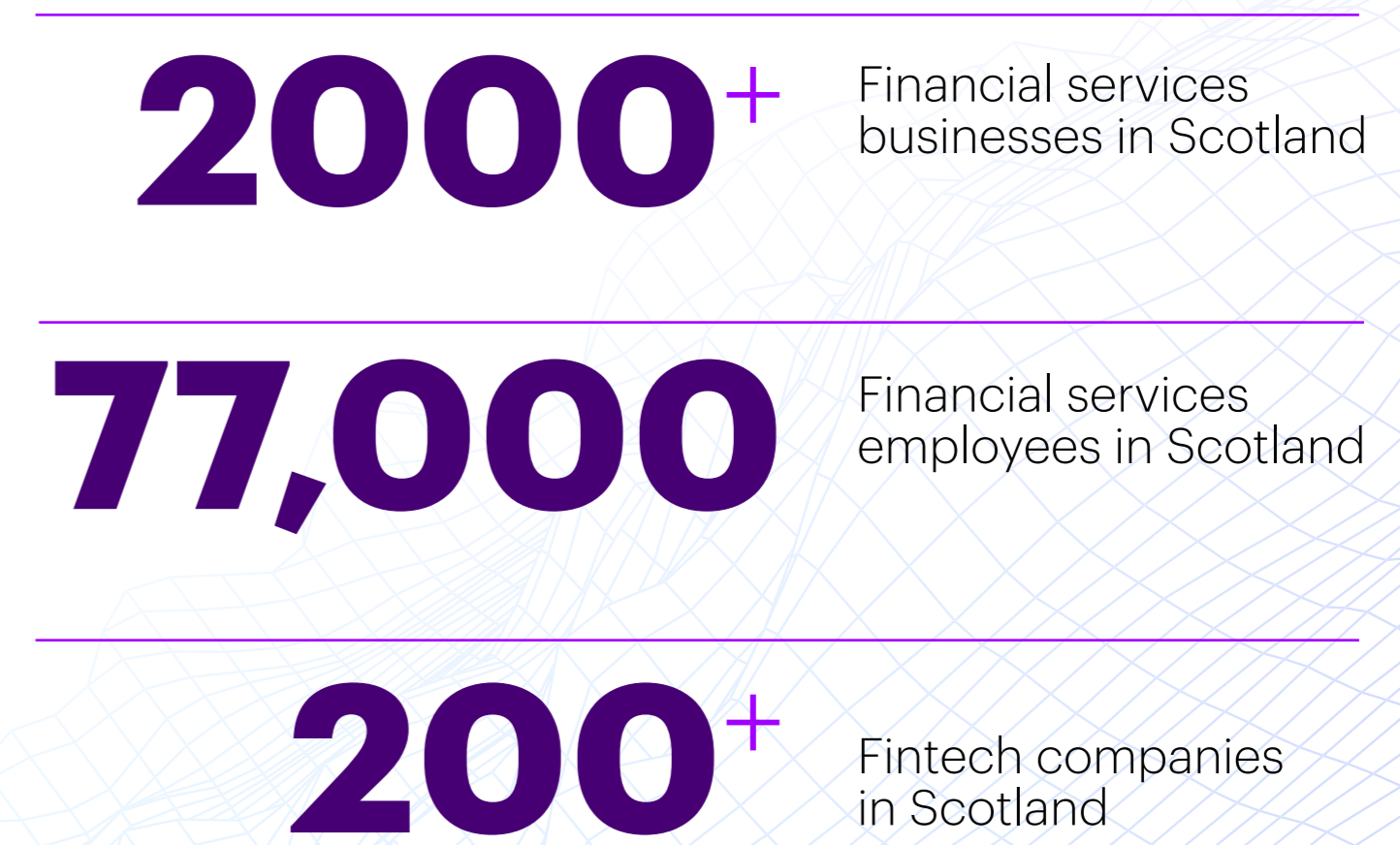
A clear distinguishing factor for Edinburgh highlighted in the interviews was Edinburgh's well-established position as a leading financial services centre. The city's financial services sector has a long and distinguished business heritage—and it is global. The sector was an early leader in recognising the need to be data-driven, which not only puts it in a strong position to implement data-led innovations within the sector, but it can also act as a catalyst for other sectors, creating the conditions for data-led innovation in all aspects of life from healthcare to climate change.

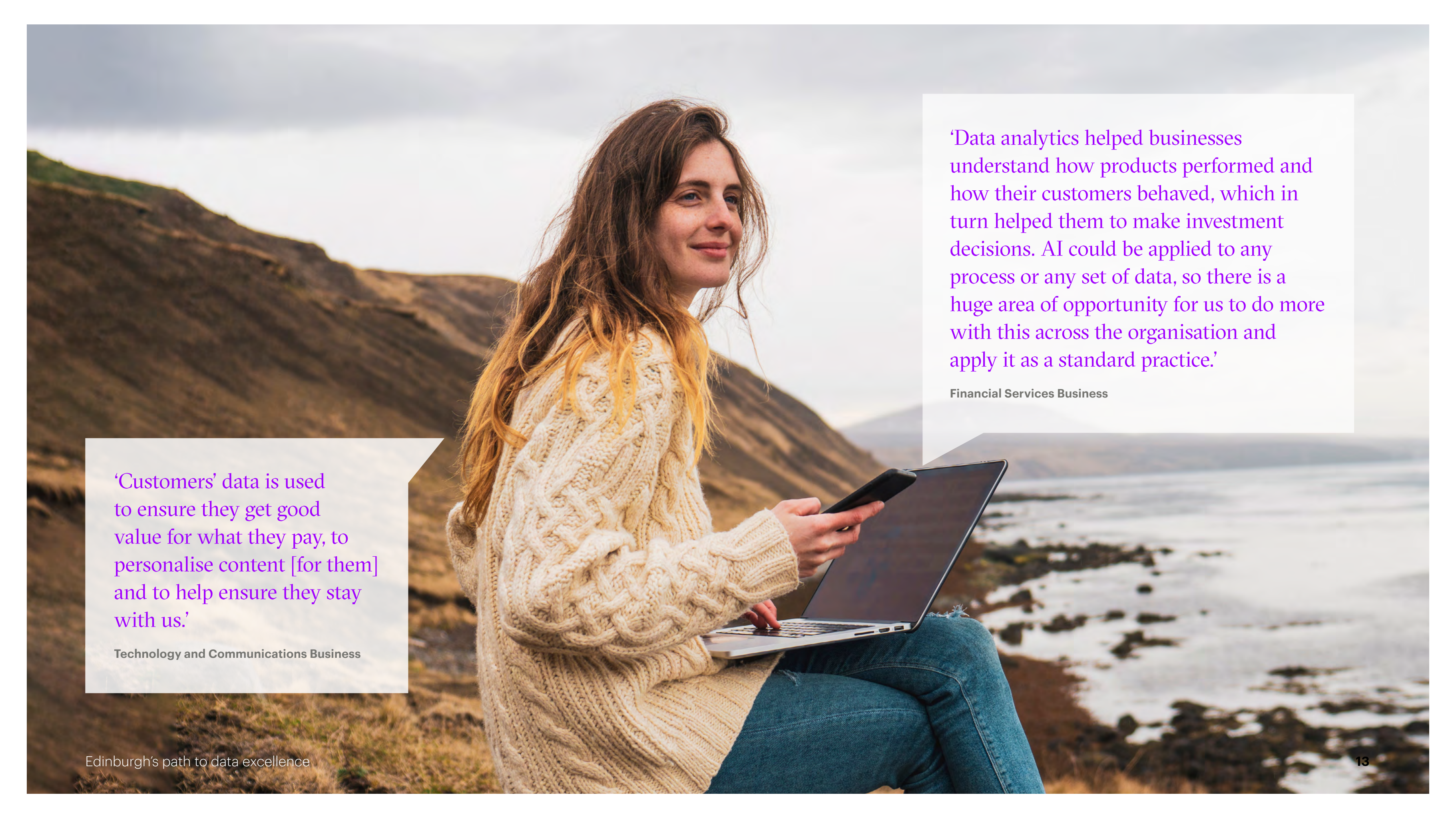
Edinburgh is considered to be a global driver in fintech. There are 2000+ financial services businesses and over 200 fintech companies in Scotland, a rapidly developing industry where financial services draw on the opportunities provided by data and technology.<sup>12, 13</sup>

*‘The reason Edinburgh is positioned this way is because it has a high percentage of financial services companies, and it has the additional funding through the Edinburgh City Region Deal and DDI.’*

**Public Sector/Innovation Centre**

Fig 4: **Scotland's financial services and fintech industry**





‘Customers’ data is used to ensure they get good value for what they pay, to personalise content [for them] and to help ensure they stay with us.’

Technology and Communications Business

‘Data analytics helped businesses understand how products performed and how their customers behaved, which in turn helped them to make investment decisions. AI could be applied to any process or any set of data, so there is a huge area of opportunity for us to do more with this across the organisation and apply it as a standard practice.’

Financial Services Business



## What this means

### Digital skills are increasingly in demand

Data has become the most in-demand skill in the UK tech sector (with demand for roles increasing by 1006% since 2019.)<sup>14</sup> Businesses are recognising that without technical data-related skills in their workforce, they are in danger of missing their business goals.<sup>15</sup>

### Others will follow

For financial services businesses, it was specifically noted that Edinburgh had become a globally connected hub for the sector, meaning their data teams had also become globally recognised, having been established over time. As a sector, too, it was uniquely positioned to capitalise on locally driven data innovation. It is evident that where there is leadership and a recognised talent pool, others will follow.

Talking up the role of data in driving innovation and business value is essential. Where awareness and knowledge of the value of data are still low, more should be done to increase the understanding of the value that data can unlock for business.

**‘We want to grow but customers and colleagues don’t understand why [data] is important ... If we take the extra time with capturing data [our offer] would be much higher quality.’**

**Financial Services Business**



Reduced analysis  
time by

**40%**

Response time  
cut by

**30%**

## Many businesses don't fully understand the value of data

### Case study

Understanding consumer challenges and more importantly, escalation prevention, was the goal for a leading financial services firm. Using AI, Accenture was able to identify common and emerging themes in their customer complaint process, reducing analysis turnaround by 40% and resulting in a 30% cut in response time. Through advanced analytics, we provided the insights that allowed the business to proactively reduce complaints by 18%, a major win for a relatively quick delivery.

Our data-driven, AI-enabled solution created a proactive complaints avoidance capability leading to increased customer satisfaction.

## What we can do

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01

### Leverage fintech's success

Edinburgh and Scotland have been successful in building a vibrant and growing fintech sector, leveraging the city's globally significant financial services sector as the catalyst. There is an opportunity to leverage this fintech success story and the obvious synergies to attract more technology and AI startups.

02

### Support collaboration between businesses

Policymakers and industry need to collaborate on how to learn from and capitalise on these strengths in the financial services sector for future growth. There is opportunity for greater interaction between big and small businesses in the sector as well as more dialogue between the financial and other sectors to create insights that would have immense value not just in Scotland but also further afield.

03

### Raise Edinburgh's data profile

The city must raise its profile as a data capital that reaches out to and supports other sectors that align with the priorities of Scotland's National Strategy for Economic Transformation, whether in life sciences, healthcare, the energy sector, or food and drink production. Scotland has key competitive strengths in these sectors that can become even more compelling when paired with the application of data and AI, creating national economic benefits.

04

### Push Edinburgh's unique advantages

Edinburgh has all the ingredients required to have a growing and thriving data and AI sector, including proven success stories. We need to have the confidence to move beyond being the 'best kept secret' and push the unique advantages including our financial services sector with global connectivity and our world-leading data research that will create powerful insights on the international stage.



# 03

## Sizing up the economic environment

### What we found

#### Scotland has a strong and growing digital technology sector

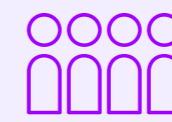
Scotland already has a strong and growing digital technology sector. The economic contribution from Scotland's digital technology sector is significant and growing at a faster pace than other sectors. It is also forecast to grow further.

In 2022, the sector contributed £5.9 billion Gross Value Added (GVA) to Scotland's economy, accounting for 4% of Scotland's total GVA, growing 108% between 2012 and 2022—compared with 13% for the country overall.<sup>16</sup> It is forecast to grow a further 28% by 2032, to contribute £7.7 billion.

Fig 5: **Scale of the digital technology sector**<sup>17</sup>



Over 11,000 registered businesses (6.3% of Scotland's business base)



Over 87,000 people employed (4.3% of Scotland's total private sector workforce)

5.9<sub>bn</sub>

Contributed to the Scottish economy in 2022 (4% of Scotland's total GVA)

108%

GVA growth of 108% in ten years—faster than for the economy as a whole

## Government support is increasing

Building on analyses of Scotland's economic strengths, the Scottish Government has published several reports and policy statements that give prominence to the development of an interconnected tech ecosystem that encourages and promotes digital expertise and data skills.

In March 2022, the National Strategy for Economic Transformation recognised that technological change was an opportunity for greater productivity, entrepreneurship, and innovation across the economy.<sup>18</sup> The strategy sets out the Scottish Government's ambitions to create an enterprising nation, and singles out entrepreneurial learning as a critical factor to maximise digital skills and help drive the digital revolution.

The Scottish Government has launched plans for five new Tech Scaler hubs, investing £45 million to transform Scotland into one of Europe's leading economies to start and grow a technology business.<sup>19</sup> Following the recommendations of the Logan Review, published in 2020 by former Skyscanner COO Mark Logan, Scottish tech

startups and existing tech innovators would have access to high-quality business support.

In 2021, Scotland's AI Strategy was unveiled, setting out the vision for Scotland to become a leader in developing and using trustworthy, ethical and inclusive AI by focusing on AI's role in society.<sup>20</sup> It set out a roadmap for success on the principles of collaboration, building trust and a clear direction of travel that aligns AI with other strategic initiatives. It provides the case for sustained investment in Scotland's AI and data ecosystem.

## Investment is strong

**'Having people [working in data] is the first thing, but it is also about having the money to attract and maintain businesses whilst they're in their early stages.'**

### Technology and Communications Business

Investment was one of the characteristics associated with being a data capital and our research highlights that this is one of Edinburgh's strengths. Foreign Direct Investment (FDI) in Scotland has grown in recent years, particularly in the digital technology sector, with Edinburgh leading other UK cities (outside of London) in attracting foreign direct investment in the digital sector.

In 2021, FDI in Scotland increased by 14%, continuing four years of growth.<sup>21</sup> This compares with an increase of 1.8% across the UK and 5.4% across Europe. The number of digital investment projects in Scotland rose by 73% (in contrast to 7% growth in the UK). Scotland's attractiveness for investment within the UK rose to its highest level ever, with 15.8% of foreign investors rating Scotland as the UK's most attractive investment destination (up from 7% in 2019).

Digital technology was the leading sector for investment in Scotland. There were 33 Scottish projects recorded from the digital technology sector in 2021, a 73.6% increase on 2020, in contrast to a 7% fall in Europe as a whole and a 7% rise for the UK in 2021 from 2020. Edinburgh secured investment in 17 digital projects, topping the list of cities after London.

‘During the past 10-15 years we have seen Edinburgh become a leading digital startup city. It is in the top tier of UK cities and ranks highly for medium-sized cities globally. But we have to remain cognisant that others are catching up. We need to tilt back upwards and fuel our activities.’

Innovation Centre

However, while Edinburgh is one of the leading UK cities for foreign direct investment in the UK (outside of London), when compared with other European tech hubs of similar size, the level of investment flowing into the sector is lower.

In Europe, there are five cities that dominate investment activities—London, Berlin, Stockholm, Munich and Paris. Stockholm is ranked 4th for the level of investment it attracts, with Amsterdam 6th and Dublin 18th. Edinburgh sits outside the top 20.<sup>22</sup> Those we interviewed acknowledged that while there is a good availability of startup funding, the relative lack of growth capital was an area that was recognised as being a drag for Edinburgh and needed to be addressed.

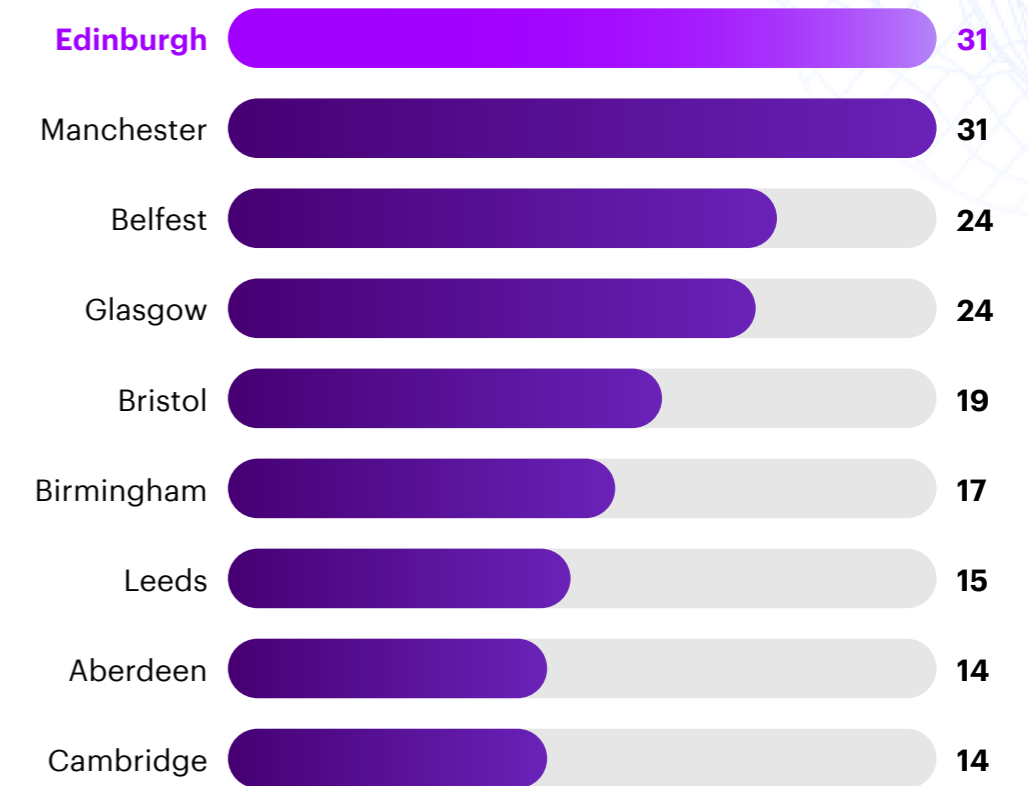


73% increase in investment in digital projects in Scotland in 2021



33 new investment projects in digital technology in Scotland in 2021

Fig 6: Number of foreign direct investment projects by city outside of London (2021)



Source: EY Attractiveness Survey Scotland June 2022

## Edinburgh is AI ready

As well as having a strong and growing digital economy, Edinburgh also performs well on AI specifically. Outside of London, according to one index system, Edinburgh is one of the key cities in the UK for AI startups and for its supporting infrastructure for AI businesses.<sup>23</sup> While the largest proportion of AI startups is heavily concentrated in London, accounting for 65% of new businesses since 2000, Edinburgh is one of just three areas outside the UK capital with more than 20 startups in the sector over the same period.<sup>24</sup>

Similarly, Edinburgh has been ranked within the top five UK cities in terms of being 'AI ready,' after Cambridge, Oxford, and Manchester.<sup>25</sup> This was based on several measures including the number of MSc courses, the number of AI job adverts, GDP per head, and levels of investment.

## Accenture's AI Maturity Index<sup>26</sup>

Accenture's AI Maturity Index reveals that European organisations will lead in AI by 2024. However, more than 60% are only experimenting with AI, creating significant opportunities for value on their journey to AI maturity.

New global research from Accenture has assessed several companies around the world via an AI Maturity index on a 0-100 scale. According to the research, AI maturity is the degree to which organisations outperform their peers in a combination of AI-related foundational and differentiating capabilities. These capabilities include the technology—data, AI, cloud—as well as organisational strategy, Responsible AI, C-suite sponsorship, talent and culture.

Currently, European organisations have a median AI maturity score of 37, which is on par with the global average of 36 and ahead of US organisations (31). By 2024, European organisations are projected to have reached a score of 53—versus 50 across companies globally and 49 in the US.





## What this means

### Data and AI can be grown but Edinburgh faces increasing competition

To be a data capital requires a supportive economic environment in which there is investment in the sector, opportunities for new startup businesses, and the infrastructure and talent pool to fuel growth.

In terms of the size and scale of the digital technology sector, including the number of businesses, size of the workforce and the scale of economic contribution, Edinburgh (and indeed Scotland) offers a place within which data and AI businesses can be successfully established and grown.

But there is also a cautionary note when we look further afield. While Edinburgh performs well on AI, it is also clear that the AI sector in the whole of the UK is growing, with other UK cities making great strides. Coade's 2017 report noted that 'a new AI startup has been founded in the UK on almost a weekly basis in the past 36 months.'<sup>27</sup>

In that same year, it was estimated that AI could add £232 billion to the UK economy by 2030 and there is no reason to believe that this optimism has weakened since. Edinburgh may have the early advantage, but other cities and regions are alive to the opportunity and are proactively taking steps to capture a share, we therefore need to continue to sell Edinburgh's credentials as a data capital to maintain this title.

Fig 7: **Most AI-ready cities in the UK (top 5 by overall score)\*<sup>28</sup>**



Source: SAS, Smart cities: Which parts of the UK are the most AI-ready?  
\*Chart shows the overall score provided in the index, a combined score based on the individual measures used in the methodology to compare cities.

## What we can do

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01

### Promote Edinburgh's investment potential

If a definition of 'data capital' is adopted, government and industry can direct their respective resources in the most coordinated and effective manner to achieve that outcome. They should continue to work collaboratively to consistently promote and market the strong investment potential of Edinburgh's data sector, both UK-wide and internationally.

02

### Build on the city's track record

We need to build on Edinburgh's strong track record for attracting investment into the data industry, not just to keep the sector growing, but also to ensure that startups and growth companies have what they need to sustain their presence in Scotland over the long term. The proposed Scottish Government Tech Scaler hubs are an innovative addition to the wider digital ecosystem, they should act as both catalyst for growth and centres of collaboration between the different centres of excellence across Scotland, generating incremental growth in Edinburgh and the other cities.

03

### Ensure leaders understand data's value

AI and data 'readiness' are dictated by factors such as leadership and culture within organisations, which ensure that investment is targeted and sustained. Organisations must ensure that leaders from the board down understand the value of data and its potential to drive competitive advantage and growth by investing in data and AI capabilities either in-house or from ecosystem partners.



# 04

## Drawing from the tech talent pool

### What we found

#### Talent equals growth

Talent is a key foundation for growth and ensuring Edinburgh has a strong, digitally skilled workforce, which is critical to the aspirations for becoming a data capital.

Certainly, Edinburgh is one of the major hubs for data and AI jobs in the UK outside of London based on the number of postings for jobs located in the city.

More than one in ten (13%) of all job vacancies in Scotland is in the tech sector. Within the UK, only London and Northern Ireland have a digital jobs vacancy rate higher than Scotland.<sup>29</sup> For AI and data science roles, beyond London, research suggests that Edinburgh is one of the cities driving demand for AI and data science professionals across the UK.

Edinburgh was in the top five locations for numbers of AI and data science job postings (with 2,365 postings, or 3% of the total), after London, Cambridge, Manchester and Bristol. When looking at the number of job postings per capita, Edinburgh ranked 4th (after Cambridge, Oxford and Bristol).<sup>30</sup>

## Demand for talent is universal

### Accenture's Tech Talent Tracker

In our most recent Tech Talent Tracker (October 2022), which analyses LinkedIn's Professional Network data, the demand for tech talent across the UK was shown to have increased by more than 40% over the previous year. Growth was driven by demand for skills in quantum computing (203%), digital ethics (103%), blockchain (74%), robotics (60%), and cloud (40%).

In Scotland, the tracker registered a 152% increase in demand for data analytics and a 103% increase in job vacancies in AI. The demand for digital ethics professionals also increased considerably up 253%, reflecting an increasing focus on the responsible application of data and AI.

According to Accenture's analysis, the pool of UK technology professionals on LinkedIn grew from 730,000 in early 2020 to nearly 935,000 professionals in July 2022. However, it is also evident that the current availability of technology professionals continues to be outpaced by demand.

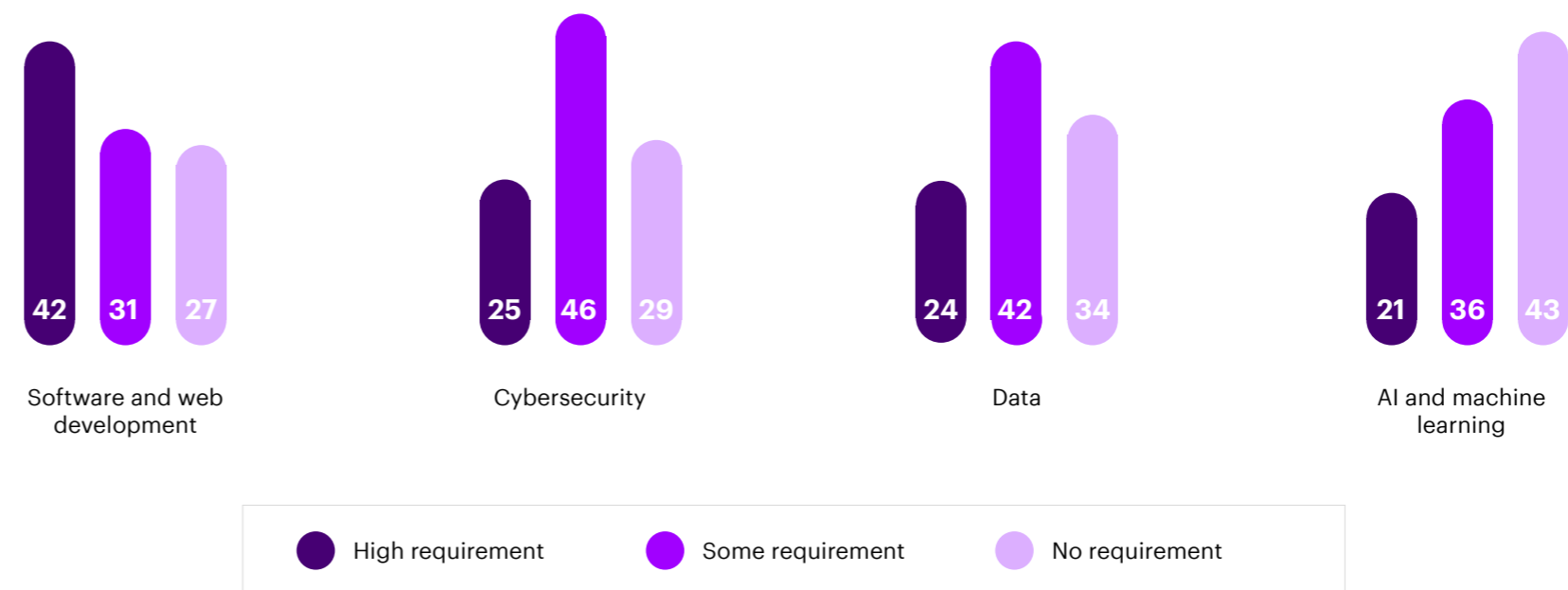
In 2020, a study by Microsoft revealed that almost a third (28%) of UK leaders believed that the UK was experiencing an AI skills gap (compared to 24% of leaders globally).<sup>31</sup> More than a third (35%) thought the skills gap would be noticeable in the following two years.

In Scotland, and among tech businesses specifically, demand for new talent has increased. The Scottish Technology Industry Survey (2022) showed that 76% of

businesses were likely to recruit graduates in the next 12 months, while 52% were likely to recruit college graduates and a further 47% to take on Graduate Apprentices (with each having increased from the previous year).<sup>32</sup>

This research found that 66% of tech employers required data skills and 57% required AI skills.

Fig 8: Skills in demand from tech employers in Scotland (%)





## The talent pipeline: the academic landscape

Scotland's universities have an enviable reputation worldwide. Seven universities, including three based in Edinburgh, offer AI and data science courses at undergraduate and postgraduate levels, with computer science related courses delivered by another 23 Scottish colleges.<sup>33</sup>

In Edinburgh, AI is offered at MSc level at both the University of Edinburgh and Heriot-Watt University, while Data Science is offered at MSc level at both of these plus Edinburgh Napier University.<sup>34</sup>

In the 2020/2021 academic year, the number of undergraduate and postgraduate computing students exceeded 10,600.<sup>35</sup>

As well as teaching AI and data science to master's level, the University of Edinburgh is home to world-class research facilities which work closely with industry and the public sector on data-driven innovation.

Fig 9: **Scotland's AI Strategy**



**7**

universities in Scotland offering AI courses



**13**

undergraduate AI courses



**24**

postgraduate programmes (MSc and PhD)



**960**

students annually studying AI at undergraduate and postgraduate levels

## Skills retention is high

A strong indicator of the strength of Edinburgh's talent pool is the high level of graduate retention. Most graduates from Scottish universities find themselves in professional-level jobs and Edinburgh and Glasgow are two of the top cities in the UK for graduate retention.

Just over 95% of graduates from Scotland's universities ended up in work or study six months after completing their degrees (higher than the UK average) with 73% of graduates working in Scotland in professional-level jobs.<sup>36</sup> Findings from the Scottish Graduate Labour Market study (by AGCAS) found that graduates employed in Edinburgh were more likely to enter the financial and IT sectors:

- 15% entered business and finance roles, more than in Scotland as a whole (8.9%) or the UK (10.8%)
- 8.3% worked in IT, higher than in Scotland (4.5%) and the UK (4.6%)

Research by Liberty Living found that the top two cities in the UK for graduate retention were Edinburgh and Glasgow (both with 51% of students deciding to stay).<sup>37</sup> Similarly, 2021 research by Knight-Frank found that Edinburgh had the highest graduate retention outside of London, with 53% of students intending to stay after graduating.<sup>38</sup>

While there is no specific data on the proportion of data and AI graduates remaining in Edinburgh or Scotland post-graduation, the backdrop is encouraging.

Fig 10: **Graduate retention by city**



## Attracting talent, reimagining location

How to attract and retain talent was another key point of discussion with our interviewees. It was felt that there were clear benefits to living and working in Edinburgh, or Scotland more generally when compared with larger cities like London, with factors including better quality of life and work-life balance, lower cost of living, and the concentration of talent in a relatively small place.

While the importance of physical location was discussed it was, however, also felt that data skills did not always need to be accessed from a central location. The acceleration of home working has meant that businesses can tap into data expertise across the UK or the world. It was felt that the extent to which a centralised data presence is needed can therefore depend on factors such as sector, the market the businesses are working within, and the nature of demand for data.

‘We can bring in quite good talent, and it’s been less expensive for the same level ... it’s a better quality of life and lower cost of living—we’ve had people in London and a large proportion of their income is spent on accommodation and transport. They move here, and they can have a house, rather than a flat.’

Technology and Communications Business





## What this means

### **Closer collaboration between businesses and academic institutions is vital**

As well as a general need for basic IT skills, there is particular demand for data, cyber security, and AI skills. As Edinburgh strives to be a data capital, continuing to focus on developing these types of skills among new talent entering the workforce is critical.

With world-class universities offering data science and AI courses, Edinburgh is well placed to nurture the relevant skills. In addition to this, there are four more highly respected universities across Scotland also delivering data, AI and indeed cyber security graduates. The pool of talent is deep. However, the presence of a dynamic and attractive business landscape, in Edinburgh's case the financial services sector, is also clearly important.

Over and above this, there is a clear case for businesses to 'lean in' more and work with the academic institutions to ensure the knowledge that graduates have gained is complemented by business understanding. A practical application of skills through challenge-based projects, experiential learning, and the ability to adapt in what is a rapidly changing space is critical. Students leaving college or university will not be work ready unless they engage with business through placements, apprenticeships, internships and mentoring during their courses.

And, while there is a need to develop more skills, it's equally important for companies to both keep skills up-to-date and upskill their current workforce.

## Case Study

### Nisha

Associate | Accenture  
Applications Development

*‘There are so many dimensions to the company and so many opportunities. I am really excited to be with an organisation that is working on the bigger, game-changing technologies.’*

*Nisha has been a graduate apprentice with Accenture in Scotland for the past three years, having joined the firm on leaving school at the age of 17. It was her passion for technology and all its future possibilities that made her perfect for the apprenticeship programme.*

*Nisha completed a foundation apprenticeship in software development while at school in Edinburgh. She grew up surrounded by technology but knew she didn't want the full-time studying demanded by a university course.*

*She applied to Accenture's graduate apprenticeship programme and was delighted to find that the process focused on her personal qualities and love of technology more than her school grades. She now studies with Glasgow Caledonian University one day a week for a degree in Software Development of Business and works four days a week with Accenture.*

*‘You don't know the full scale of Accenture until you join,’ she said.*

The businesses we spoke to also highlighted that, as the demand for data skills grows, they are becoming more expensive. The challenge is, therefore, to be able to keep data talent within or attract new talent to Edinburgh. Competition from other locations, particularly London, contributes to this challenge. One theme that emerged from the interviews was the belief that there is an onus on businesses to think about the needs of future candidates and how they will respond to them, in order to attract the right talent.

*‘Companies need to think about the expectations of their employees and candidates, and whether that may differ by different generations, and how they are going to respond to that.’*

**Public Sector/Innovation Centre**

## What we can do

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01

### Address the skills gap

It's important to align digital and data skills taught across the education spectrum with business needs and what's required from the workforce. The skills gap should be addressed urgently through close collaboration between industry and education providers to create the right courses to support the sector's needs.

02

### Blend soft and hard skills

We need to create a talent pipeline that has the right blend of 'soft' (communication, collaboration, and leadership) and 'hard' (software development, data analysis, AI algorithm creation) skills and an appreciation of how these skills translate into real world jobs that can meet their career and life aspirations.

03

### Provide experiential learning

As the application of data has powerful implications for all sectors, both public and private, finding ways to increase the dialogue between students of different subjects through experiential learning would help advance innovations at a greater pace.

04

### Continually invest in training

In an increasingly competitive talent market, organisations must continually invest in training and upskilling their existing employees to keep pace with the demand for new roles.

05

### Invest in related schemes

Organisations should also invest in schemes, such as graduate apprenticeships, that give opportunities to young people considering a career in data or to people in the working age population thinking of a career change to data-related roles.

# 05

## Collaborate to innovate

### What we found

#### **Edinburgh has the resources, expertise and facilities to further develop skills and new talent**

At its heart, the City Region Deal is a collaboration between six local authorities and the city region's universities, colleges, businesses and third sector, which has set out to deliver transformational change to the city's regional economy.

As one of the key strands of the deal, the Data-Driven Innovation Programme is being delivered through a network of six DDI Innovation Hubs, the last of which, the Edinburgh Future Institute (EFI) will establish a global centre for multidisciplinary, challenge-based research, teaching, and societal impact.

The DDI operates alongside the University of Edinburgh, which also houses expertise and facilities to help key sectors (including financial services) become more innovative through data, to foster skills and develop new talent.

**'It's a combination of having organisations that are leading in the field in how to do data, universities that are seen as the place to go for data, and visible sponsorship of that from the city and government.'**

**Financial Services Business**

The presence of world-leading innovation hubs, funded via the DDI Programme, specifically focused on data and AI along with internationally renowned centres of research and teaching at the University of Edinburgh, underpins the collaborative drive towards data capital status.

**‘We are already going in the right direction. There is a lot of stuff happening already. The Data Lab, the fintech startup incubators ... large financial services concentration in Edinburgh that are now doing a lot of disruptive stuff ... we have the universities. So we have all of the building blocks to make it happen.’**

**Financial Services Business**



#### **The School of Informatics**

The UK's top computer science research centre and largest in Europe.

#### **Smart Data Foundry**

Seeks to safely unlock the power of financial data to deliver economic, social and environmental benefits for everyone.

#### **The National Robotarium**

Based at the Heriot-Watt University (and run in partnership with the University of Edinburgh). A world-leading research and development facility on robotics.

#### **The Bayes Centre**

World-leading facility for data science and AI, specialising in digital technology, space and satellites, robotics and autonomous systems.

#### **The Edinburgh International Data Facility (EIDF)**

Brings together regional, national and international datasets to create new products, services and research. It is funded by the UK and Scottish Governments under the DDI Programme.

#### **Edinburgh Parallel Computing Centre (EPCC)**

One of Europe's leading supercomputer hubs, recognised internationally for its data research, its work with industry and high performance computing and high performance data analysis education and training.



## Edinburgh's data infrastructure

The research and teaching facilities at the University of Edinburgh and the DDI hubs are part of a wider Scottish network of resources to support the development of data skills and to help companies make use of those skills.

**'The combination of knowledge assets and connections to drive new insights can lead to something of value that everyone can believe in.'**

**Innovation Centre**

Edinburgh's path to data excellence

### The Data Lab

The Data Lab is Scotland's innovation centre for data science and AI. Its proposition is 'to change lives by transforming the way we do data.'

It has a network of over 1,500 companies, public sector organisations, universities, and data experts. Since its launch in 2015, more than 800 students have completed The Data Lab's MSc programme. The ultimate goal is to 'turn Scotland into a thriving, data-driven economy.'

### ScotlandIS

ScotlandIS is a digital technology trade body and the UK's only accredited Cluster Management Organisation. ScotlandIS encourages collaboration, innovation, and ongoing development across the tech industry.

It signposts skills development resources, such as e-Place Scotland (matching technology firms with students), the Digital Xtra Fund (supporting extra-curricular computing and digital activities to young people), The Digital Skills partnership (a partnership between colleges, universities and the industry), and CodeClan.

### CodeClan


CodeClan is Scotland's first and only SQA accredited digital skills academy. Its mission is to help bridge the digital skills gap.

It offers training courses on software and data skills, to people from a range of backgrounds. To date it has produced over 1,700 graduates, with a 97% course completion rate and an 84% job place rate.

### The Data Skills Gateway

The Data Skills Gateway has been set up so that everyone can benefit from the opportunities of the new economy. It brings together industry, universities, colleges, schools and others to provide routes into data or digital careers. It covers basic and key skills in schools through to advanced postgraduate training and research.

The Skills Gateway helps to develop the data science curriculum and continuing professional development for employability and learning professionals, plus skills development for people who are excluded or disadvantaged groups, helping to improve inclusion within the industry.



‘We could do better with visibility and publicity—people think we are the world’s best kept secret ... We could make more of our tech capabilities, and have that presence on an international stage. If this attracts one or two key players to come here, that can have a knock-on effect. Like what Ireland did with Facebook and Google.’

**Public Sector/Innovation Centre**

‘If it can create the buzz and engagement around data, hosting conferences, publishing more ... to really create that culture. If people can see that there is a hotbed of information and enthusiasm around data in Edinburgh and Scotland businesses are likely to take notice and gravitate towards this location.’

**Financial Services Business**



## What this means

### We're still missing the 'silver bullet' needed to make Edinburgh a world leader

Edinburgh has world-leading institutions, with many of the building blocks in place to drive forward commercially led innovation. Undeniably, Edinburgh is also home to renowned global businesses and the birthplace of unicorns, Skyscanner and FanDuel.

What it will take to tip the balance in Edinburgh's favour as 'data capital' is the key question.

Edinburgh, it seems, is arguably still missing the silver bullet that will make it synonymous with data, the way Silicon Valley is synonymous with tech. While renowned

for its academic institutions, our interviewees argued that Edinburgh and Scotland needed to share its knowledge and insight in a way that adds value to the world before claims to be a data capital could be fully believed. The city lacks a 'lighthouse,' the global leader, in the data space to elevate its status in the world.

Consider this alongside the place-based strategies to make Glasgow a world leader in manufacturing and Dundee a world leader in cybersecurity, and the result can be a fragmented impression of the data picture in Scotland. Perhaps, if the Edinburgh perspective was changed to one that galvanised the whole of Scotland's data and AI capabilities that beacon would appear.

## What we can do

---

01

### **Harness the sector's strengths**

Businesses need to do more to harness the capability of Edinburgh's existing tech sector strengths. That means shaping further or broadening the existing collaborations between the tech and data community, the wider business community and academia to showcase and harness the value of data for economic growth or indeed public good—and presenting this united picture to the rest of the world.

02

### **Provide tools to fuel innovation**

In particular, we must ensure that the data community and partners in academia have all the tools needed to understand and cater to the needs of industry to fuel innovation and productivity.

03

### **Promote the digital nation**

By recognising that other centres of excellence exist in Glasgow, Aberdeen, Dundee, and St Andrews, we would benefit from setting the context of Edinburgh as the data capital of a wider digitally focused and connected nation. This holistic approach, emphasising the international reputations of these centres could create something bigger than the individual parts. In such a strengthening, confident, shared ecosystem, entrepreneurs and business leaders would feel empowered to learn, collaborate, innovate and grow their businesses.

04

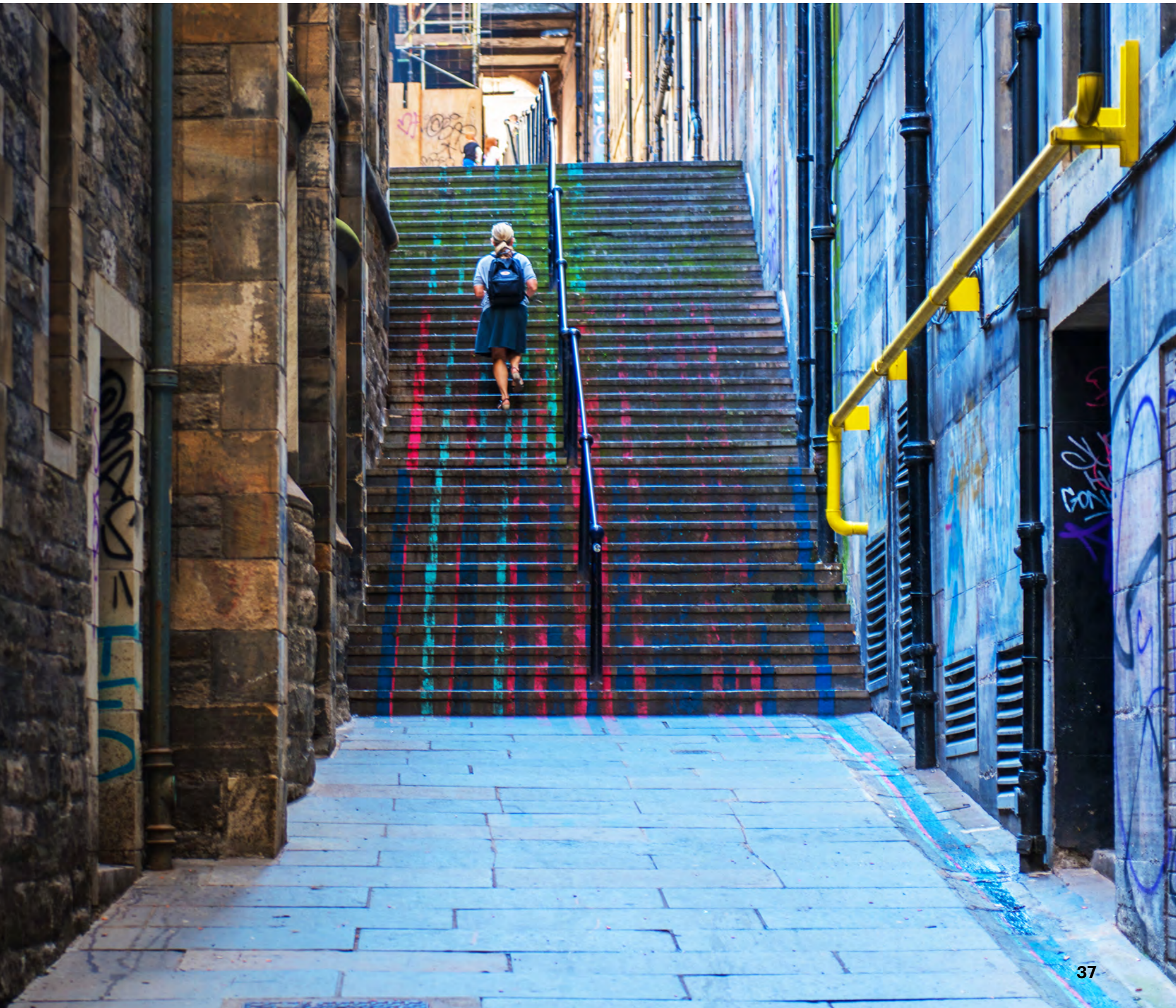
### **Empower the next generation**

We must do more to bring young people into that community at an early stage and empower them so that they can understand the massive potential of working in Edinburgh's thriving data sector. Create the buzz early through closely tied networks that have an international outlook.

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# Putting Edinburgh on the map

By following the steps  
laid out in this report, we  
can build Edinburgh's  
future as the data capital  
for Europe



## 01 Define 'data capital' and set goals

Edinburgh has many strengths which would support a claim as the data capital for Europe, but without a clear definition including international benchmarks to set the direction of travel to claiming the title 'data capital,' it will continue to be seen alongside other similar cities that have equally good AI and data credentials—and potentially fail to stand out.

Establishing a baseline of the key factors that make up a data capital, including where the prominence of Edinburgh's

financial services sector sits in relation to this, will help to define the characteristics of the city's bid to be a data capital for Europe. Setting goals that are communicated widely is now essential along with clearly defined roles that businesses and the public sector can and should play to build a distinct data reputation for the city.

## 02 Emphasise Edinburgh's strengths and the digital nation

One of Edinburgh's strengths is that its data capabilities exist within a strong national strategy for promoting digital and tech, and alongside other centres striving for excellence where data is critical. To maintain and increase the levels of inward investment that support Edinburgh's data aspirations, the city's connectivity with these other specialist hubs should be emphasised.

If we are to create a truly digital nation—a Scotland where digital technology is harnessed by people,

businesses, and government to its fullest potential—then we must bring the separate hubs and their communities closer together in a meaningful way through a Scotland-wide strategy. Thereafter, Edinburgh should consider reframing the aspiration to become the data capital for Europe within this wider national framework. This will elevate and strengthen its position on the international stage.

## 03 Drive collaboration between business and education

The development of the right skills and their availability is, and will continue to be, a major factor for Edinburgh to fulfil its ambition. To increase its claims on a position of leadership in Europe, Edinburgh's business community must collaborate more closely with the education providers. Taking a more active role in the development of data and AI skills—through participation in curriculum and course development as well as providing business insight,

coaching and work experience—will help to create a cohort of work ready university and college graduates who stay in Edinburgh and Scotland. Providing graduate apprenticeships for those seeking alternate pathways into data and AI careers is an opportunity for business to take the lead and access new pools of talent to drive growth. The vehicles exist to make this happen and need to be maximised.

## 04 Promote the power of tech to all sectors

There is massive potential for data, AI and the wider tech innovations to drive economic growth across all sectors of the economy, so we must continue to promote them at every opportunity and across every public and private organisation. Identifying the 'beacon' and the compelling value drivers that will galvanise business, academia,

government and non-profit organisations to support Edinburgh as it becomes the 'data capital' will be game-changing. Such leadership and confidence will cascade through the local economy and be heard overseas.

## Methodology

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**Accenture commissioned Ipsos Mori (Scotland) to undertake the research, which consisted of two stages:**

- 1.** A desk-based review of previous research, data sources and other publications to understand the data and AI landscape in Scotland. Data sources were focused primarily on Scotland, but data for the UK and other countries are also included where relevant. The focus is on statistical evidence rather than unsubstantiated commentary.
- 2.** In-depth qualitative interviews with businesses that have a strong data presence in Scotland, or that might consider having one. Interviews were also carried out with representatives of stakeholder organisations involved in developing and supporting data skills in Scotland.



## References

1. Chakravorti, B., Bhalla, A., Chaturvedi, R. S. & Filipovic, C. (2021, December). 50 Global Hubs for AI Talent. Harvard Business Review. <https://hbr.org/2021/12/50-global-hubs-for-top-ai-talent>
2. Oliver Wyman Forum. (2019). Global Cities AI Readiness Index. <https://www.oliverwymanforum.com/city-readiness/global-cities-ai-readiness-index-2019.html>
3. Knight Frank & UCAS. (2021). Student Accommodation Survey, 2021. Knight Frank. <https://content.knightfrank.com/research/1663/documents/en/knight-frank-ucas-student-accommodation-survey-report-2021-7707.pdf>
4. O'Shea, M. (2019, Feb 18). 90% of working graduates staying in Ireland. Higher Education Authority. <https://hea.ie/2019/02/18/90-of-working-graduates-staying-in-ireland/>
5. Nuffic. (2021, Nov 12). The Netherlands remains attractive for international graduates. Nuffic. [https://www.nuffic.nl/en/news/netherlands-remains-attractive-international-graduates#:~:text=Figures%20from%20Statistics%20Netherlands%20\(CBS.to%20as%20the%20stay%20rate](https://www.nuffic.nl/en/news/netherlands-remains-attractive-international-graduates#:~:text=Figures%20from%20Statistics%20Netherlands%20(CBS.to%20as%20the%20stay%20rate)
6. OECD.AI (2021), powered by EC/OECD. (2021). Database of national AI policies. OECD.AI. <https://oecd.ai/en/dashboards/overview>
7. Atomico, Orrick, Silicon Valley Bank UK, & Slush. (2022). State of European Tech 2022: Top 20 European hubs by capital invested, ranking based on 2022. State of European Tech 2022. <https://stateofeuropeantech.com/3.companies/3.2-country-trends#C3-2-cagr-country>
8. Harris, S. (2022). Regional spotlight: Why the future is bright for Scotland's tech industry. UK Tech News. <https://www.uktech.news/partnership/regional-spotlight-scotland-tech-hub20221220#:~:text=There%20are%20more%20than%20850,are%20optimistic%20about%20its%20potential>
9. Tracxn Technologies Limited. (2022). Artificial intelligence startups in Edinburgh. Tracxn. <https://tracxn.com/explore/Artificial-Intelligence-Startups-in-Edinburgh>
10. Ipsos research based on LinkedIn's job postings database. Postings were for AI and/or data science positions in Edinburgh, Dublin, Amsterdam and Stockholm listed on LinkedIn in November, 2022. LinkedIn. <https://linkedin.com/>
11. Ipsos research based on Glassdoor's salaries index of average salary for data scientists in Edinburgh, Dublin, Amsterdam and Stockholm on Glassdoor in November, 2022. Glassdoor. <https://www.glassdoor.co.uk/Salaries/index.htm>
12. Scottish Development International. (n.d.). Financial services and fintech. <https://www.sdi.co.uk/business-in-scotland/find-your-industry/digital-and-technology-industries/financial-services-and-fintech/>
13. FinTech Scotland. (n.d.). Welcome to FinTech Scotland. <https://www.fintechscotland.com/>
14. Microsoft. (2020). AI Skills in the UK. <https://info.microsoft.com/rs/157-GQE-382/images/AI%20Skills%20in%20the%20UK%20report-SRGCM3647.pdf>
15. Dabhi, K., Crick, C., Douglas, J., McHugh, S., Zatterin, G., Donaldson, S., Procter, R. & Woods, R. (2021). Understanding the UK AI labour market: 2020.

## References continued

- Ipsos MORI. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/984671/DCMS\\_and\\_Ipsos\\_MORI\\_Understanding\\_the\\_AI\\_Labour\\_Market\\_2020\\_Full\\_Report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/984671/DCMS_and_Ipsos_MORI_Understanding_the_AI_Labour_Market_2020_Full_Report.pdf)
- <sup>16</sup> Skills Development Scotland. (2022). Sectoral Skills Assessment: Digital Technologies – November 2022. Skills Development Scotland. <https://www.skillsdevelopmentscotland.co.uk/media/49835/ssa-digital-technologies.pdf>
- <sup>17</sup> Scottish Government. (2019). A Trading Nation – a plan for growing Scotland’s exports. <https://www.gov.scot/publications/scotland-a-trading-nation/>
- <sup>18</sup> Cabinet Secretary for Finance and the Economy, and Minister for Business, Trade, Tourism and Enterprise. (2022, March 1). Scotland’s National Strategy for Economic Transformation. The Scottish Government. <https://www.gov.scot/publications/scotlands-national-strategy-economic-transformation/>
- <sup>19</sup> Scottish Government. (2022, April 19). Building a tech nation. <https://www.gov.scot/news/building-a-tech-nation/>
- <sup>20</sup> Scotland’s AI Strategy & Digital Scotland. (2021). Scotland’s Artificial Intelligence Strategy: Trustworthy, Ethical and Inclusive – March 2021. The Scottish Government. <https://www.gov.scot/publications/scotlands-ai-strategy-trustworthy-ethical-inclusive/documents/>
- <sup>21</sup> Ernst & Young Global Limited. (2022). Leading the way: EY Attractiveness Survey Scotland - June 2022. [https://www.ey.com/en\\_uk/attractiveness/22/scotland-leads-the-way-for-fdi-investment](https://www.ey.com/en_uk/attractiveness/22/scotland-leads-the-way-for-fdi-investment)
- <sup>22</sup> Atomico, Orrick, Silicon Valley Bank UK, & Slush. (2022). State of European Tech 2022: Top 20 European hubs by capital invested, ranking based on 2022. State of European Tech 2022. <https://stateofeuropeantech.com/3.companies/3.2-country-trends#C3-2-cagr-country>
- <sup>23</sup> Skingle, H. (2021, Dec 9). Top 10 Startup Hubs in the UK | 2021 Ranking. Beauhurst. <https://www.beauhurst.com/blog/top-startup-hubs-uk/>
- <sup>24</sup> Ipsos MORI. (2021). Impact review of Innovate UK’s AI-related activity – Interim report. <https://www.ukri.org/wp-content/uploads/2021/08/UKRI-190821-ImpactReviewAIPortfolio-InterimReport.pdf>
- <sup>25</sup> Townsend, G. (2022, July 13). Smart cities: Which parts of the UK are the most AI ready?. SAS. <https://blogs.sas.com/content/hiddeninsights/2022/07/13/smart-cities-which-parts-of-the-uk-are-the-most-ai-ready/>
- <sup>26</sup> Vohra, S., Vasal, A., Roussiere, P. & Guan, L. (2022). The art of AI maturity: Advancing from practice to performance. Accenture. <https://www.accenture.com/us-en/insights/artificial-intelligence/ai-maturity-and-transformation>
- <sup>27</sup> Dennys, R., Fox, B., McEvatt, L. & Wolf, R. (2017). A Global Britain: From local startups to international markets – Tech and digital policy for skills, investment & trade. Coadec. <https://coadec.com/Coadec-Report-A-Global-Britain.pdf>
- <sup>28</sup> Townsend, G. (2022, July 13). Smart cities: Which parts of the UK are the most AI ready?. SAS. <https://blogs.sas.com/content/hiddeninsights/2022/07/13/smart-cities-which-parts-of-the-uk-are-the-most-ai-ready/>
- <sup>29</sup> Murden, T. (2022, June 15). Scotland facing digital skills gap as vacancies rise. Daily Business. <https://dailybusinessgroup.co.uk/2022/06/scotland-facing-digital-skills-gap-as-vacancies-rise/>

## References continued

- <sup>30</sup> Dabhi, K., Crick, C., Douglas, J., McHugh, S., Zatterin, G., Donaldson, S., Procter, R. & Woods, R. (2021). Understanding the UK AI labour market: 2020. Ipsos MORI. [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/984671/DCMS\\_and\\_Ipsos\\_MORI\\_Understanding\\_the\\_AI\\_Labour\\_Market\\_2020\\_Full\\_Report.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/984671/DCMS_and_Ipsos_MORI_Understanding_the_AI_Labour_Market_2020_Full_Report.pdf)
- <sup>31</sup> Microsoft. (2020). AI Skills in the UK. <https://info.microsoft.com/rs/157-GQE-382/images/AI%20Skills%20in%20the%20UK%20report-SRGCM3647.pdf>
- <sup>32</sup> ScotlandIS. (2022). Scottish Technology Industry Survey 2022. <https://www.scotlandis.com/scottishtechsurvey/>
- <sup>33</sup> Digital Scotland. (2019). Scotland's Digital Technologies: Summary Report 2019. Skills Development Scotland. <https://www.skillsdevelopmentscotland.co.uk/media/46258/scotlands-digital-technologies-summary-report.pdf>
- <sup>34</sup> Digital Scotland. (2021). Scotland's Artificial Intelligence Strategy. <https://www.scotlandaistrategy.com/>
- <sup>35</sup> Universities and Colleges Admissions Service. Courses, apprenticeships, information guides and more. UCAS. <https://digitalucas.com/coursedisplay/results/>
- <sup>36</sup> Johnston, S., Alexander, R., Montgomery, J., Morrison, S., Kelly, P., Davies, M., Grayburn, L., Forbes, K., Wright, S., Mach, S., Vickers, M. & Binnie, G. (2020). The Scottish Graduate Labour Market – February 2020. AGCAS. [https://issuu.com/agcas\\_00/docs/the\\_scottish\\_graduate\\_labour\\_market/1?ff](https://issuu.com/agcas_00/docs/the_scottish_graduate_labour_market/1?ff)
- <sup>37</sup> Atsegoh, T. (2020, Jan 7). Glasgow and Edinburgh ranked best for student retention in the UK, says study. The Glasgow Guardian. <https://glasgowguardian.co.uk/2020/01/07/glasgow-and-edinburgh-ranked-best-for-student-retention-in-uk-says-study/>
- <sup>38</sup> Knight Frank & UCAS. (2021). Student Accommodation Survey, 2021. Knight Frank. <https://content.knightfrank.com/research/1663/documents/en/knight-frank-ucas-student-accommodation-survey-report-2021-7707.pdf>

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