

Digital Economy Business Survey 2021

A report for Highlands and Islands Enterprise

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Ipsos MORI



Highlands and Islands Enterprise
Iomairt na Gàidhealtachd 's nan Eilean

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A. SUMMARY AND INTRODUCTION

EXECUTIVE SUMMARY (1)

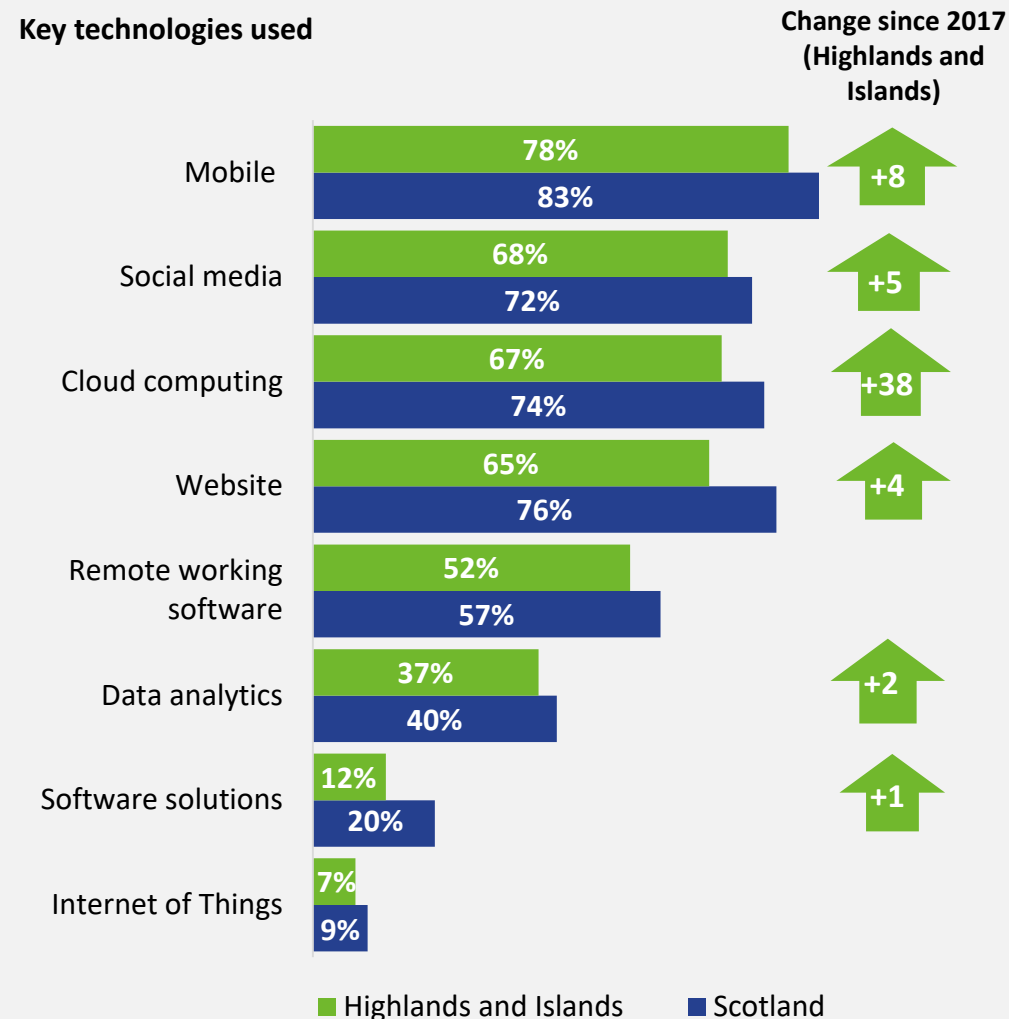
This report presents the findings of the 2021 Digital Economy Business Survey (DEBS) for businesses located in the Highlands and Islands.

Overall, engagement with digital technologies by Highlands and Islands' businesses grew since 2017. Use of cloud computing, mobile technology, social media and websites had all increased. However, as in 2017, **digital engagement in the region was still below that of Scotland overall** - use of most technologies covered in the survey was lower than the Scottish average. Further, just under **one in five (18%) had a specific plan or strategy in place** for their use of digital technology (lower than the Scottish average of 22%).

In spite of lower levels of engagement, **recent investment in digital technologies in the region was on a par with that in Scotland overall**; 43% increased their investment over the past two years, in line with the Scottish average of 45%.

Over two-thirds said digital technologies had made an impact on their productivity in the last 12 months, including a quarter for whom these had made a significant impact. The most commonly mentioned impacts for businesses both in the region and in Scotland overall were making processes more efficient, increasing skills and enhancing the business's competitive position.

Over a quarter of Highlands and Islands' businesses sold goods or services outside the UK, an increase since the previous survey waves in 2017 and 2014. However, across all markets (both domestic and international) businesses in the Highlands and Islands were less likely than those in Scotland overall to expect sales to increase.



Base: All businesses; Highlands and Islands (1,150) and Scotland (3,346).

**for data analytics and software solutions the change since 2017 is not statistically significant*

EXECUTIVE SUMMARY (2)

E-commerce levels in the Highlands and Islands, at 38%, were higher than in 2017 (32%) and slightly higher than for Scotland overall (35%). Recently, COVID-19 had brought changes to use of e-commerce; around a third of regional businesses had either started or increased online sales since the pandemic, a quarter had stopped or ceased online sales, while a third had seen no change.

Turning to cyber security, 27% of businesses reported they had experienced a cyber attack (equal to that across Scotland).

Findings suggest cyber resilience was not as strong in the region as it was nationally; 73% did not feel fully equipped with the skills to protect against and deal with cyber security threats, higher than the 66% across Scotland overall.

Findings suggest a continuing digital skills gap both regionally and nationally. One in five (19%) businesses felt their staff were fully equipped to meet their business's digital technology needs (21% nationally). This has decreased from previous surveys in 2017 and 2014, and may reflect the challenge of aligning skills development with the rapid pace of technological advancement.

Over three-quarters of businesses reported that digital technology was important to their operation in responding to COVID-19. A quarter (24%) had applied to UK or Scottish Government COVID-19 support schemes to enhance digital capability (in line with the average for Scottish businesses overall).

Overall, certain types of business appeared to be more digitally engaged and digitally mature than others. Broadly speaking, across the various topics covered in the survey, the types of business that were more digitally engaged and mature tended to be:

- working in the creative industries growth sector and financial admin and other professional services sector
- larger businesses, with at least 10 employees
- selling goods or services to international markets (i.e. to the EU or to markets outside of the EU)
- those with optimistic growth expectations (i.e. expecting to grow in the next 12 months)

Those that were less digitally engaged tended to be:

- working in agriculture and utilities sector and/or the food and drink growth sector *
- smaller businesses with 1-4 employees
- selling only in domestic markets

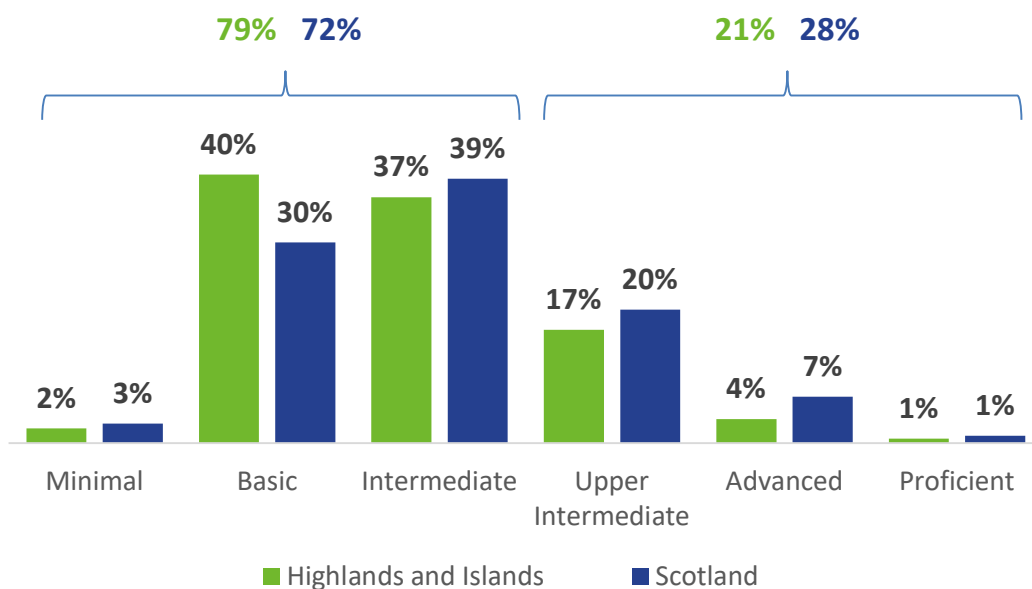
Businesses in rural (either accessible or remote) locations tended to be less digitally engaged than those in more urban locations.

However, there was no clear pattern that emerged when looking at sub-regions within the Highlands and Islands, suggesting that the lower than average levels of digital engagement in the region were not driven by businesses in particular locations.

EXECUTIVE SUMMARY (2)

Findings from the **Digital Economy Maturity Index (DEMI)** analysis show that the majority of Highlands and Islands businesses (79%) fell within the lower half of the index, with the largest proportions being classed as either having either Basic (40%) or Intermediate (37%) maturity.

Overall, Highlands and Islands businesses were lower on the maturity index than those across Scotland as a whole. The mean overall score for the Highlands and Islands was 36 (out of a maximum of 100), lower than the mean score for Scotland overall (40).



Base: All businesses in Highlands and Islands (1,150) and Scotland (3,346).

For the least digitally mature, DEMI findings suggest a lack of interest in digital technologies and lack of appetite for growing digital engagement in the future. Those in the *Minimal* segment had low use of digital technologies, and were therefore least likely to have experienced their benefits. None had plans or strategies for future use of technology. It could therefore be argued that some businesses in the *Minimal* segment are unlikely to benefit from efforts to increase their digitisation.

However, the two least mature groups, *Minimal* and *Basic* were the least equipped for cyber security threats and sizeable proportions identified digital skills gaps. Therefore, these segments may benefit both from digital skills development and enhanced cyber resilience.

There are also opportunities for future skills development among the more mature businesses. For example, those in the *Intermediate*, *Upper Intermediate* and *Advanced* segments still identified at least some level of skills gaps in their organisations.

In addition, though digital technologies were widely used among the more mature segments, there is still potential to drive engagement with some of the lesser-used technologies such as data analytics, management software and the Internet of Things.

INTRODUCTION AND METHODOLOGY

Background

In 2021 the Scottish Government, in partnership with Highlands and Islands Enterprise, Scottish Enterprise, South of Scotland Enterprise and Skills Development Scotland, commissioned the third wave of the Digital Economy Business Survey (DEBS). Previous waves were conducted in 2014 and 2017.

The survey provides HIE and its partners with an evidence base that tracks adoption and use of digital technologies, explores the challenges and opportunities facing businesses and social enterprises in the region, and provides insight into the types of support or interventions required to help them keep pace with digital advancements.

Methodology

Results are based on an Ipsos MORI survey of 3,346 businesses in Scotland, including 1,150 businesses in the Highlands and Islands, conducted between 22nd February and 23rd April 2021. Quotas were set based on region, sector and business size, and data was weighted to ensure a representative sample.

The interviews were targeted at the most relevant person in each business:

- For smaller businesses (<10 employees) this was the business owner
- For larger businesses, interviews were carried out with the person responsible for making decisions about IT systems (Managing Director, IT Manager or equivalent).

Presentation of data

Throughout this report, the overall findings for the Highlands and Islands are presented alongside comparable findings for Scotland as a whole.

Variation by types of businesses are also presented. These include variation by sector, size of business, location (urban or rural, or HIE area office region), number of technologies used (out of the 8 tested in the survey), the markets businesses sell to, and their growth expectations over the next 12 months.

The sectors referenced in the report are derived from a Standard Industry Classification (SIC) code* applied to each business. They are then grouped in two ways:

- into areas of economic activity considered to be “growth sectors” (as set out in the Government Economic Strategy)
- into eight standard sector groupings that correspond with those used in previous waves of the survey

Where a growth sector is commented on, it is always specified as such (e.g. “tourism growth sector”, “financial and business services growth sector”). Where the standard sector grouping are commented on, they are simply referred to by the sector title (e.g. “agriculture and utilities”, “construction”, “manufacturing”). The full list of sectors is shown in the Appendix.

B. INTERNET CONNECTION

TYPE OF INTERNET CONNECTION

98% of businesses in Highlands and Islands had an internet connection, in line with the Scottish average (97%).

The **most common types of internet connection reported** were **ADSL via phone, broadband via cable, and Fibre to the Cabinet.**

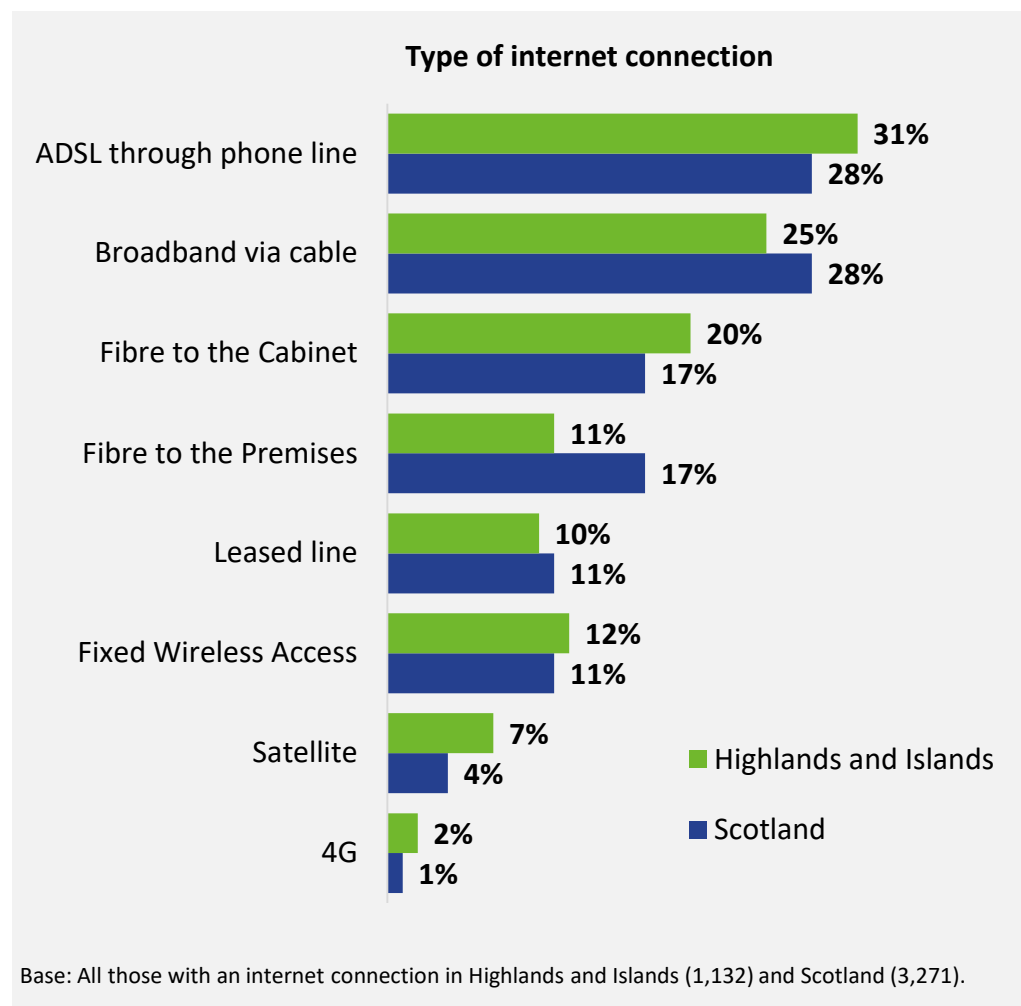
Businesses in Highlands and Islands were a little more likely than those in Scotland overall to say they used:

- ADSL via phone
- Fibre to the Cabinet (FTTC)
- Satellite

They were *less* likely to use broadband via cable and fibre to the Premises (FTTP).

It should be acknowledged that these results reflect businesses' own understanding of their connection type at the time of the interview, but we cannot be certain that it accurately reflects their actual connection type.

This potential lack of understanding is highlighted when comparing connection type with connection speed (see following slide for details of reported speeds). As might be expected, those with fibre connections were the most likely to say they had a superfast speed (75% of those with FTTP and 62% of those with FTTC, compared with 45% of all businesses). However a quarter (26%) of those with ADSL through phone line also said it was superfast, despite ADSL typically being a lower connection speed.



NOTES: The answer options for the question on type of internet connection changed between 2017 and 2021, therefore results are not directly comparable with the previous wave.

INTERNET CONNECTION SPEED

Of those in the Highlands and Islands that knew their approximate internet speed, 45% reported that they had superfast* broadband, an increase from 30% in 2017 and 6% in 2014. The proportion reporting superfast speeds in the region was still below the Scottish average of 62%. As context for these findings, overall superfast coverage reported by OFCOM for the Highlands and Islands is 82%, lower than 95% for Scotland overall (based on both residential and business premises).

It should be noted that this is based on businesses' own understanding of their connection speed, but we cannot be sure it accurately reflects their actual speed. Indeed, **over half of businesses in Highlands and Islands (56%) and Scotland (58%) did not know what speed their internet connection was.** This is in line with 2017 (when 55% and 59% said don't know).

Internet connection speed	Highlands and Islands (%)			Scotland (%)		
	2021	2017	2014	2021	2017	2014
Up to 23 Mbit/s	47	66	92	33	52	85
Between 24 and 29 Mbit/s	7	4	1	4	4	2
Between 30 Mbit/s and 1 Gbit/s	40	24	4	51	35	9
Over 1 Gbit/s	3	5	1	7	6	2
At least 24 Mbit/s	54	34	8	67	46	15
At least 30 Mbit/s (superfast)	45	30	6	62	44	12
Base: All with internet access, excluding 'don't knows'	496	534	1,124	1,377	1,333	1,951

Superfast more common among

- **Financial, admin and other professional services sector (61%)**
- **Larger businesses**
 - 10-19 (50%) and 20+ employees (64%), compared with 1-4 (41%) and 5-9 (44%) employees

Superfast less common among

- **Agriculture and utilities sector (23%)**
- **Rural*** areas (36% of those in remote rural and 32% in accessible rural areas, compared with 73% in urban areas)

NOTES:

*Superfast broadband is defined as broadband with a speed of at least 30 Mbit/s.

**Coverage data is available from OFCOM, <https://labs.thinkbroadband.com/local/?area=HIE>

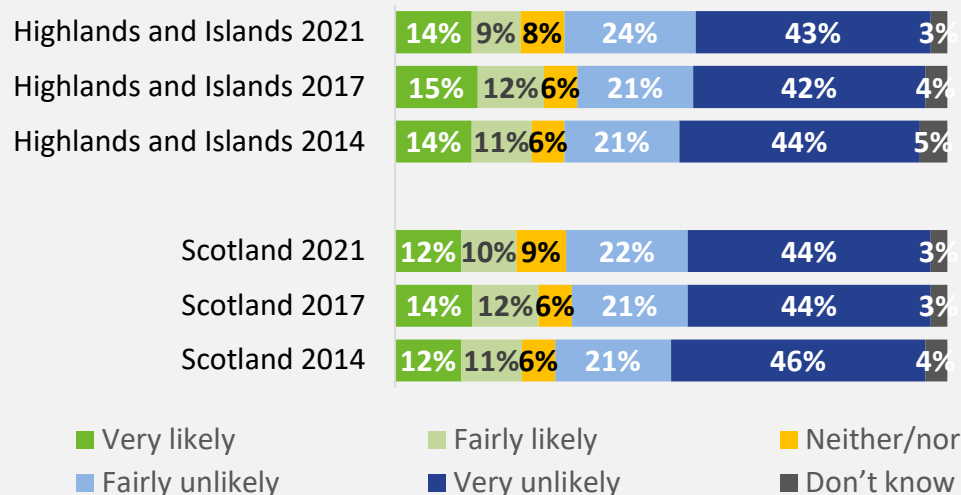
***Rural and urban areas are based on the Scottish Government's 3-fold classification: "Accessible rural" = within 30 minute drive from the centre of a settlement of 10,000 or more; "Remote rural" = greater than 30 minutes drive; "Urban" = large or other urban, accessible or remote small towns

FUTURE IMPROVEMENTS

67% were unlikely to improve their internet connection in the next 12 months, while 23% were likely to. This is in line with the Scottish average (66% unlikely, 22% likely) and with 2017 findings.

Those without superfast broadband were more likely to be seeking an upgrade than those with superfast (29% vs 19%).

Likelihood of improving internet connection



Base (2021): All with an internet connection in Highlands and Islands (1,132) and Scotland (3,271).

Variation by sector

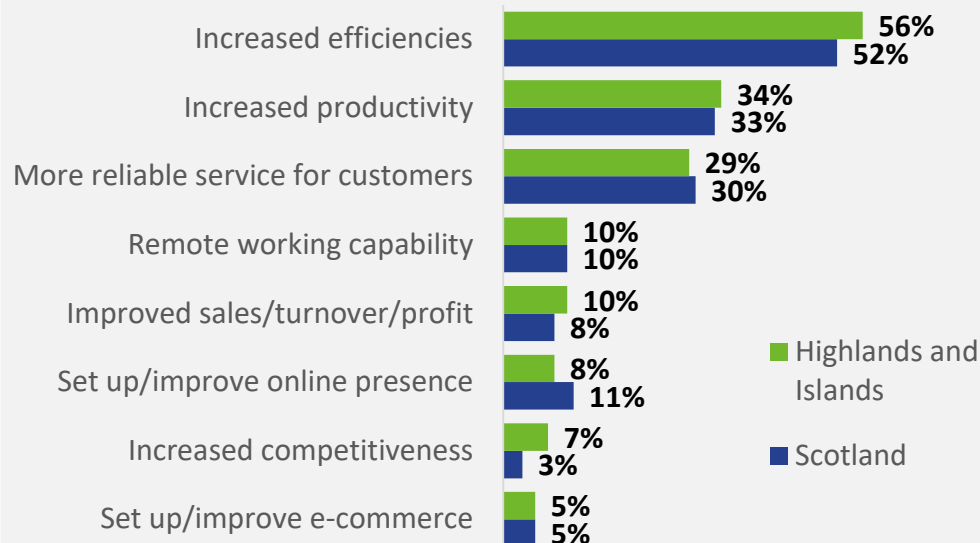
- **Hotels and restaurants** more likely to seek an upgrade to their internet connection (30% likely)
- **Manufacturing** were less likely to (77% unlikely)

Variation by area

- Those in **remote rural** locations (26%) were more likely to upgrade than those in urban (20%) and accessible rural (16%) areas, likely reflecting that fewer businesses in these areas currently have superfast speeds. Those in **Argyll and the Islands** were also more likely to than average (29%).

The most commonly perceived benefit of acquiring or improving internet connections was increased efficiencies. This was followed by increased productivity and more reliable service for customers.

Benefits of acquiring/improving internet connection



Base: All those planning on acquiring/getting an internet connection, in Highlands and Islands (259) and Scotland (777)

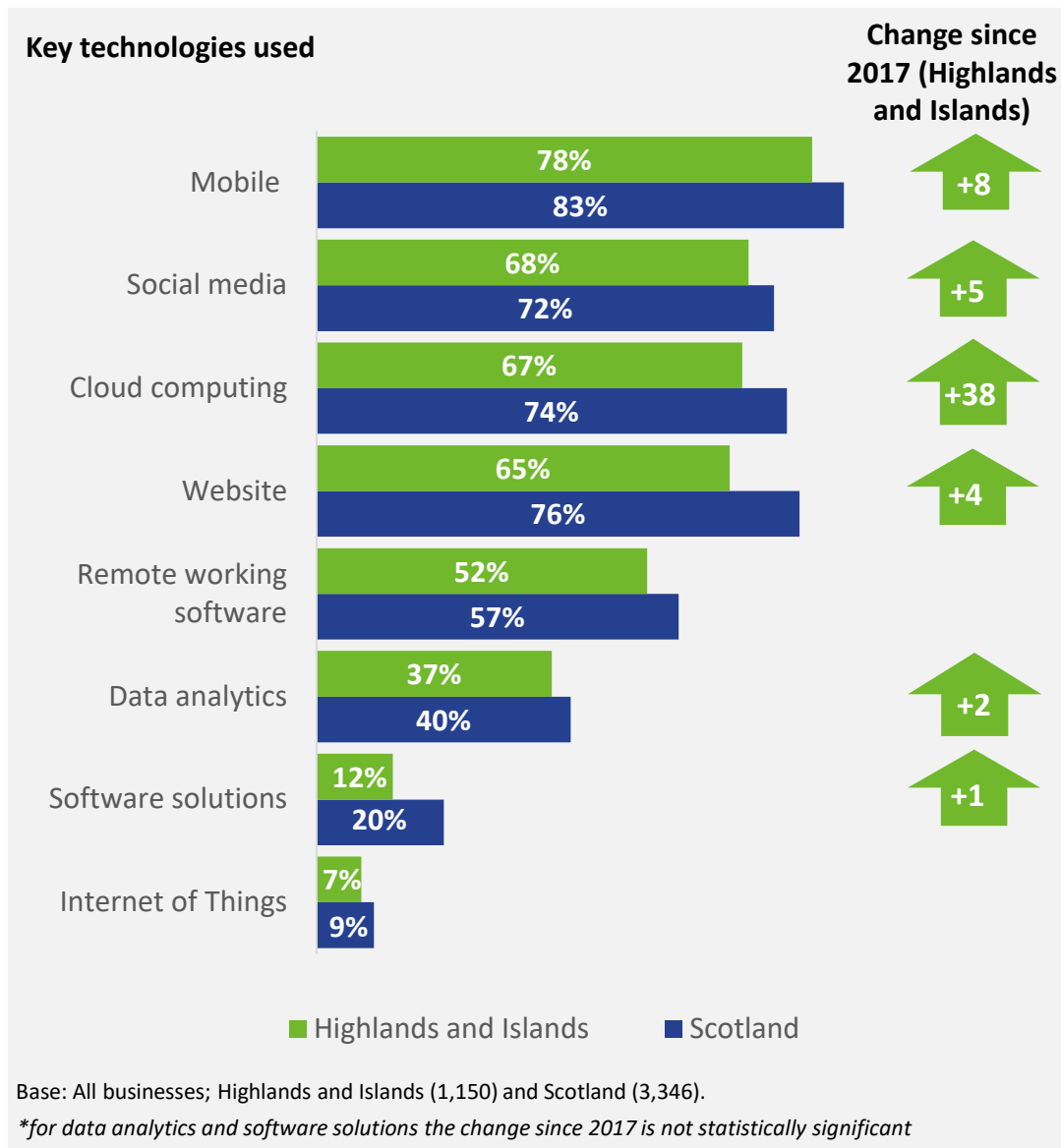
Variation by sector

- **Financial, admin and other professional services** sector more likely to cite increased productivity (51%) and remote working capability (21%)
- **Hotels and restaurants** more likely to cite more reliable service (62%) and improved sales/turnover/profit (19%)

C. USE OF DIGITAL TECHNOLOGIES

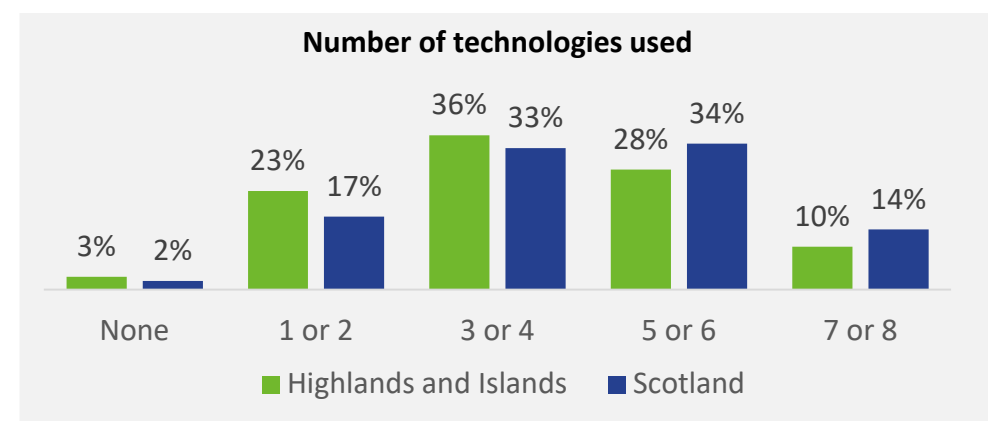
OVERALL ENGAGEMENT WITH DIGITAL TECHNOLOGIES

Overall, **engagement with digital technologies by Highlands and Islands businesses increased since 2017**. Use of cloud computing, mobile technology, social media and websites all increased. However, levels of engagement were still lower than for Scotland as a whole.



Number of technologies used

Of the 8 key technologies covered in the survey, 10% of businesses in the Highlands and Islands had used most or all (7 or 8) of these, 64% had used between 3 and 6, while 26% had used 2 or fewer. **The mean number of technologies used was 3.8** (4.3 in Scotland overall).



Those more likely to have used most or all (7 or 8) technologies were:

- Large businesses with **20+ staff** (21%)
- **Financial and business services** growth sector (21%)
- Multi-site businesses (21%)
- Those anticipating substantial growth (20%)
- Those saying digital technologies were essential to their response to Covid-19 (19%)

Those more likely to have used 2 or fewer technologies were:

- Those with **1-4 staff** (29%)
- In **remote rural** (28%) and **accessible rural** (28%) compared with urban (20%) locations

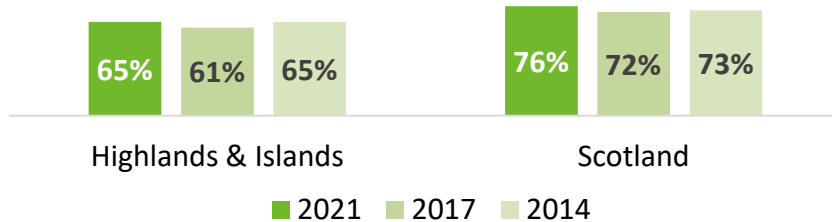
NOTES

Remote working software and Internet of Things were not asked about in the 2017 or 2014 waves of the survey.

COMPANY WEBSITES AND SOCIAL MEDIA

65% of businesses in Highlands and Islands had a **website** (lower than the Scotland average of 76%)

Website use 2014-2021



Base (2021): All businesses; Highlands and Islands (1,150) and Scotland (3,346).

Company websites were more common among:

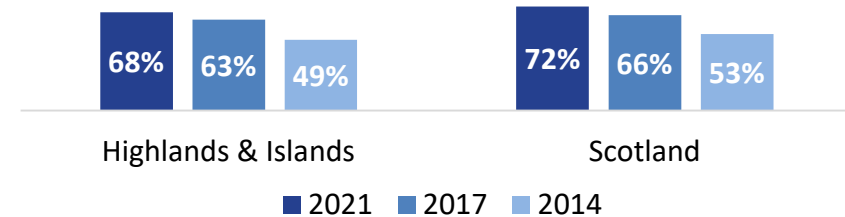
- **Tourism** (87%), **creative industries** (87%) and **financial and business services** (82%) growth sectors
- **Manufacturing** sector (84%)
- Those with 10-19 (80%) and 20+ (89%) employees
- Multi-site businesses (76%)
- Those selling to the EU (84%) and outside the EU (89%)

They were less common among:

- **Wholesale and retail** sector (56%)
- **Agriculture and utilities** sector (37%)
- Those with 1-4 employees (60%)

68% of businesses in Highlands and Islands used **social media** (lower than the Scotland average of 72%)

Social media use 2014-2021



Base (2021): All businesses; Highlands and Islands (1,150) and Scotland (3,346).

Social media use was more common among:

- **Tourism** (81%), **financial and business services** (80%) and **creative industries** (76%) growth sectors
- **Manufacturing** sector (81%)
- Those with 10-19 (82%) and 20+ (82%) employees
- Those selling to rest of the UK (74%), EU (75%) and outside the EU (78%)

It was less common among:

- **Agriculture and utilities** sector (55%)
- **Construction** sector (52%)

BENEFITS OF WEBSITES AND SOCIAL MEDIA

Of those who had a company website or used social media, almost all (94%) reported some benefits from their use. The most common benefit by far was increased exposure for the organisation.

Overall, findings were in line with those for Scotland as a whole, and similar to those in 2017.

Variation by sector:

Tourism growth sector were more likely to say benefits were:

- Improved sales/turnover/profit (19%)
- Allows them to operate as an internet business (19%)

Manufacturing were more likely to say:

- Improved sales/turnover/profit (30%)
- New business partnerships or selling opportunities (13%)

Variation by area:

Though there was little variation by urban/rural location, those in **island** communities were more likely than those on the mainland to cite improved sales/turnover/profit (21% vs 12%).

Variation by market:

Those **selling outside of Scotland** were more likely to cite improved sales/turnover/profits:

- 18% of those selling to rest of the UK
- 23% selling to the EU
- 21% selling outside the EU

Benefits of website or social media



Base: All businesses; Highlands and Islands (1,150) and Scotland (3,346).

TYPES OF MOBILE INTERNET AND TECHNOLOGIES

78% of businesses in the Highlands and Islands used at least one type of mobile internet or technology.

This represents an increase from 2017 (70%) although it remains lower than the Scottish average of 83%. This reflects a similar findings from Ofcom* on mobile coverage, which shows that parts of rural Scotland, particularly in the Highlands and Islands, have poor connectivity (including low levels of 4G) in comparison with the rest of Scotland.

Mobile technologies used	Highlands and Islands (%)			Scotland (%)		
	2021	2017	2014	2021	2017	2014
Mobile broadband connection via portable device, (e.g. tethering to mobile 3G or 4G networks)	37	33	24	41	38	33
Portable computers using mobile phone networks (e.g. laptops with inbuilt 3G or 4G)	23	25	24	30	30	28
Other portable devices like Smartphones or Tablets	72	63	52	77	68	58
None of these	22	30	41	17	26	36
Any mobile technology	78	70	59	83	73	64
<i>Base: All businesses</i>	<i>1,150</i>	<i>1,209</i>	<i>2,193</i>	<i>3,346</i>	<i>3,258</i>	<i>4,002</i>

Variation by sector and size

Use of mobile technologies was higher among

- **Agriculture and utilities** sector (84%)
- **Financial, admin and other professional services** sector (83%)
- Small businesses (**1-4 employees**) (81%)

Variation by location

Survey findings showed little variation by location, with urban and rural (and island and mainland) having similar levels of use of mobile technology. This suggests that the lower than average uptake of mobile technology in the region is not confined to a particular type of location.

NOTES

*https://www.ofcom.org.uk/__data/assets/pdf_file/0021/209442/connected-nations-2020-scotland.pdf

BENEFITS OF USING MOBILE TECHNOLOGIES

Of those using mobile technologies, the vast majority (97%) reported benefits from doing so.

The ability of employees to work remotely or on the go was the most commonly reported benefit, both in the Highlands and Islands and across Scotland as a whole. This has increased from 53% in 2017.

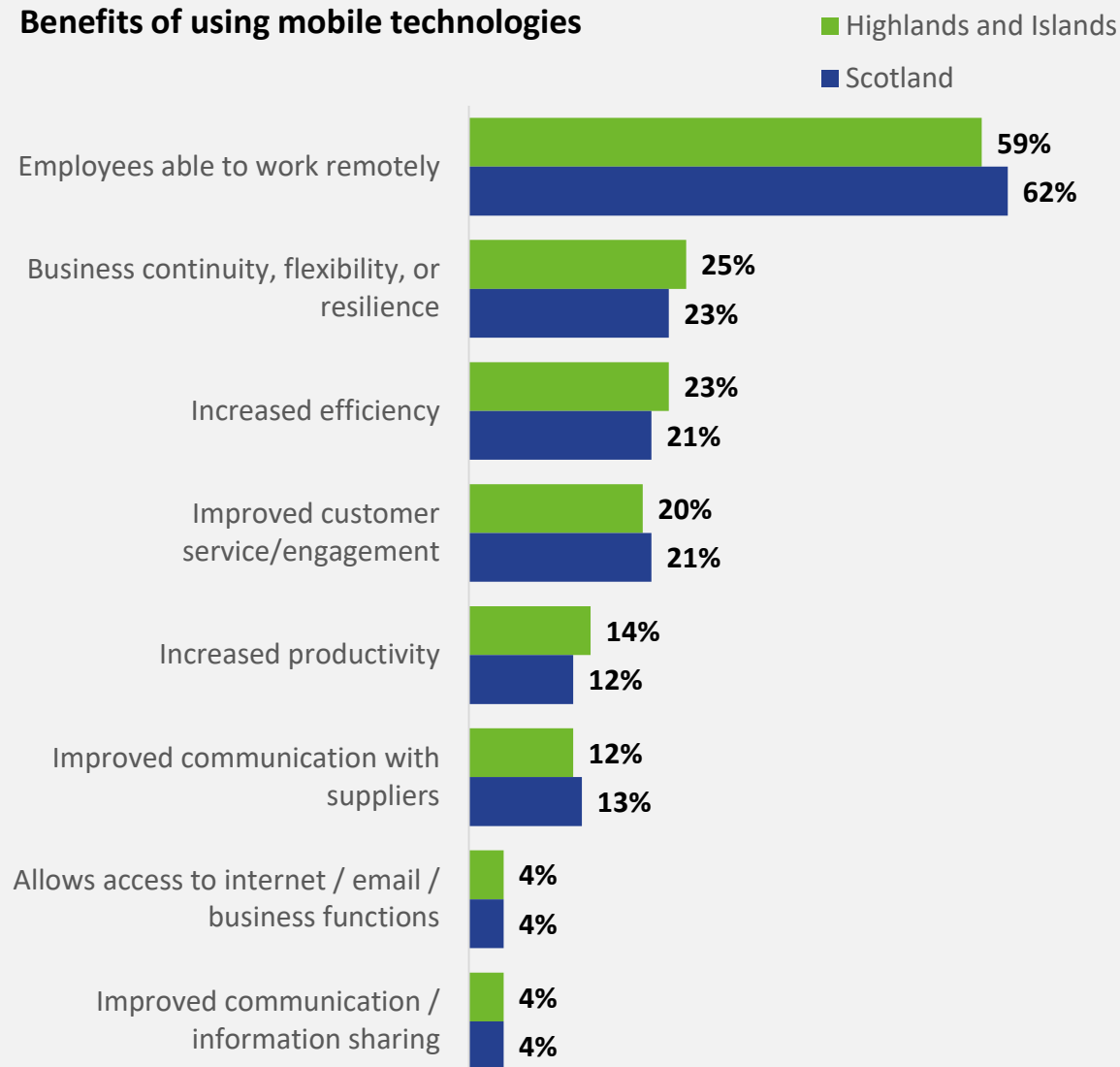
Variation by sector

- **Financial, admin and other professional services** sector were more likely than average to cite business continuity (33%)
- **Hotels and restaurants** were more likely to say improved customer service/engagement (29%)
- **Wholesale and retail** businesses were more likely to say increased productivity (24%)
- **Agriculture and utilities** businesses were more likely to reference increased efficiency (32%)

Variation by area

- Those in **remote rural areas** (17%) were more likely than those in accessible rural (11%) or urban areas (9%) to say increased productivity

Benefits of using mobile technologies

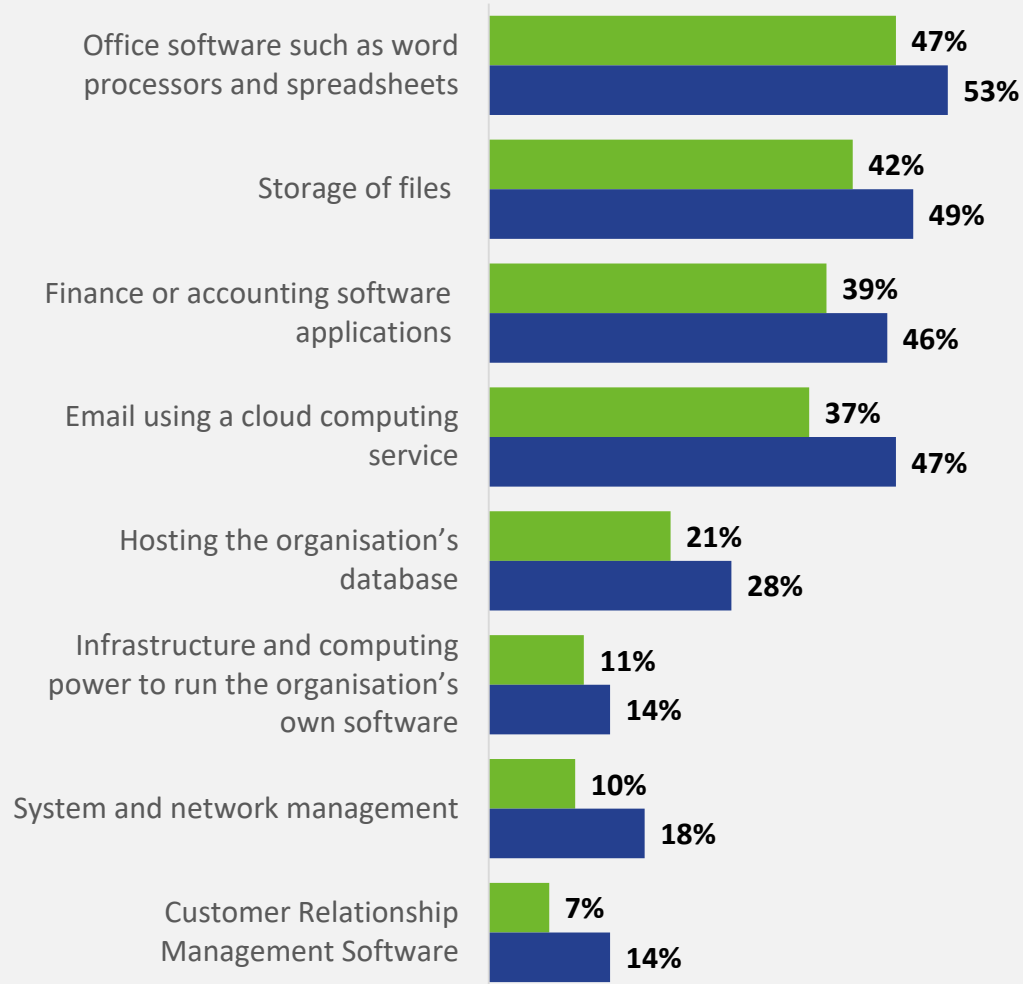


Base: All businesses using mobile technologies in Highlands and Islands (884) and Scotland (2,698).

TYPES OF CLOUD COMPUTING TECHNOLOGIES

Types of cloud computing used by businesses

■ Highlands and Islands
■ Scotland



Base: All businesses with an internet connection in Highlands and Islands (1132) and Scotland (3,271).

67% of businesses in the Highlands and Islands used cloud computing services

This represents a substantial increase from 2017 (29%), although it remains lower than the Scottish average of 74% (38% in 2017).

Using **office software and storage of files** were the two most common uses of cloud computing listed by Highlands and Islands businesses (this was also the case in 2017).

Variation

Use of cloud computing was higher than average among

- businesses with **10-19 employees** (77%) and **20+ employees** (79%)
- **Creative industries** (85%) and **financial and business services** (78%) growth sectors

NOTE: In 2021, results have been based on all businesses with an internet connection and using cloud computing. In the 2017 and 2014 surveys, results were based on all businesses using cloud computing only.

BENEFITS OF USING CLOUD COMPUTING

Of those using cloud computing, 82% reported benefits from their use. The main benefit of cloud computing for businesses in the Highlands and Islands (and across Scotland) was accessing data/services remotely (45%). This was in line with 2017 (46%).

Variation by sector

- **Financial and business services** (24%) and **creative industries** (24%) growth sectors were more likely than average to cite improved security

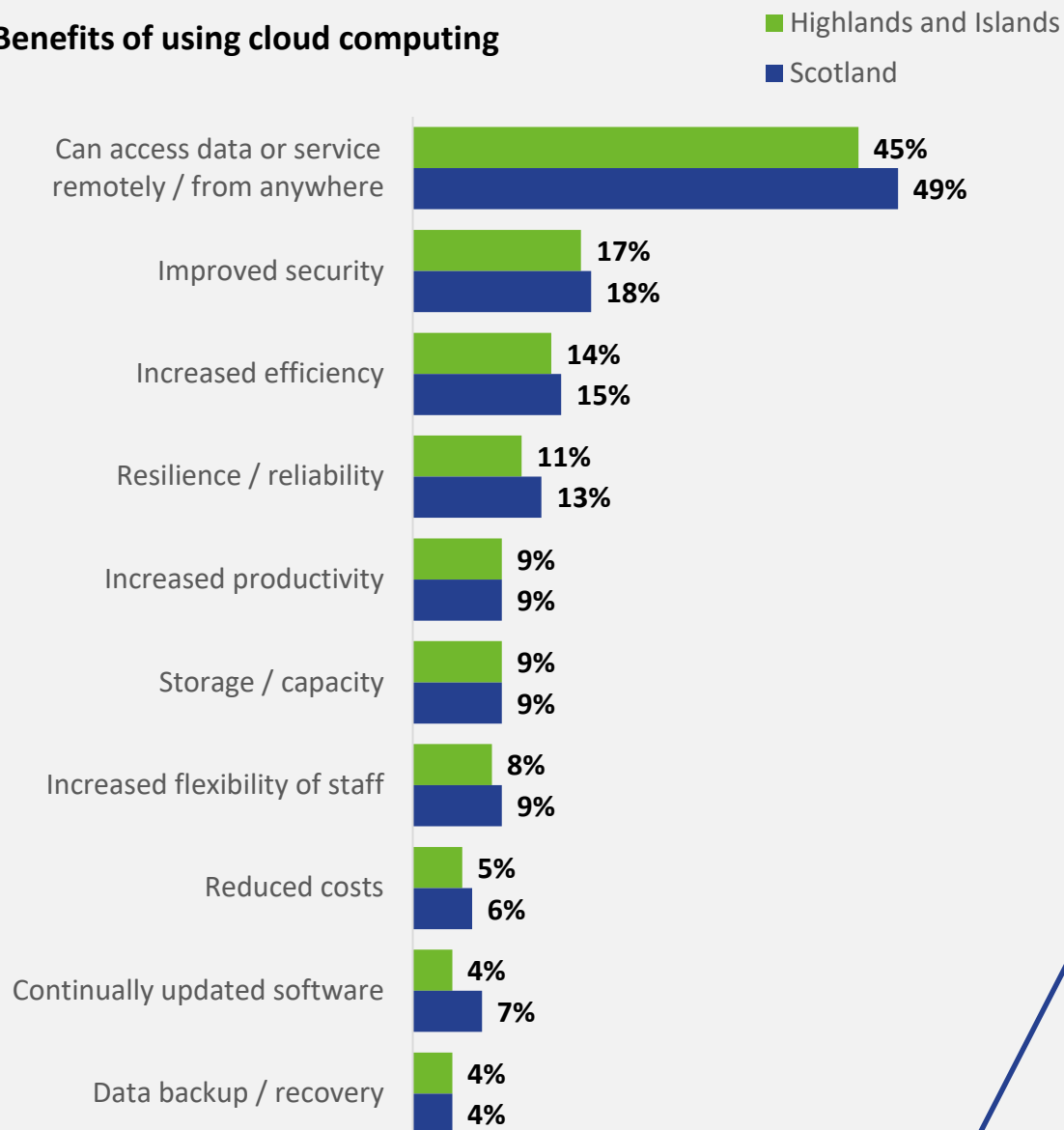
Variation by area

- Findings were similar by area, although business in **Orkney** were more likely than average to cite resilience and reliability (23%)

Other variations

- Businesses **selling outside the EU** were more likely to reference resilience and reliability (18%)
- Businesses **expecting growth** were particularly likely to say accessing data/services remotely was a benefit (53%)

Benefits of using cloud computing



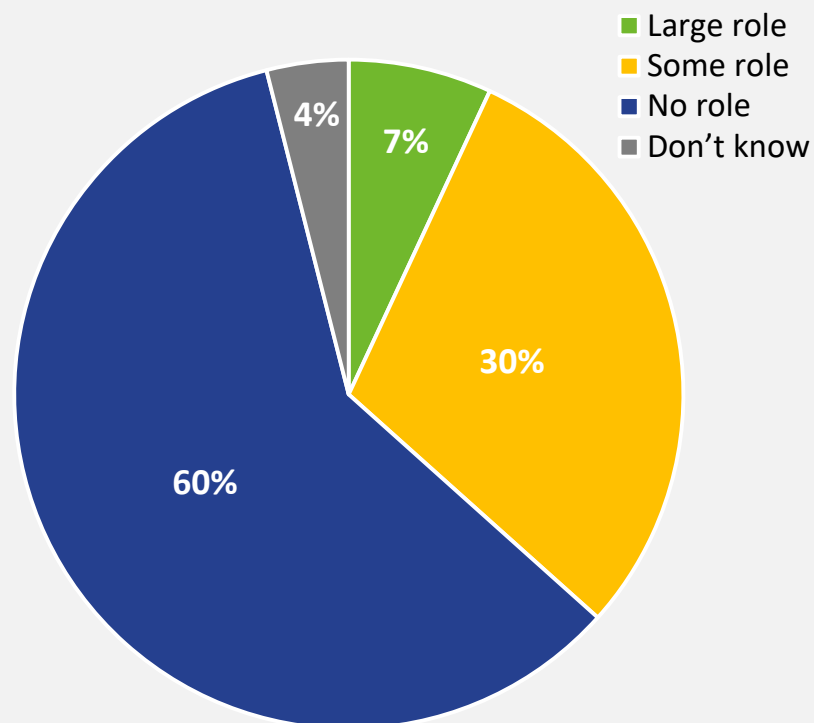
Base: All businesses using cloud computing in Highlands and Islands (785) and Scotland (2,382).

USE OF DATA ANALYTICS

37% of businesses in the Highlands and Islands use data analytics (slightly lower than the Scottish average (40%))

Use of data analytics among Highlands and Islands businesses is similar to 2017 levels, when 35% said it played at least some role in their business.

Role of data analytics in Highlands and Islands businesses



Base: All businesses in Highlands and Islands (1,150) and Scotland (3,346).

Variation

Data analytics was more likely than average to be used by:

- **Financial and business services** (55%) and **tourism** (43%) growth sectors
- Those in **urban** (40%) compared with accessible (35%) and remote rural (35%) areas
- Those who had increased investment in digital technology (51%) and those expecting growth in the next 12 months (45%)

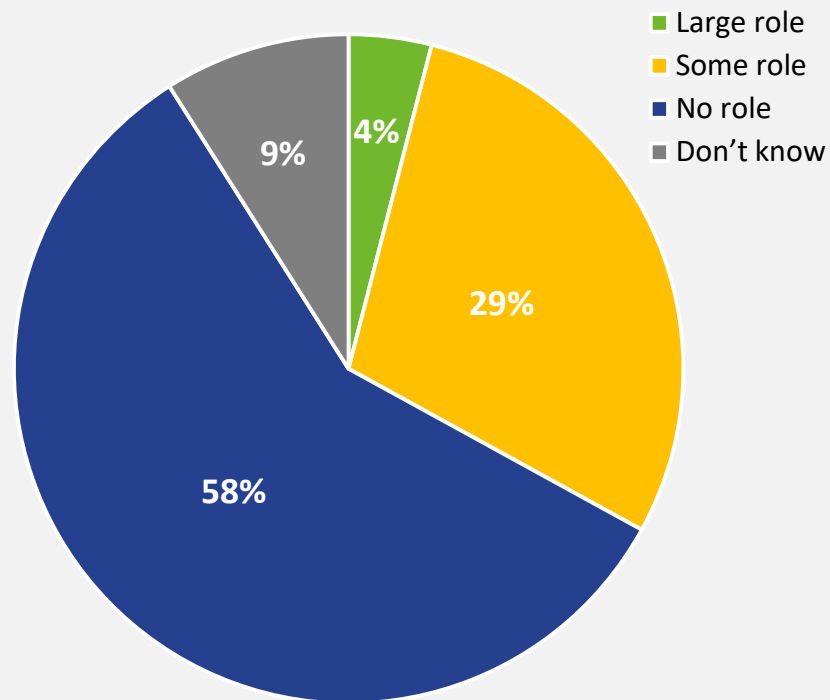
It was more likely to play no role for:

- **Construction** sector (70%)
- Those in **Outer Hebrides** (71%)
- Those expecting to maintain the status quo in terms of growth over the next 12 months (69%)

USE OF ARTIFICIAL INTELLIGENCE (AI)

A third (33%) of those that used data analytics also used artificial intelligence, in line with Scotland as a whole (34%).

Role of AI in the use of data analytics by Highlands and Islands businesses



Base: All businesses using data analytics in Highlands and Islands (468) and Scotland (1,410)

Variation

There was little variation among businesses when it came to use of artificial intelligence.

However, artificial intelligence was more likely to play a role in use of data analytics by:

- Businesses selling to the rest of the UK (38%)
- Businesses using e-commerce (39%)

NOTES

Artificial Intelligence was not asked about in the 2017 or 2014 waves of the survey.

BENEFITS OF USING DATA ANALYTICS

76% of Highlands and Islands businesses that used data analytics felt it benefited their business.

The top benefit of using data analytics across both the Highlands and Islands and Scotland was more accurate and targeted marketing, followed by improved customer service/engagement. These were also the top two benefits cited in 2017 (by 32% and 19%).

Variation by sector

- **Tourism** growth sector businesses were more likely to cite increased competitiveness (16%) and enhanced insights into markets/competitors (13%)
- **Wholesale and retail** businesses were more likely than average to mention increased productivity (21%) and improved profits (16%)
- **Manufacturing** businesses were more likely to cite improved data access/analysis (11%)

Variation by age

- Businesses which had been **operating for 1-5 years** were more likely to use data analytics for enhanced insights into markets/competitors (25%)

Benefits of using data analytics

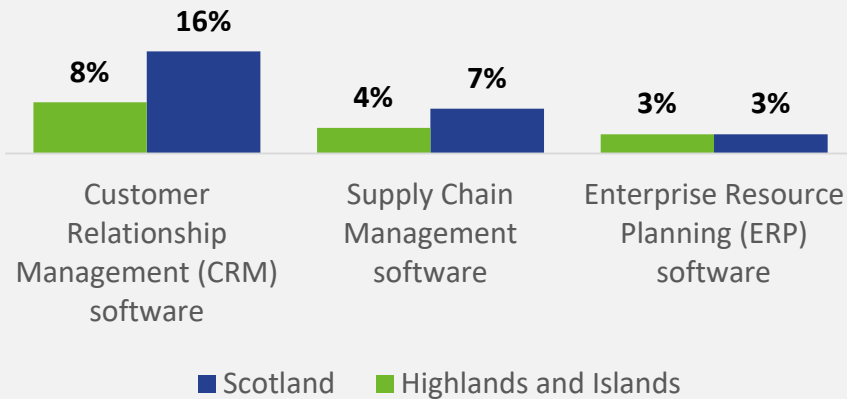


Base: All businesses using data analytics in Highlands and Islands (468) and Scotland (1,410).

USE OF BUSINESS MANAGEMENT SOFTWARE

Around one in ten (12%) businesses had used business management software. Usage levels are similar to 2017 (11%) and 2014 (9%).

Current use of management software



Base: All businesses in Highlands and Islands (1,150) and Scotland (3,346).

Variation by sector

- Those in the **financial, admin and other professional services** sector were more likely than average to use CRM software (14%)

Variation by future growth plans

- Businesses that were planning on growing** were more likely to use CRM than average (13%)

Variation by location

- Businesses selling to domestic markets only** were less likely to use CRM than businesses operating in other markets

The vast majority of businesses (83%) stated that they were unlikely to adopt any business management software solutions in the next 12 months. This is in line with 2017 results (85%).

BENEFITS OF USING BUSINESS MANAGEMENT SOFTWARE

96% of Highlands and Islands businesses that use management software solutions said these had benefited their business.

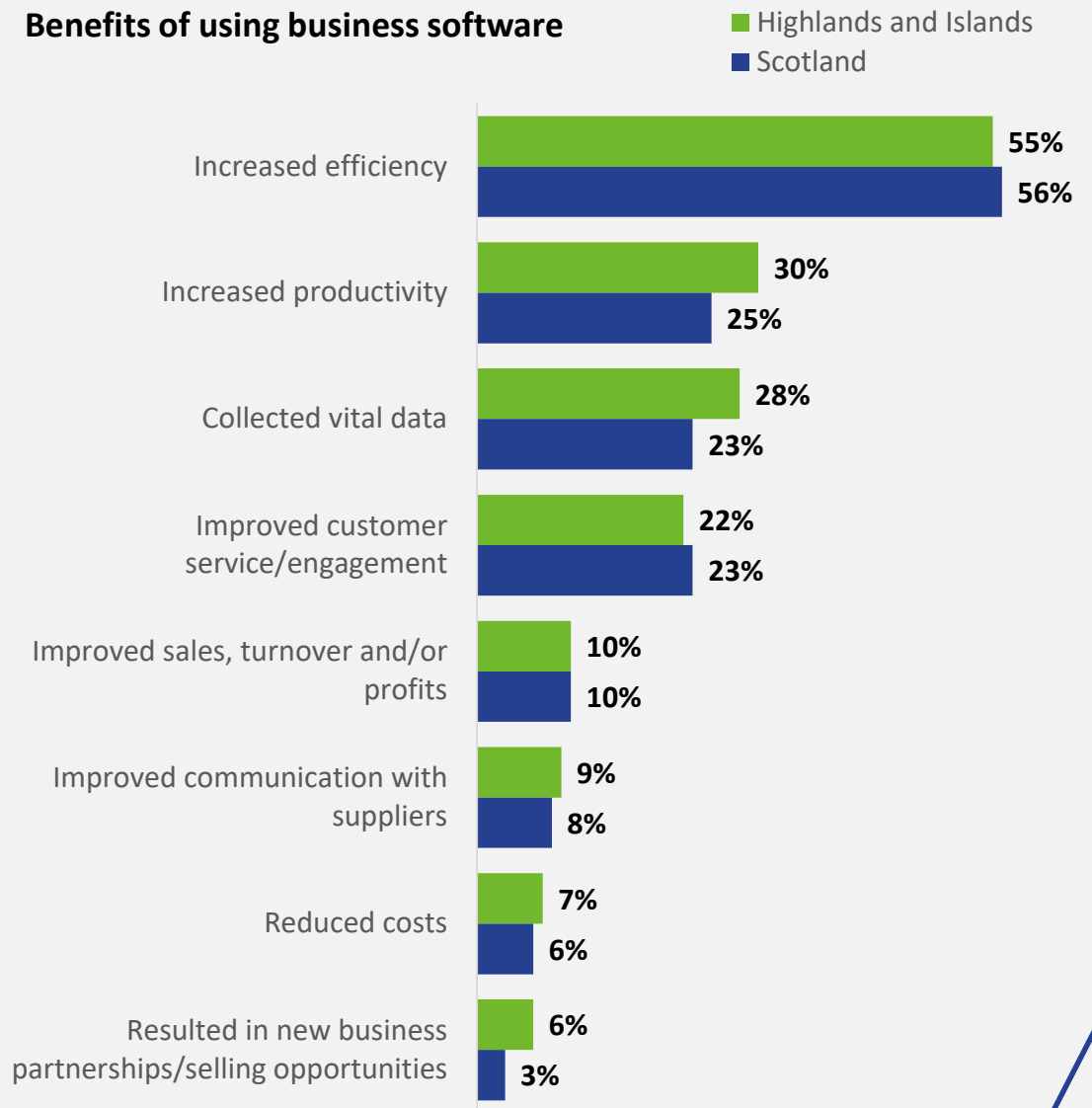
The top benefit of using business management software was **increased efficiency**, mentioned by a majority of businesses (55%). This was also the top benefit listed in 2017, when 49% cited this.

Variation

There was little variation between subgroups in relation to the perceived benefits of using business management software.

Results among businesses in the Highlands and Islands were in line with Scotland as a whole.

Benefits of using business software



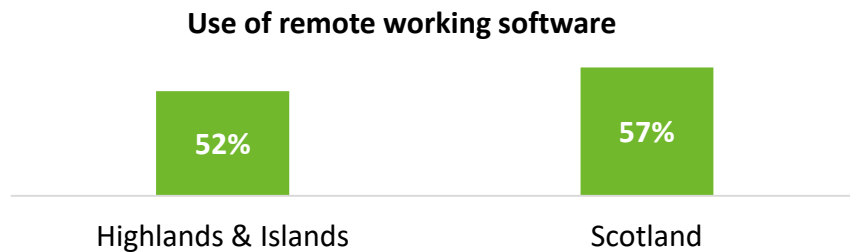
Base: Businesses using business software in Highlands and Islands (183) and Scotland (689).

REMOTE WORKING SOFTWARE AND INTERNET OF THINGS

For the first time this wave, businesses were asked about their use of two more recent types of digital technology: remote working software (like Microsoft Teams, Zoom or Skype) and Internet of Things technology*.

Remote working software

52% of businesses in the Highlands and Islands used remote working software, lower than the average for Scotland overall (57%).



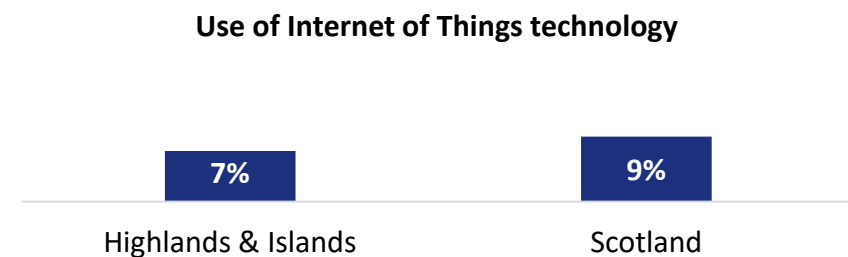
Variation

Use of remote working software was higher than average among:

- **Creative industries** (71%) and **financial and business services** (68%) growth sectors
- Businesses with **20+ staff** (85%)
- Those in accessible rural (63%) or urban (57%) locations, compared with remote rural (46%)

Internet of Things

7% of businesses in the Highlands and Islands used Internet of Things technology, similar to the figure for Scotland overall (9%).



Variation

Use of Internet of Things technology was higher than average among businesses with **20+ staff** (14%). Otherwise there was no significant variation between types of business.

NOTE: *Internet of Things technology enables devices, such as everyday objects, machinery and systems to connect to the internet. The data gathered from them can then be used to develop new processes and plan future operations more efficiently

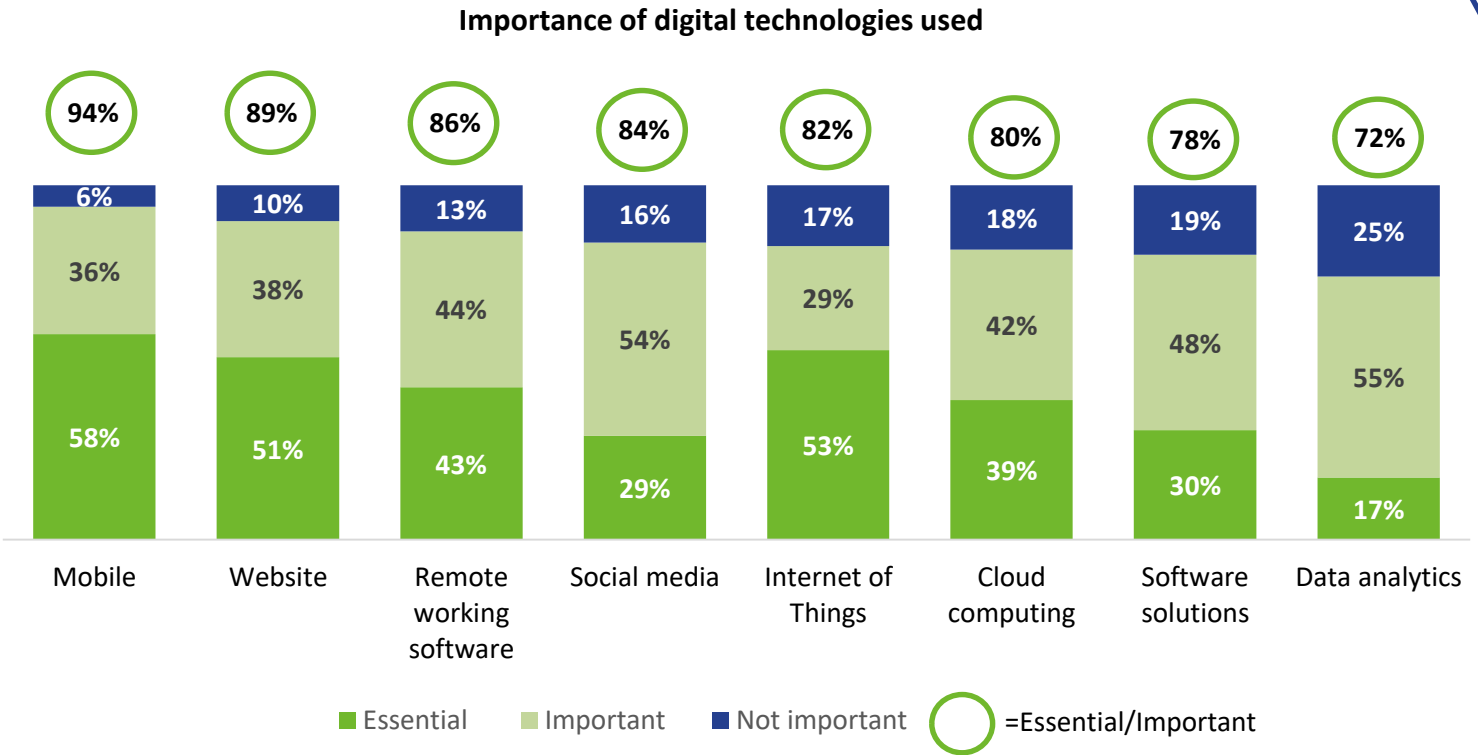
OVERALL IMPORTANCE OF DIGITAL TECHNOLOGIES

Of those using each digital technology, the majority saw them as either essential or important to their business.

Mobile, websites, and remote working software had the highest proportions saying they were essential/important.

Data analytics had the lowest, although a majority of businesses still viewed this as essential/important.

The perceived importance for certain technologies varied by types of business (see table below).



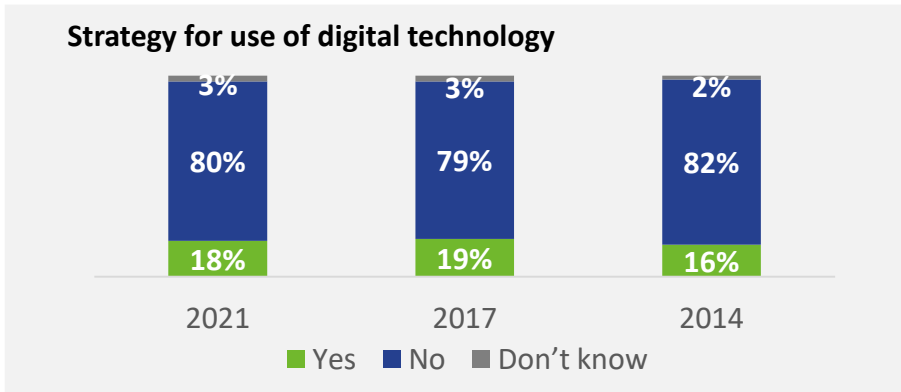
Base: All businesses in the Highlands and Islands that had used each digital technology

Higher than average saying essential/important		Lower than average saying essential/important	
Websites	Tourism growth sector (97%) Manufacturing (95%) Transport and communications (93%) Selling to EU (95%) and outside EU (94%)	Financial, admin and other professional services (85%) Wholesale and retail (83%) Expecting stability over next 12 months (85%)	
Social media	Other services (89%) Social enterprise (92%)	Financial, admin and other professional services (85%)	
Higher than average saying essential/important		Lower than average saying essential/important	
Mobile		Wholesale and retail (83%)	
Cloud computing		Expecting stability over next 12 months (74%)	
Data analytics	Selling to EU (80%) and outside EU (79%)		
Remote working software		Manufacturing (74%) Tourism growth sector (72%)	

APPLICATIONS OF DIGITAL TECHNOLOGY

80% of businesses in the Highlands and Islands **did not have a specific plan or strategy in place** for their use of digital technology, higher than the Scotland average (73%).

Existence of plans or strategies were at a similar level to 2017.

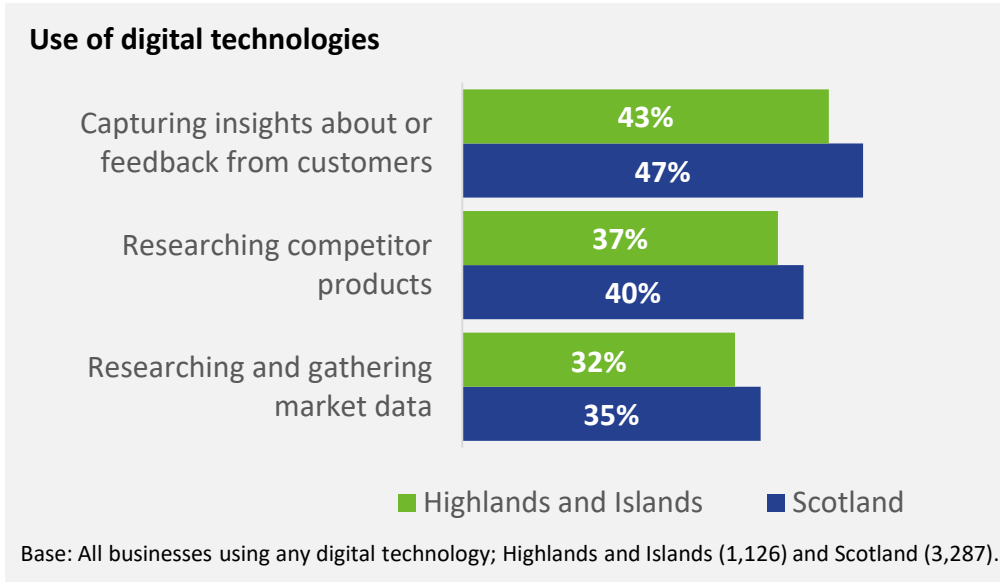


Plans or strategies were more common among certain types of business:

Plan or strategy in place	Yes
Highlands and Islands average	18
Those using 7-8 technologies*	50
Selling to the EU	31
Selling outside the EU	30
Those with 20+ employees	30
Selling to rest of the UK	27
Financial, admin and other professional services	25
Hotels and restaurants	24

* Of the 8 types of digital technology explored in the survey (as listed on slide 13)

Of those using digital technologies, 43% did so to capture insights or feedback from customers, 37% to research competitor products and 32% to research and gather market data. Findings were in line with those for Scotland overall.



Variation

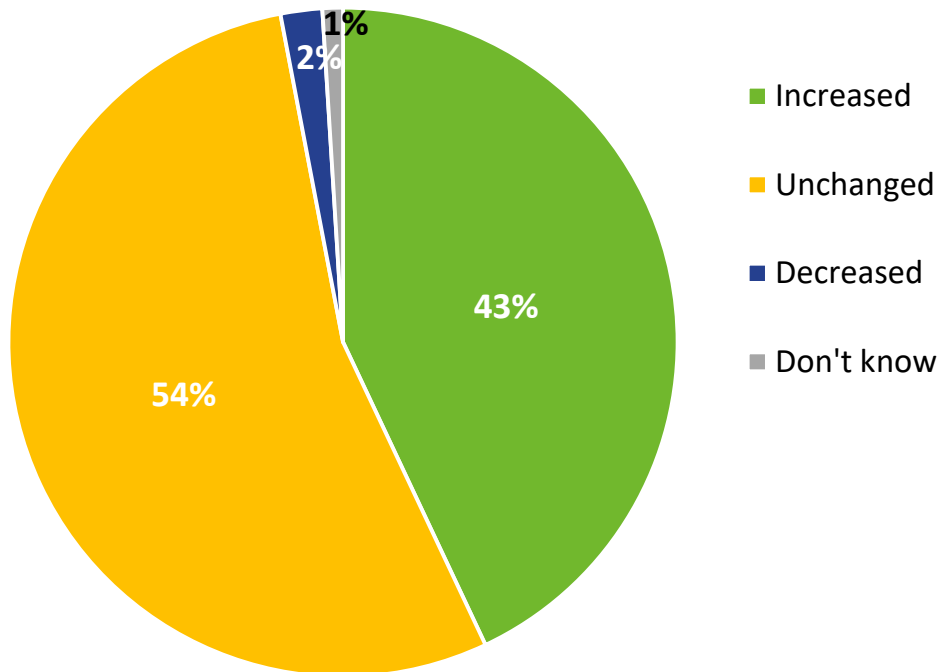
- Capturing insights about or feedback from customers was more common among: **tourism** (70%), **creative industries** (60%) and **financial and business services** (58%) growth sectors.
- Researching competitor products was more common among **tourism** growth sector (48%) and **manufacturing** (47%) businesses.
- Researching/gathering market data was more common in the **financial and business services** growth sector (40%).

D. PRODUCTIVITY AND INNOVATION

INVESTMENT IN DIGITAL TECHNOLOGIES

Over half of Highlands and Islands businesses (54%) had not changed the amount they invest in digital technologies over the past 2 years, while 43% had increased spend. Only 2% had decreased their investment and 1% said they did not know. These results mirrored those of businesses across Scotland as a whole.

Change in investment in digital technologies in the past 2 years
among Highlands and Islands businesses



Base: All businesses in Highlands and Islands (1,150)

Variation

Businesses that were more likely than average to say they had **increased their investment** included those:

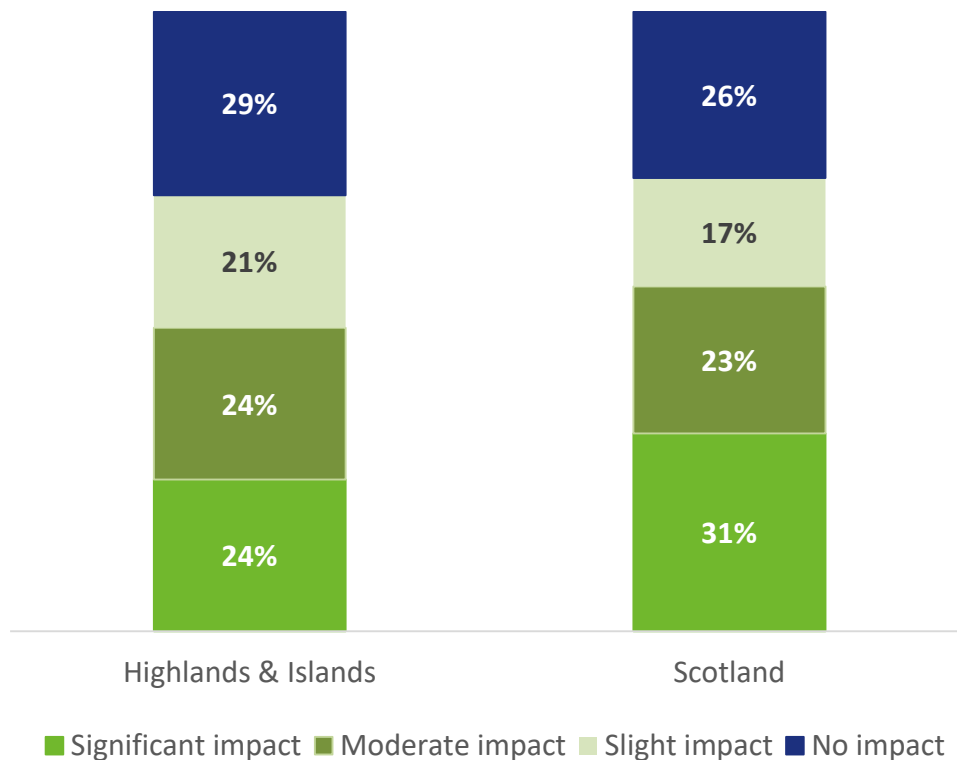
- with 10-19 employees (57%)
- with 20+ employees (60%)
- in the financial and business services growth sector (57%)
- selling to the rest of the UK (49%)
- selling to the EU (51%)
- expecting growth (52%)

IMPACT OF DIGITAL TECHNOLOGY ON PRODUCTIVITY

Over two-thirds (69%) said digital technology had made an impact on their productivity over the last 12 months. The extent of impact varied, with roughly a quarter saying it had made a significant impact (24%) or a moderate impact (24%), and 21% reporting a slight impact.

Overall findings were in line with Scotland (71% said it had an impact), but businesses across Scotland were more likely to say it had a *significant* impact (31% vs 24%).

Impact of digital technology on productivity over last 12 months



Base: Businesses using any digital technologies in the Highlands and Islands (1,126) and Scotland (3,287)

Compared to the Scottish average, fewer businesses in the Highlands and Islands said digital technologies had made a significant impact (24% versus 31% for Scotland). A higher proportion than nationally (21% versus 17%) reported a slight impact

Variation by location

- **Businesses selling only in Scotland** were less likely to report a significant impact (24%) than those selling to
 - Rest of UK (29%)
 - The EU (33%)
 - Outside the EU (34%)

IMPACT ON BUSINESS PRODUCTIVITY, INNOVATION AND LOW-CARBON WORKING

Around three-quarters (74%) of businesses in the Highlands and Islands felt that digital technologies had an impact on their productivity, innovation and low-carbon working.

The most commonly cited impacts related to making processes more efficient, increasing skills and enhancing competitive position. This reflected findings for Scotland as a whole.

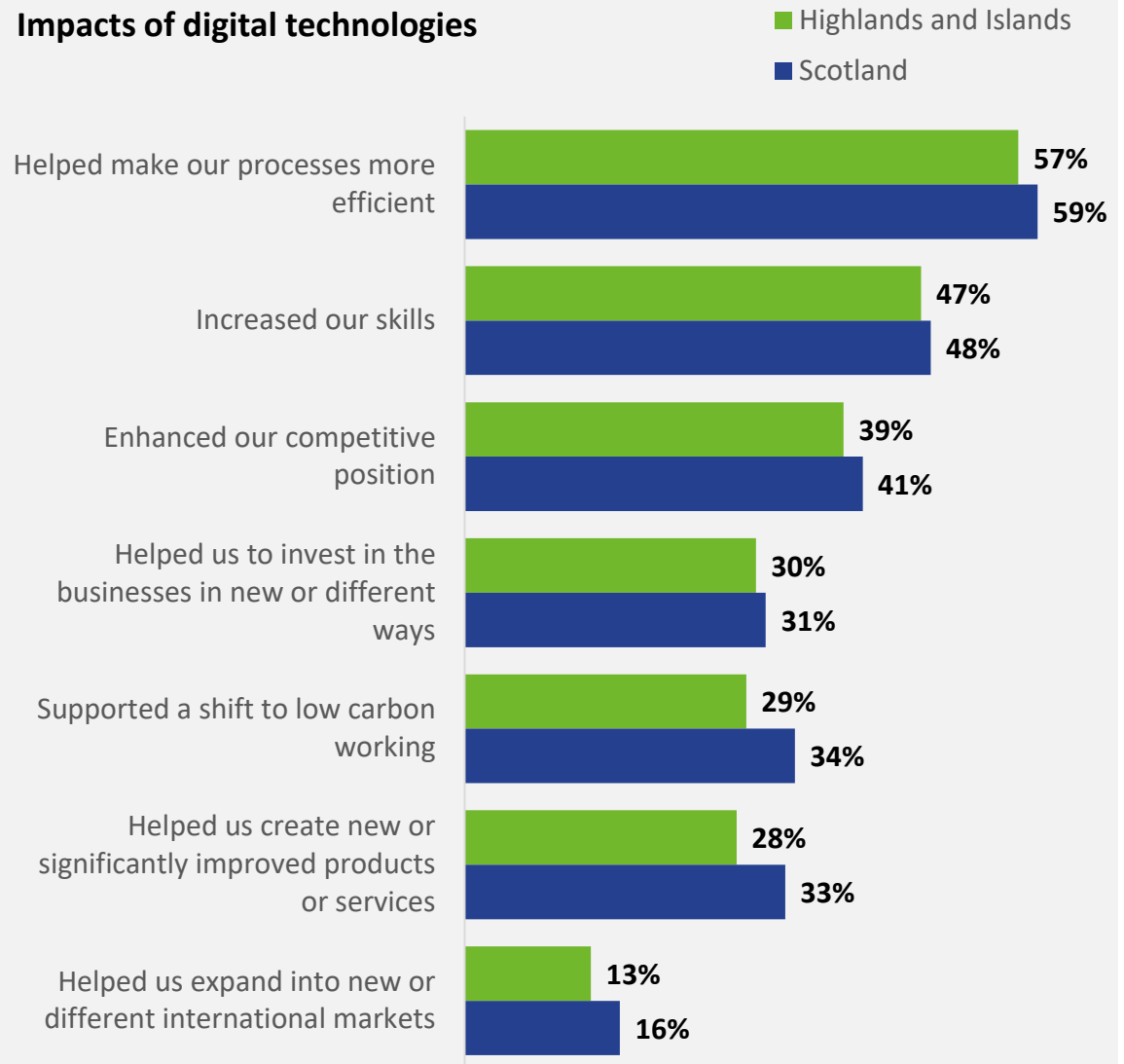
Variation by sector

- Those in the **financial and business services** growth sector were more likely to report a range of impacts, including increased efficiencies (69%), enhanced competitive position (58%), increased skills (54%), investing in the businesses (37%), and shifting to low-carbon working (41%)
- Tourism growth sector** businesses were more likely to cite new and improved products/services (31%) and expanding into new/different international markets (23%)

Variation by growth plans

- Businesses with aspirations to grow** were more likely than average to cite at least one of the listed impacts (79% vs 74% overall)

Impacts of digital technologies

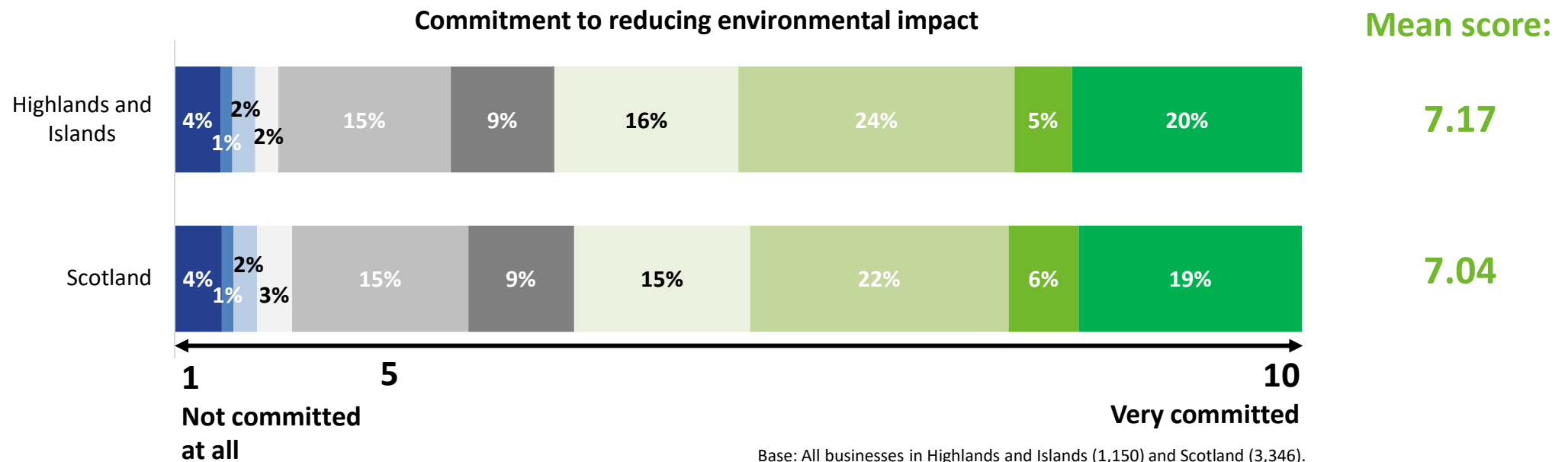


Base: All businesses in Highlands and Islands (1,150) and Scotland (3,346).

COMMITMENT TO REDUCING ENVIRONMENTAL IMPACT

A quarter (26%) of Highlands and Islands businesses said they were very committed to reducing their environmental impact (i.e. answered 9 or 10 out of 10), in line with the Scottish average (25%).

The mean score out of 10 was 7.17. Findings were in line with those seen in recent HIE business panel surveys (mean score of 7.3 in both October 2020 and October 2019).



Variation by sector

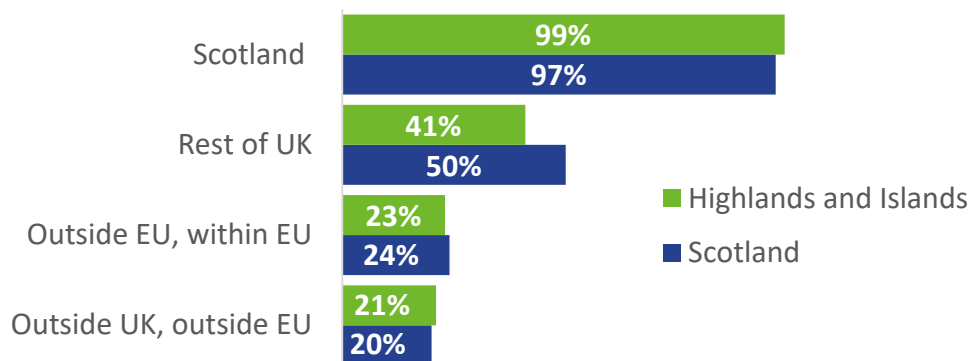
- While there was little variation across subgroups, the mean score was higher among businesses in the **hotels and restaurants** (7.68) and **agriculture and utilities** (7.60) sectors.

E. INTERNATIONAL TRADE AND E-COMMERCE

MARKETS OF OPERATION

Findings suggest that businesses in the Highlands and Islands were selling to more markets than they were in 2017. While over half (57%) of businesses in the region sold goods or services in Scotland only (“domestic” businesses), this had decreased from 63% in 2017. Two-fifths (41%) sold to the rest of the UK – an increase from 34% in 2017, but lower than the Scottish average of 50%. A quarter (26%) sold internationally – 23% within the EU and 21% outside the EU.

Markets operated in



Base: All businesses; Highlands and Islands (1,150) and Scotland (3,346).

International businesses were more likely to be:

- tourism (50%), creative industries (39%), and financial and business services (31%) growth sectors
- manufacturing sector (41%)
- those that used 5-6 (32%) or 7-8 (47%) of the key technologies explored in the survey

Domestic only businesses were more likely to be:

- in the construction sector (80%)
- in Caithness and Sutherland (71%), Orkney (65%) and Shetland (62%)

17% of Highlands and Islands businesses were planning to sell goods or provide services to new or different markets in the next 12 months, lower than the Scottish average of 23%.

Variation

Business more likely to sell to different markets in the next 12 months were:

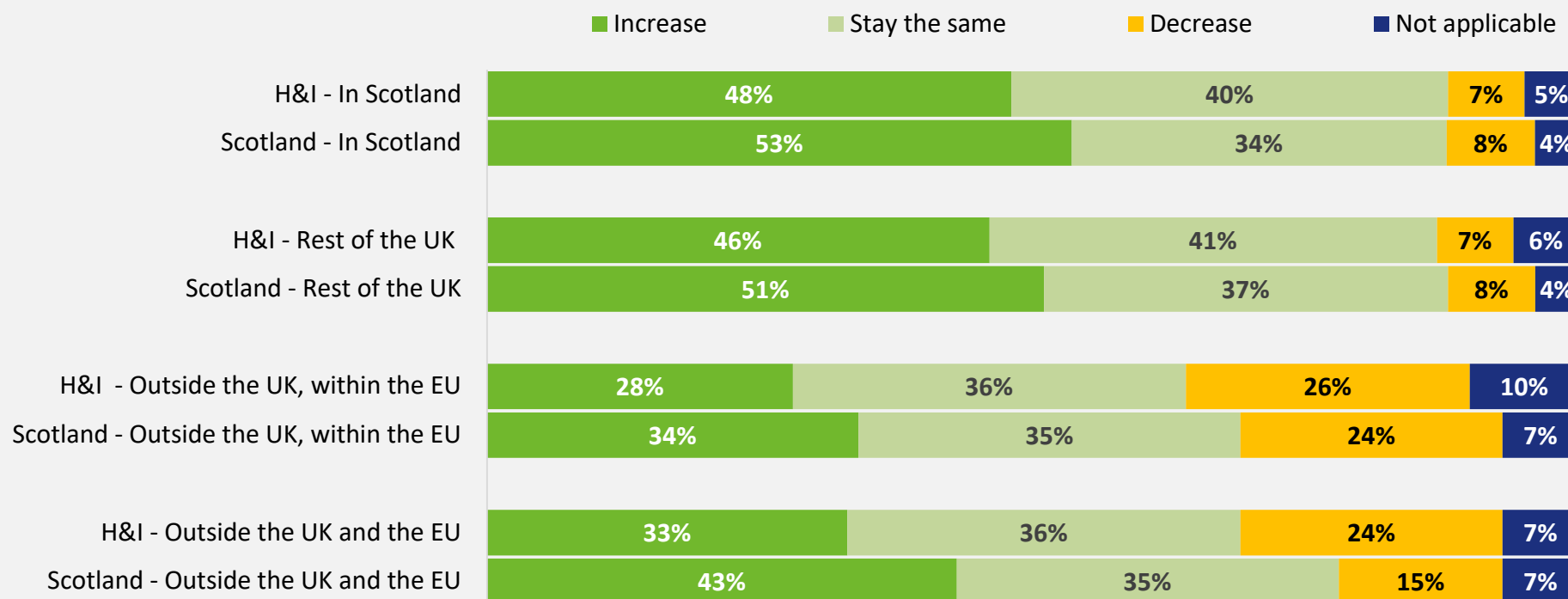
- in the manufacturing sector (25%)
- those using 5-6 or 7-8 of the key technologies explored in the survey (21% and 41% respectively)

OUTLOOK FOR MARKETS

Businesses operating in domestic (48%) and rest of the UK (46%) markets were more likely to anticipate an increase in sales in these markets over the next 12 months. A third (33%) of those selling outside the UK and the EU expected sales to increase, while 28% of those currently selling within the EU expected an increase.

Across all markets, businesses in the Highlands and Islands were less likely than those in Scotland overall to expect sales to increase.

Q Do you expect your level of sales in the following markets to increase, stay the same or decrease in the next 12 months?



Base: Businesses currently selling in each market (i.e. excluding those saying 'not applicable')

E-COMMERCE SALES

E-commerce levels in the Highlands and Islands, at 38%, was higher than in 2017 (32%) and slightly higher than for Scotland overall (35%).

Around three in five businesses did not sell via e-commerce at all (59% for Highlands and Islands and 61% for Scotland).

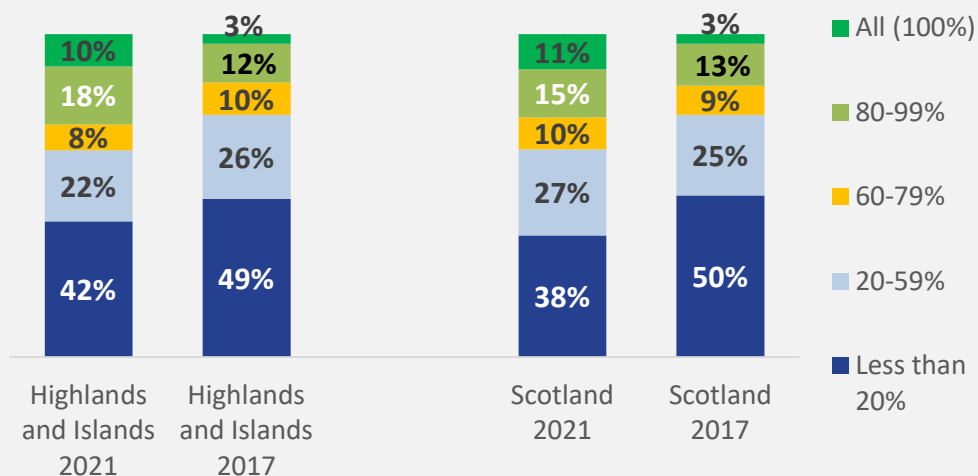
Businesses using e-commerce were doing so in higher volumes than in 2017. Among those that did sell via e-commerce, 28% said it accounted for at least 80% of their sales, 30% said it accounted for 20-79% of sales, and 42% for less than 20% of sales. These volumes were similar to those seen in Scotland overall.

More likely to use e-commerce:

Businesses from these sectors:

- **Hotels and restaurants** (64%)
- **Manufacturing** (51%)
- **Wholesale and retail** (46%)
- **Private sector** organisations (40% vs 26% in charity sector)
- Business selling to the EU (59%) or outside the EU (64%)
- Those **using 5-6 or 7-8 of the key technologies explored in the survey** (47% and 65%)
- Those who have **increased investment** in digital technologies (46%)
- Those **anticipating growth** in next 12 months (46%)

Proportion of sales made via e-commerce



Base: All who sell via e-commerce: Highlands and Islands (474), Scotland (1,244)

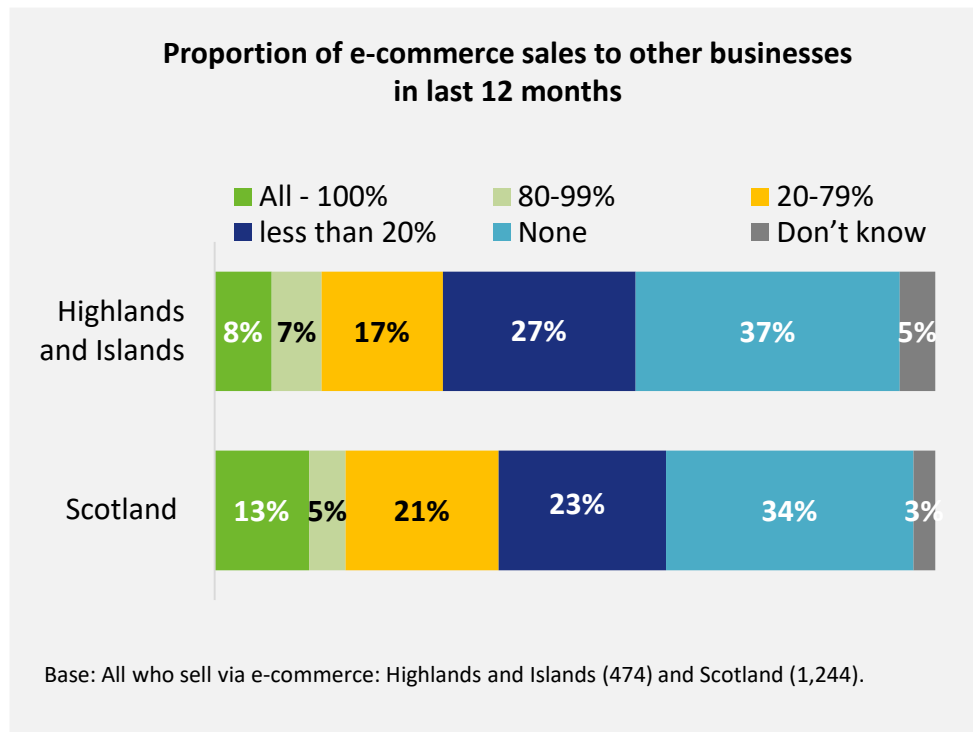
Less likely to use e-commerce

Businesses from these sectors:

- **Health and social work** (75% did not)
- **Transport and communications** (73%)
- Those using few **(0-2) technologies** (81%)
- Those operating for **10+ years** (61%)

NATURE OF E-COMMERCE AND CHANGE SINCE COVID-19

Of those selling via e-commerce, 58% made these sales to other businesses, lower than the average for Scotland overall (63%).

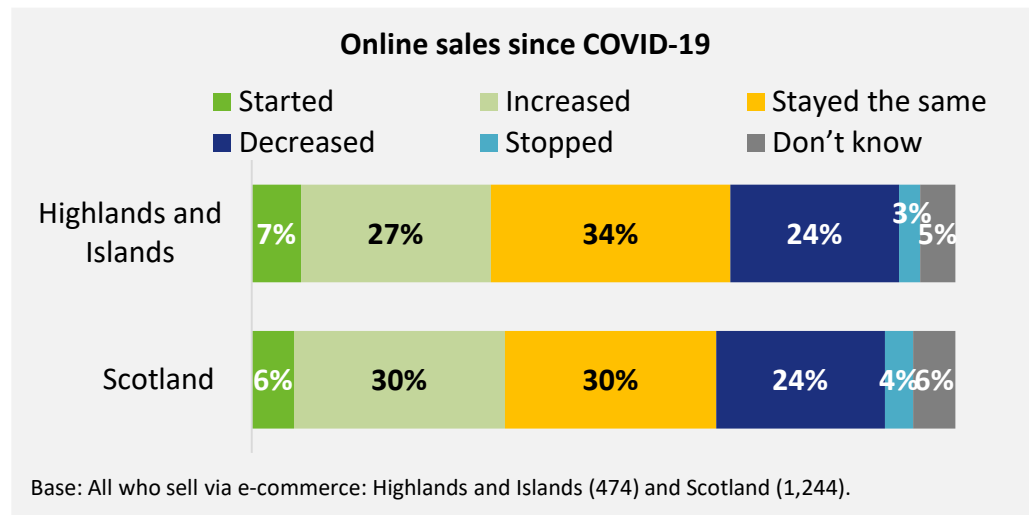


Variation

- Businesses in **Moray** were more likely to have sold to other businesses (74%) via e-commerce
- Those in the **wholesale and retail** sector were more likely to have made *no* e-commerce sales to other businesses (57%)

Around a third (34%) of businesses using e-commerce had either **started selling online (7%)** or had **increased online sales (27%)** since **COVID-19**. A similar pattern was noted for Scotland overall (36% - 6% had started to sell online and 30% had increased sales).

A further third (34%) said online sales were fairly consistent with pre-COVID levels, higher than for Scotland overall (30%). Over a quarter (27%) reported a decrease in or had ceased online sales (24% and 3%).



More likely to have increased online sales:

- Manufacturing** (52%)
- Wholesale and retail** (42%)
- Those **expecting growth** (34%)

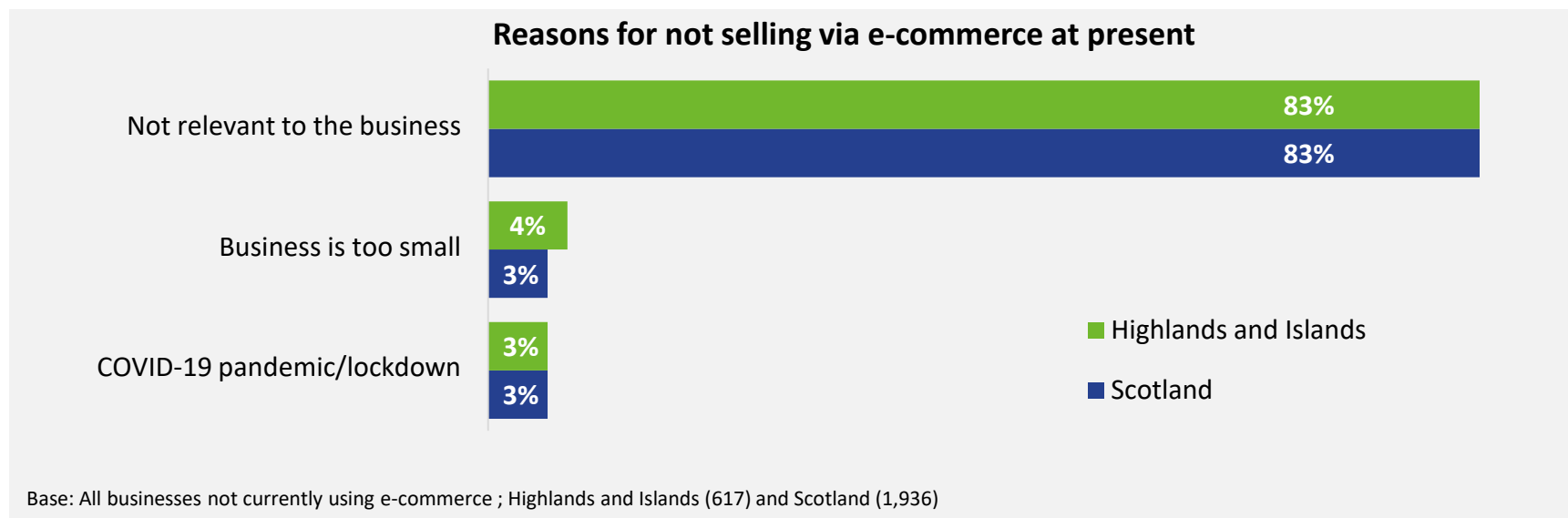
More likely to have decreased online sales

- Tourism growth sector** (45%)
- Financial, admin and other professional services sector** (33%)
- Those with **1-4 employees** (28%)
- Those **selling to markets outside the EU** (35%)

REASONS FOR NOT SELLING VIA E-COMMERCE

Among businesses not currently using e-commerce, the main reason for not doing so was that it was not relevant to their business (83%, in line with 2017 and the Scotland average).

Other reasons given by a small minority of respondents were that the business is too small (4%) and because of COVID-19 and lockdown (3%).



Variation:

- **Agriculture and utilities** (90%) sector more likely to say e-commerce was not relevant to the business

Variation:

COVID-19 and lockdown more likely to be cited as a reason by

- **Hotels and restaurants** (13%)
- Those selling to **rest of UK** (6%), the **EU** (9%) and **outside the EU** (12%)

MAXIMISING DIGITAL PRESENCE AND E-COMMERCE

Among Highlands and Islands businesses that used e-commerce, around a quarter (27%) were taking steps to maximise their digital presence and support their e-commerce activity (28% in Scotland). The most common actions being taken were search engine optimisation (43%) and using a breadth of digital market platforms (41%).

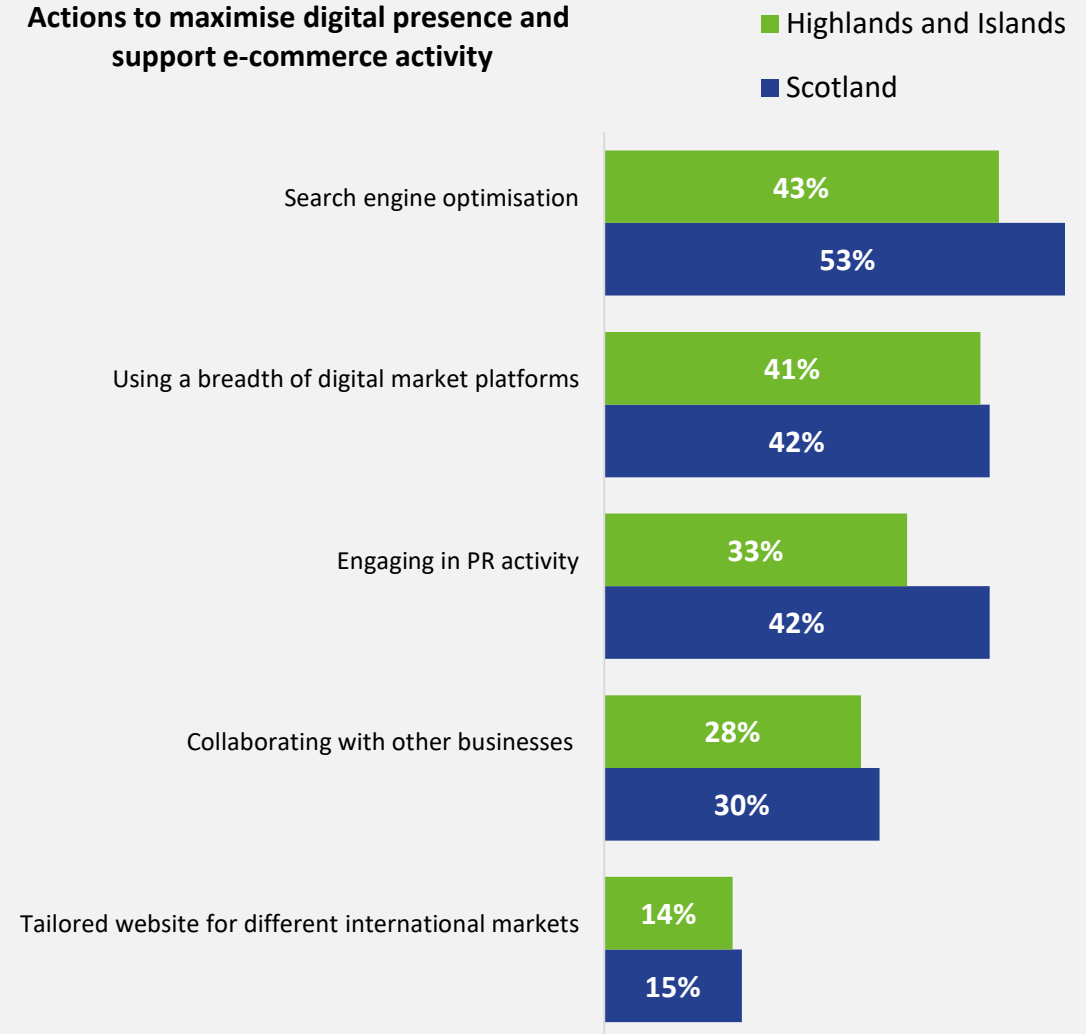
Businesses in the Highlands and Islands were less likely than Scottish businesses overall to use search engine optimisation (43% vs 53%) and to engage in PR activity (33% vs 42%).

Variation

Those most likely to have taken actions were:

- those using most (7-8) of the technologies covered in the survey (62% were taking action)
- Those operating for less than 5 years (44%)
- Those that had increased their investment in digital technology in the last 12 months (38%)

Actions to maximise digital presence and support e-commerce activity



Base: All businesses using e-commerce; Highlands and Islands (474) and Scotland (1,244).

CHALLENGES DELIVERING INTERNATIONAL E-COMMERCE

Among businesses in the Highlands and Islands using e-commerce, 17% faced challenges when delivering international e-commerce services.

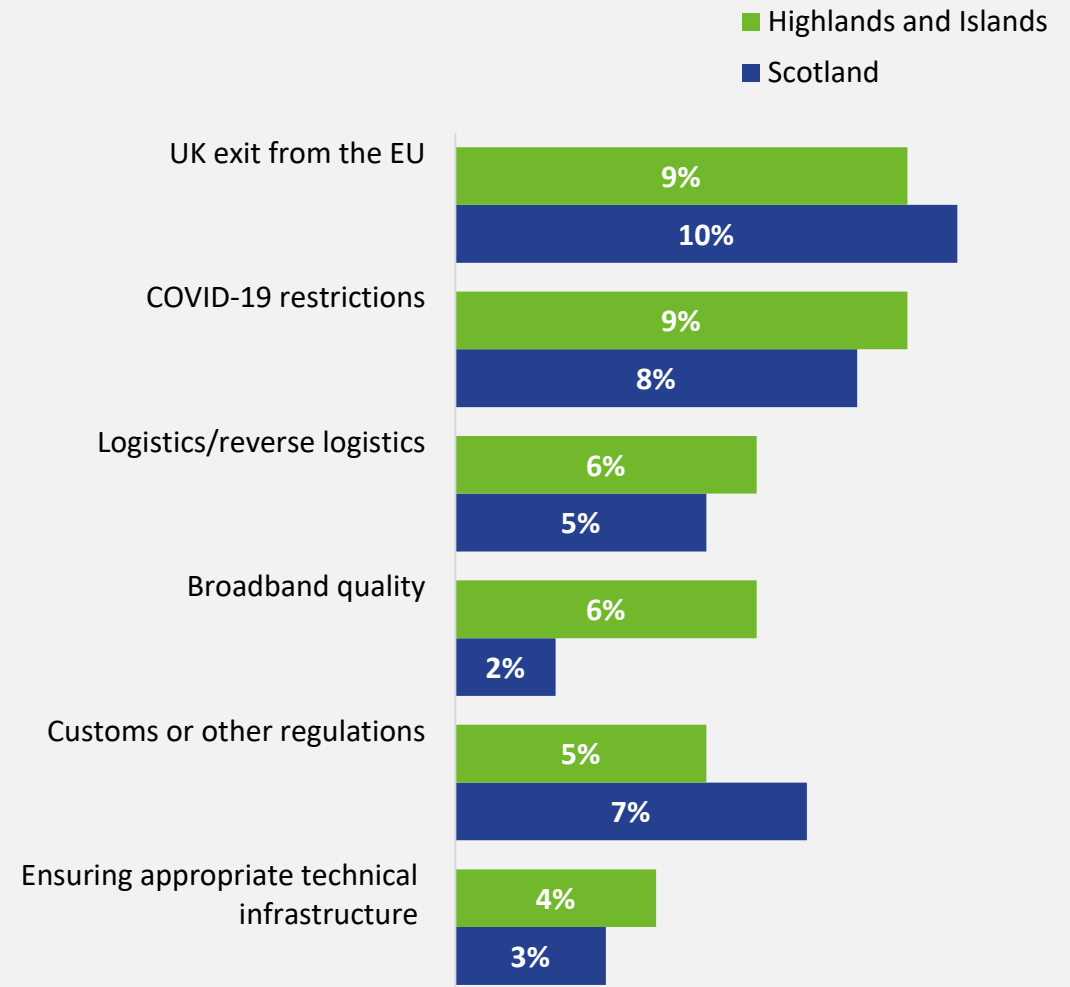
The top challenges faced were the exit from the EU (9%), COVID-19 restrictions (9%) and logistics/reverse logistics (6%). These findings were in line with businesses across Scotland as a whole.

Variation

Tourism growth sector businesses were more likely to identify any challenges (36%) and to specifically say that COVID-19 and lockdown restriction had caused challenges (25%)

Those **selling to the rest of the UK** (31%), **the EU** (41%) and **outside the EU** (45%) were more likely to have reported one or more of the challenges listed.

Challenges faced delivering international e-commerce services

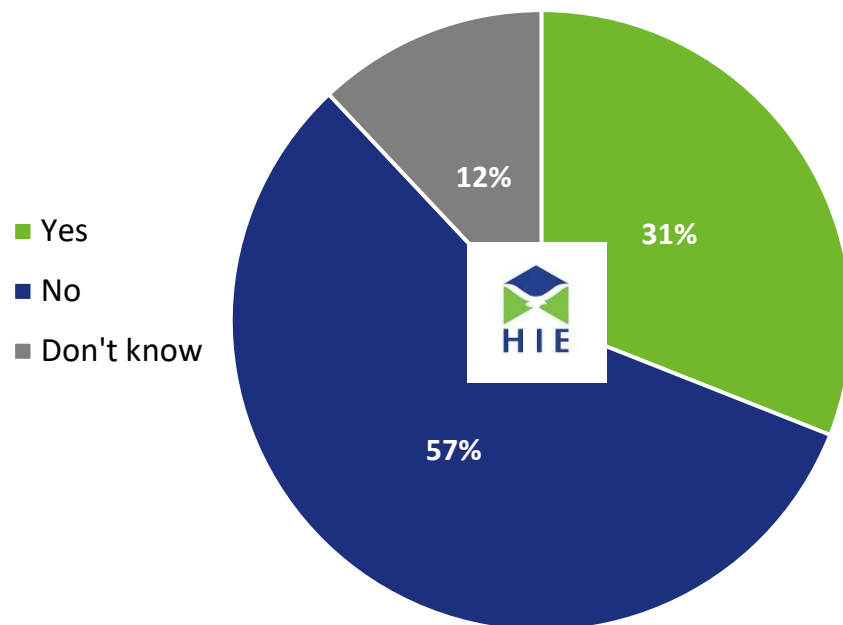


Base: All businesses using e-commerce; Highlands and Islands (474) and Scotland (1,244).

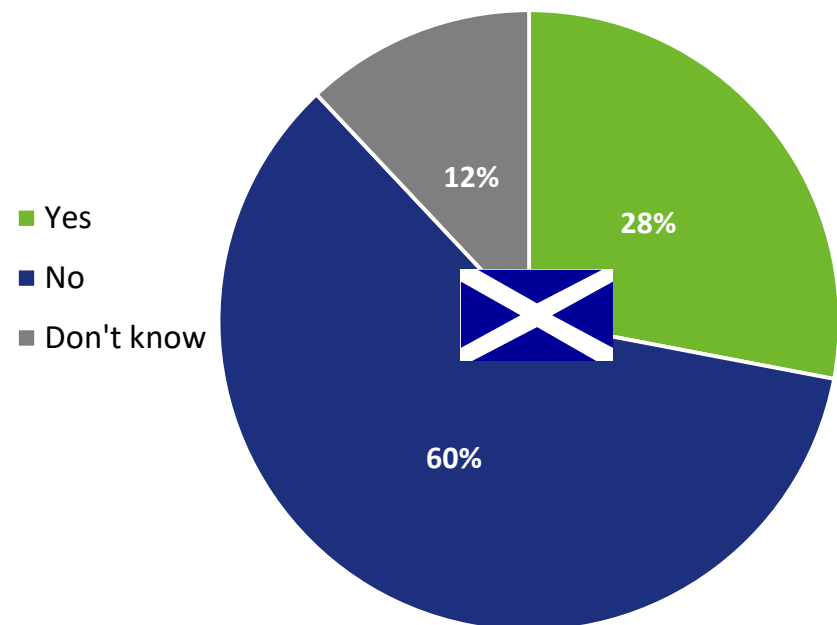
FUTURE E-COMMERCE PLANS

Among businesses in the Highlands and Islands *not* using e-commerce, 31% planned to do so in the next 2-3 years, while 57% did not - in line with businesses across Scotland as a whole.

Q Are you considering or planning to sell via e-commerce in the next 2-3 years?



Base: All businesses in Highlands and Islands with no e-commerce sales (excl. those saying it's not relevant) (201)



Base: All businesses in Scotland with no e-commerce sales (excl. those saying it's not relevant) (591)

Most likely to be planning to sell via e-commerce

- Those selling to rest of the UK (42%) and outside the EU (50%)
- Those using 5 or 6 of the 8 key digital technologies covered in the survey (50%)

F. CYBER RESILIENCE

INCIDENCE OF CYBER ATTACKS

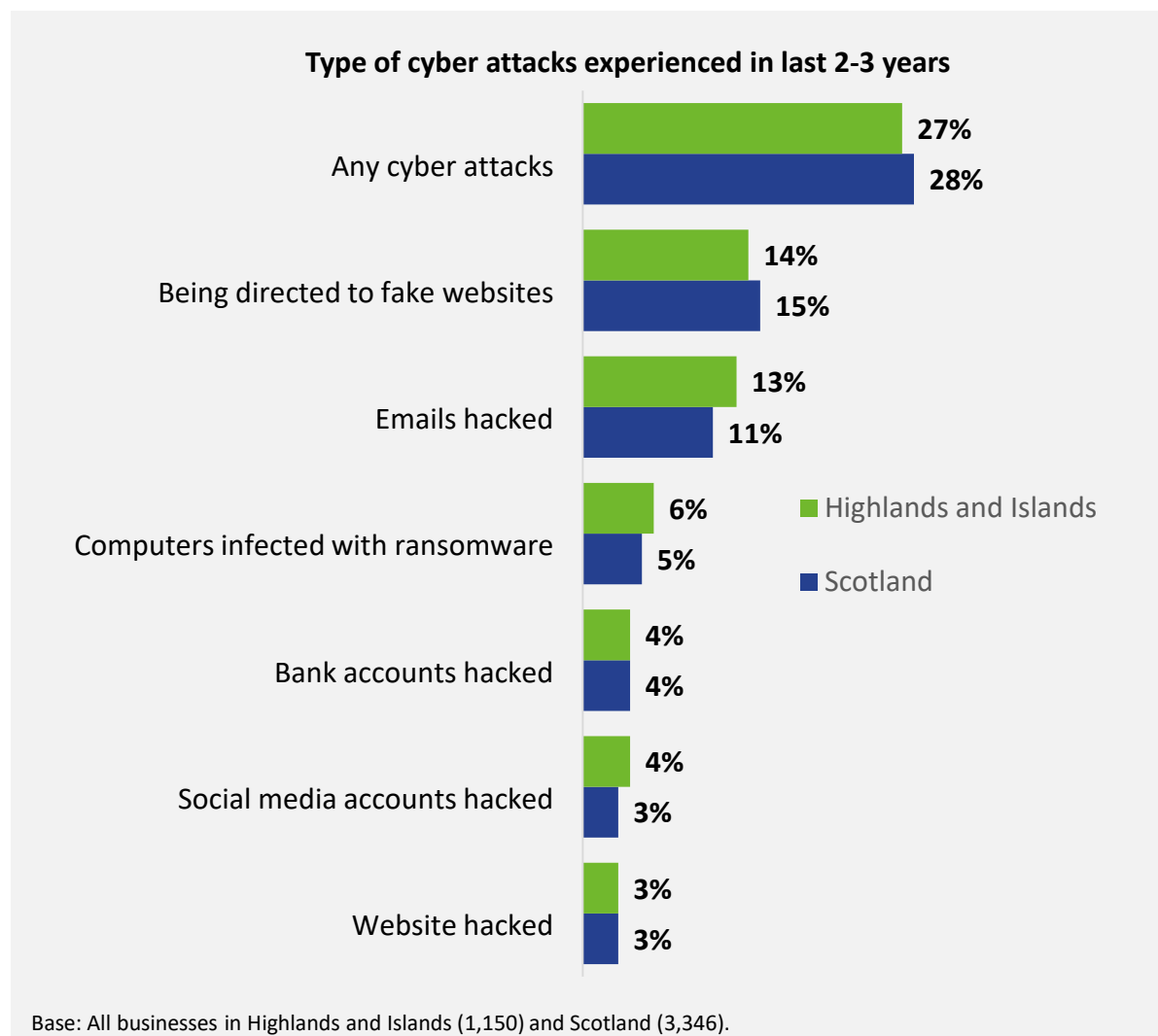
To help inform the Scottish Government's Strategic Framework for a Cyber Resilient Scotland, businesses were asked about their cyber resilience.

In line with Scotland as a whole, the **most common types of cyber attack** experienced by businesses in the Highlands and Islands were being directed to fake websites and email hacking.

Variation

- Cyber attacks were more common than average in the **financial and business services** growth sector (39%)
- **Organisations that used e-commerce** were more likely to have experienced an attack than those that did not (31% vs 25%)
- Businesses that **did not feel equipped to meet digital technology needs** were more likely to have had a cyber attack (34%) than those that did feel equipped (27%)
- Those in **accessible rural** locations (34%) were more likely than remote rural (26%) and urban (26%) to have experienced an attack

27% of businesses in Highlands and Islands had experienced a cyber attack, in line with the Scottish average (28%)



NOTES: This section mainly focuses on findings from the 2021 survey, as cyber resilience was not covered in the 2014 survey, and was covered in the 2017 survey but using different questions.

IMPLICATIONS TO BUSINESS FOLLOWING CYBER-ATTACKS

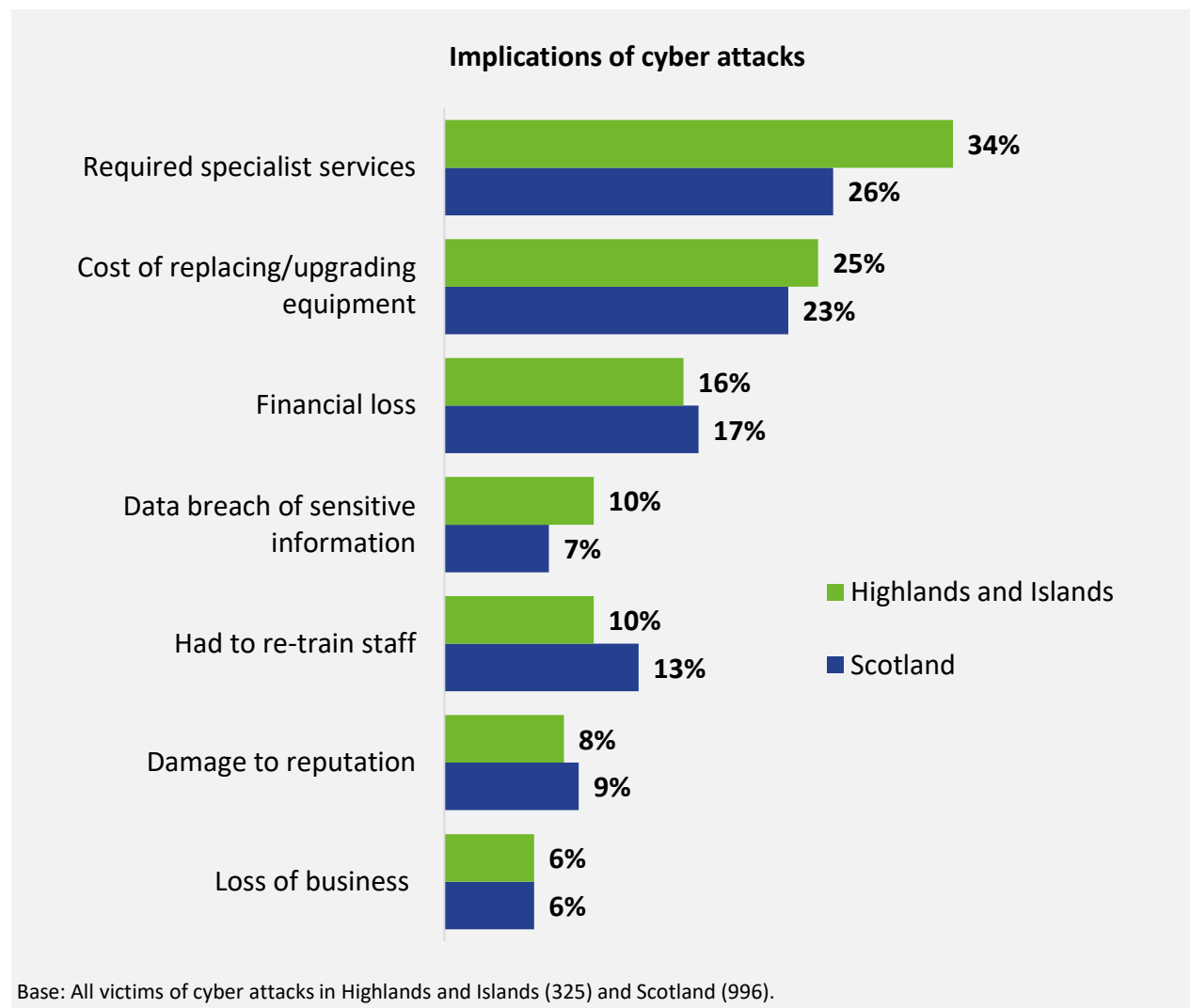
Among businesses that had been victims of a cyber attack, **the most common implications were that they required specialist services, incurred costs of replacing or upgrading equipment, and suffered financial loss.**

Variation

Compared with Scotland as a whole, it was more common for businesses in the Highlands and Islands to report:

- having **required specialist services** (34% vs 26% overall)
- **data breach of sensitive information** (10% vs 7% overall)

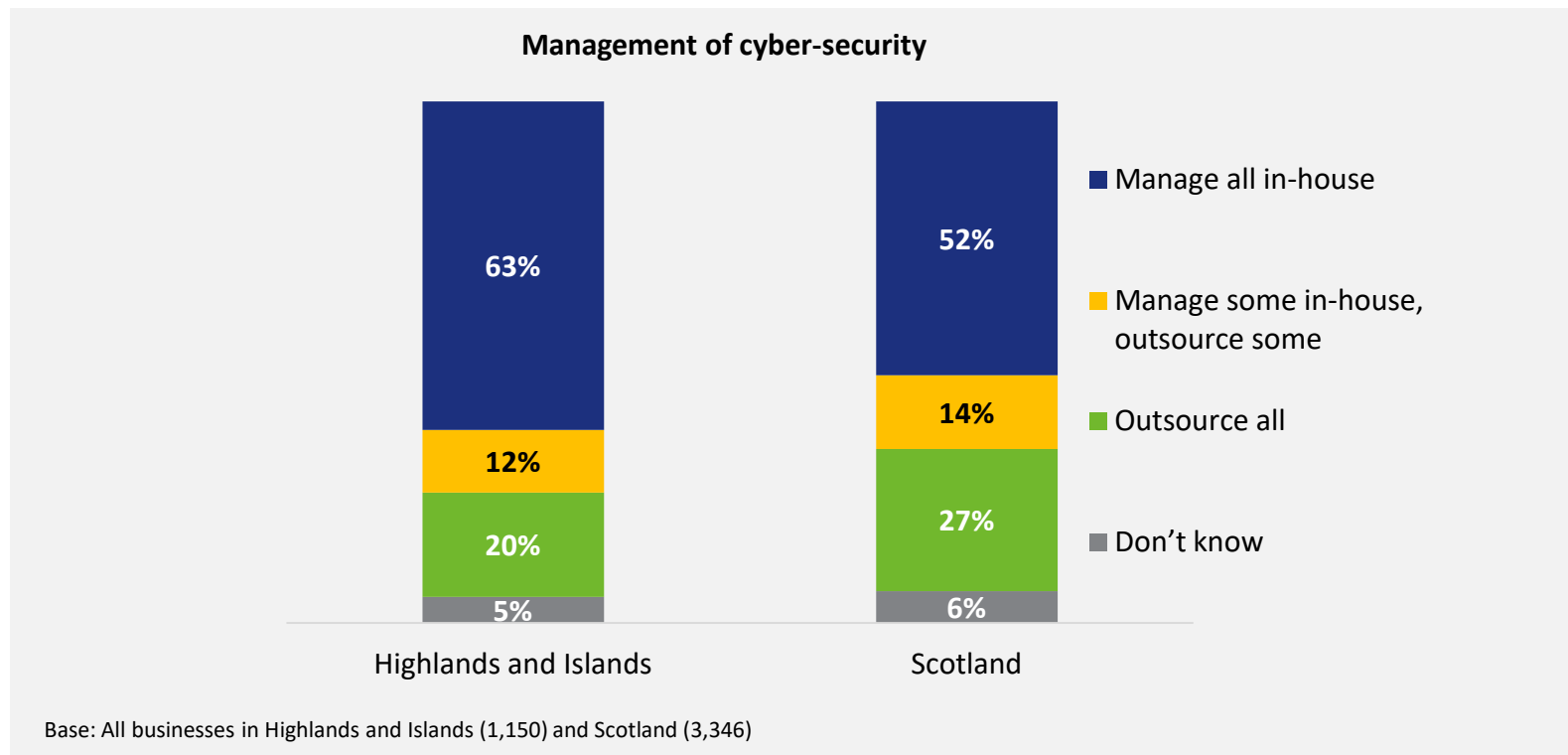
It was less common for Highlands and Islands businesses to report having had to re-train staff (10% vs 13% in Scotland overall).



MANAGEMENT OF ORGANISATION'S CYBER-SECURITY

Around two-thirds (63%) of businesses in the Highlands and Islands reported managing all their cyber security in-house, above the Scottish average of 52%.

One in five (20%) businesses in the Highlands and Islands said they outsourced all their cyber-security (lower than the Scotland overall figure of 27%) while 12% managed some in-house and outsourced some (in line with 14% in Scotland overall).



More likely to manage all cyber-security in-house

- **Agriculture and utilities sector (71%)**

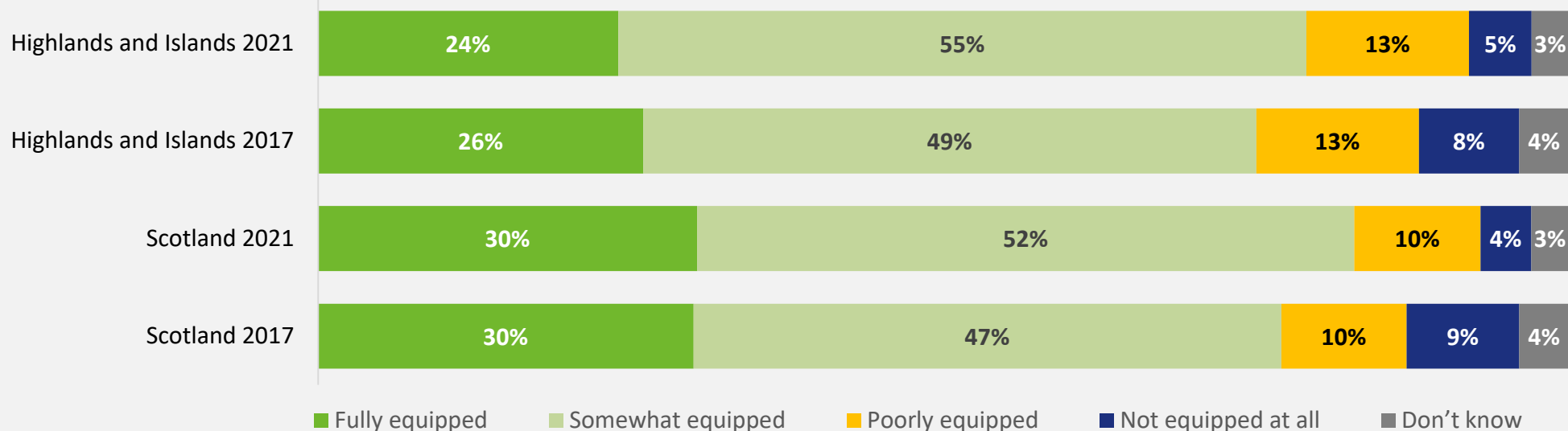
More likely to outsource all cyber-security

- Those with **20+ employees (49%)**
- Those in **urban** locations (27% vs 19% of businesses in accessible rural and 16% in remote rural locations)

SKILLS WITHIN THE ORGANISATION

79% of Highlands and Islands businesses felt fully/somewhat equipped to protect against and deal with cyber security threats – an increase from 2017 (75%) but slightly lower than the Scotland average (82%). Around one in five (18%) felt poorly (13%) or not at all (5%) equipped.

How equipped organisations feel with skills to protect against and deal with cyber- security threats



Base: 2021 All businesses in Highlands and Islands (1,150) and Scotland (3,346).

Most likely to feel fully/somewhat equipped

- **Creative industries** (87%) growth sector
- Those that **used 5-6 or 7-8 of the digital technologies explored in the survey** (85% and 91% respectively)
- Those that anticipate **growth** (83%)

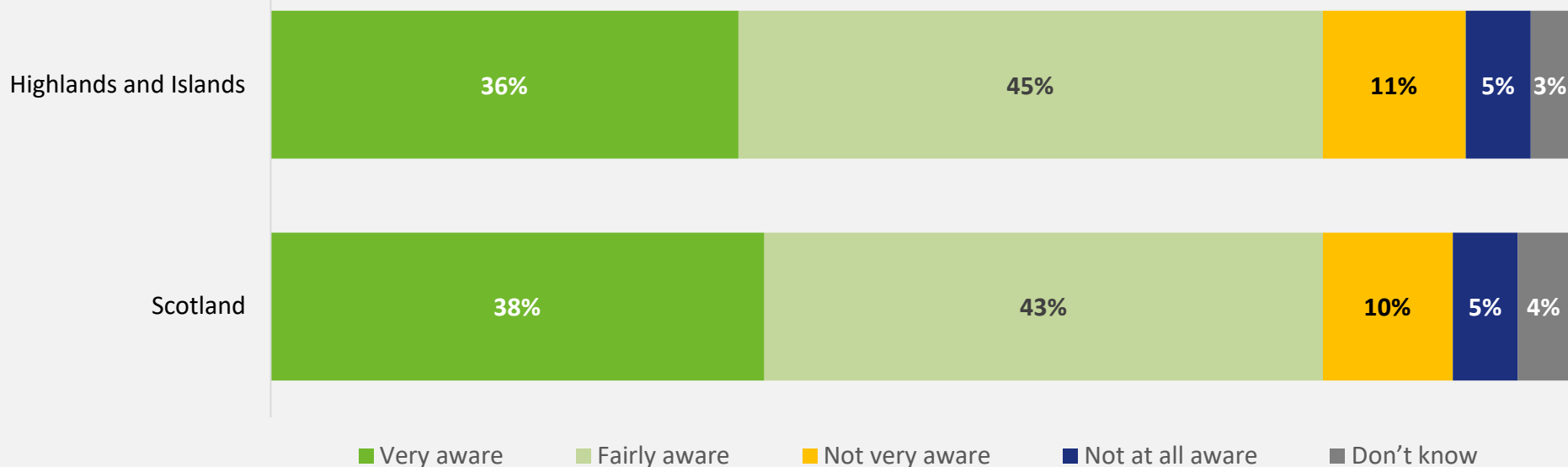
Most likely to feel poorly/not equipped

- **Food and drink** (25%) growth sector
- Those with **1-4 employees** (22%)
- Organisations **anticipating contraction or downsizing** (30%)
- **Businesses in remote rural areas** were more likely to feel 'not equipped at all' (6% vs 3% in accessible rural and urban areas)

AWARENESS OF CYBER-SECURITY RISKS

81% of businesses in the Highlands and Islands felt their workforce was very or fairly aware of cyber threat and risk and how to mitigate it, in line with 81% across Scotland overall. 16% were not very/not at all aware.

Workforce awareness of cyber threat and risk and how to mitigate it



Base: All businesses in Highlands and Islands (1,150) and Scotland (3,346).

Higher awareness among:

- **Creative industries** (95% very/fairly aware) and **financial and business services** (88%) growth sectors
- Organisations using **7 or 8 of the key technologies explored in the survey** (93%)
- **Urban** (84%) compared with accessible rural (78%) and remote rural (80%)

Lower awareness among:

- **Food and drink** growth sector (19% not very/not at all aware)
- Organisations using few (**0-2**) of the **key technologies explored in the survey** (23%)

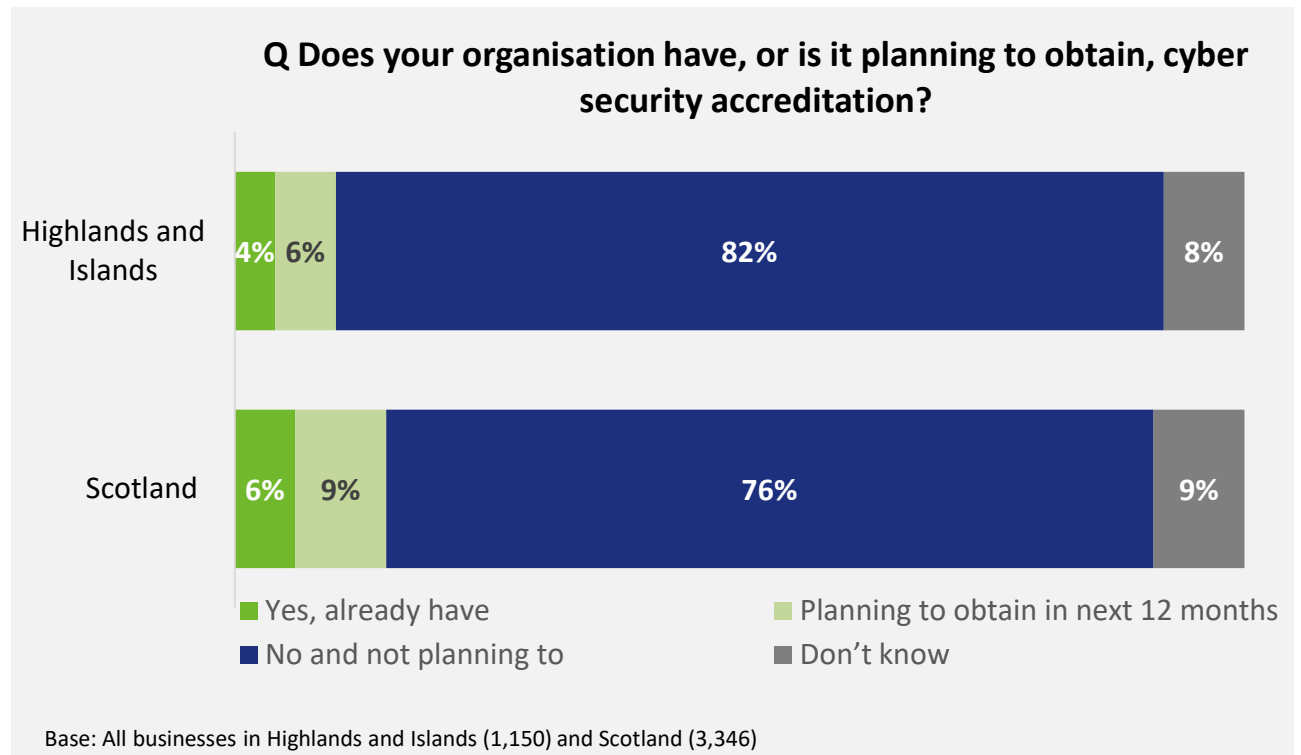
CYBER SECURITY ACCREDITATION

Businesses were asked whether they had, or planned to obtain, cyber security accreditation for example through Cyber Essentials.

Only a small minority (4%) of businesses in the Highlands and Islands had cyber security accreditation, in line with the Scottish average (6%).

A further 6% were planning to obtain accreditation in the next 12 months (lower than 9% in Scotland overall).

The majority (82%) had no accreditation and did not plan to get it (higher than the 76% across Scotland as a whole).



More likely to have/plan to get accreditation

- **Financial and business services** growth sector (10% already have, 7% planning to get)
- Businesses with **20+ employees** (7% already have, 9% planning to get)

Less likely to have accreditation

- **Agriculture and utilities** sector (89% saying no and not planning to)

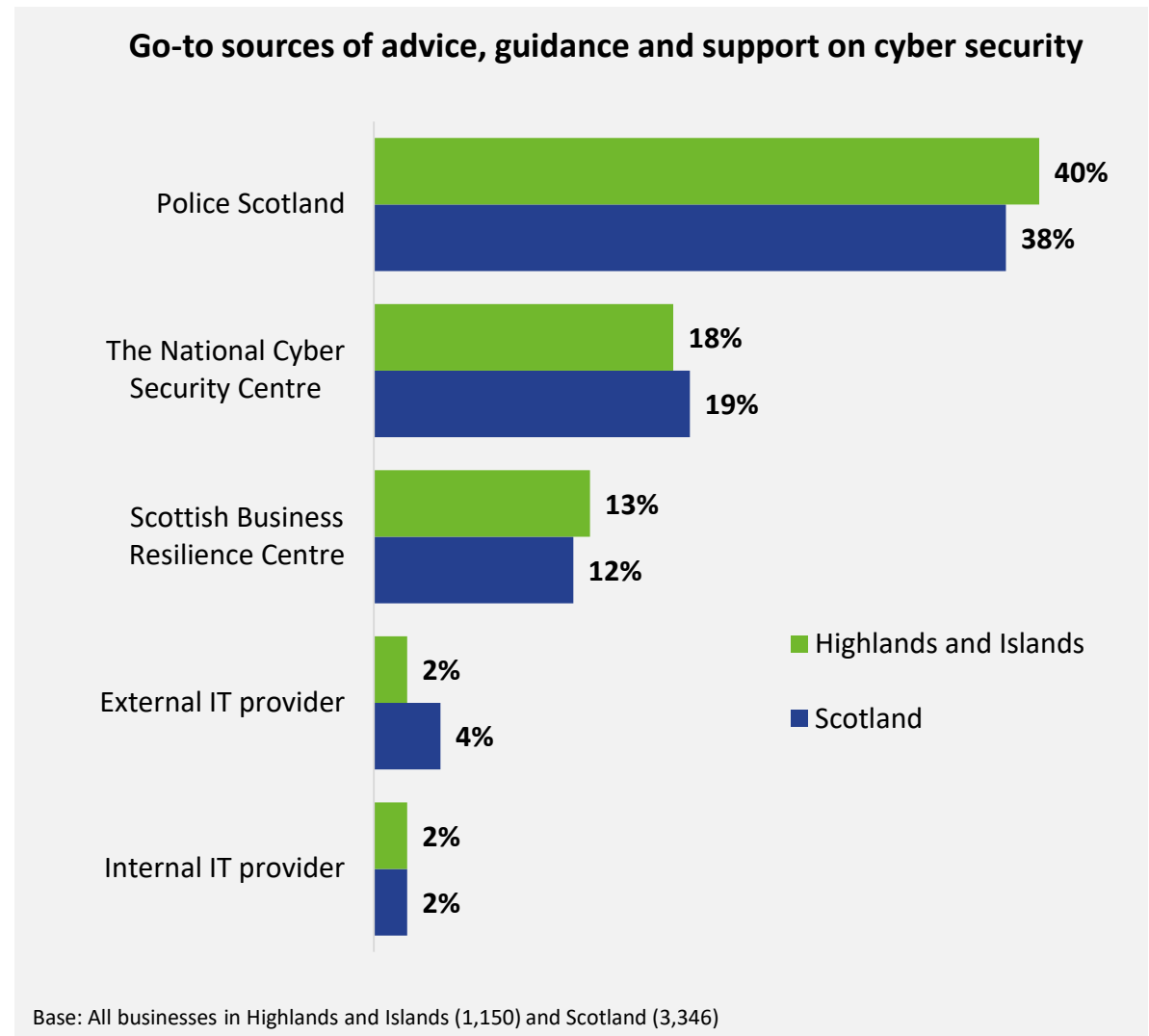
NOTES:

Cyber Essentials is a Government-backed, industry-supported scheme to help organisations protect themselves against common online threats. See <https://www.gov.uk/government/publications/cyber-essentials-scheme-overview>

SOURCE OF ADVICE, GUIDANCE AND SUPPORT ON CYBER SECURITY

When asked which sources they would go to for external advice, guidance and support on cyber security, the most common response was **Police Scotland** (40%, similar to the figure across Scotland as a whole (38%)).

There was little variation by business type. However, the National Cyber Security Centre was more commonly mentioned by those in the **creative industries** (29%) and **financial and business services** (24%) growth sectors.



G. DIGITAL SKILLS

DIGITAL SKILL GAPS

Findings suggest a continued digital skills gap among businesses in the Highlands and Islands businesses, and across Scotland overall.

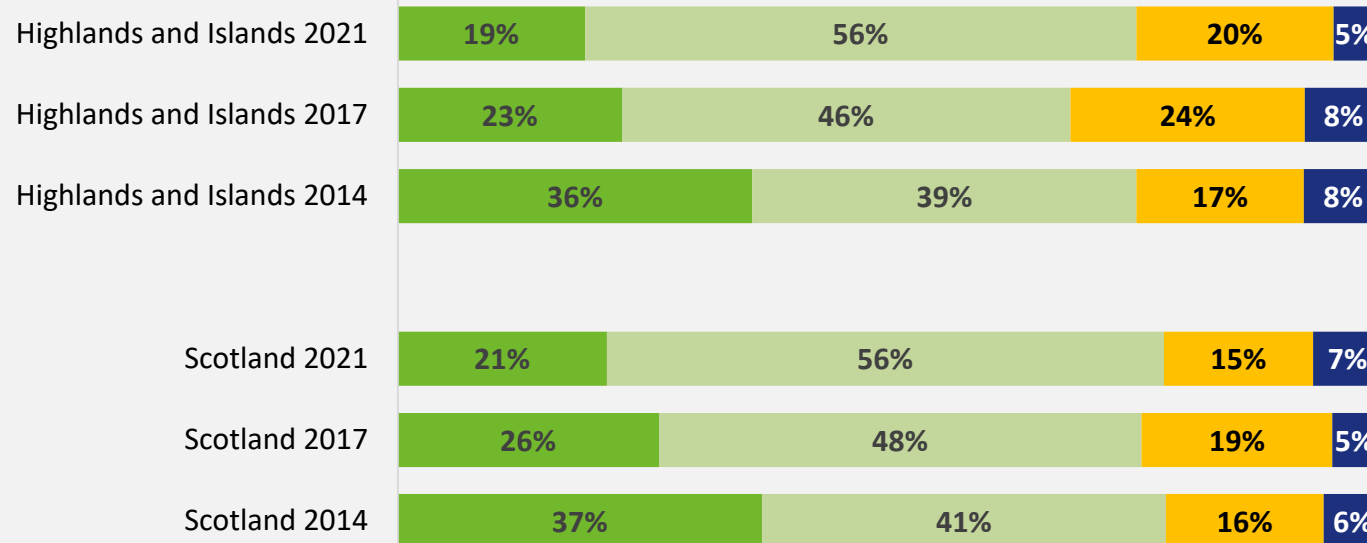
Only 19% said they were fully equipped to meet their business's digital technology needs, in line with the Scottish average (21%), and lower than in 2017 and 2014.

Three-quarters (76%) identified at least some level of skills gap (71% in Scotland).

This may reflect the changing nature of digital needs in recent years, and the challenge of aligning skills development with the rapid pace of technological advancement. For example, new technologies such as Artificial Intelligence and Internet of Things were covered in the 2021 survey but not in previous waves.

Extent to which staff have skills to meet digital technology needs

■ Fully equipped to meet needs ■ Well equipped but some skills gaps
■ Considerable skills gaps ■ No needs for these skills/don't know



Base: 2021 All businesses in Highlands and Islands (1,150) and Scotland (3,346)

More likely to have skills gaps

- **Tourism** and **food and drink** growth sectors (30% and 27% had considerable skills gaps)
- Those with **1-4 staff** (23% considerable skills gaps) compared with those with 20+ staff (18%)

Less likely to have skills gaps

- **Creative industries** sector (26% fully equipped)
- **Urban** businesses (22% fully equipped vs 14% of accessible rural and 18% of remote rural)

SPECIFIC SKILLS GAPS IDENTIFIED

Among those that identified skills gaps, just under a third (30%) mentioned basic digital technology skills, such as emails, internet navigation, Microsoft Office and Excel, higher than for Scotland overall (26%). One in ten identified cyber security (11%) and software (9%) skills gaps. It should be noted that a quarter (26%) did not know what specific skills they needed.

Specific skills gaps identified	Highlands and Islands (%)		Scotland (%)	
	2021	2017	2021	2017
Basic digital technology skills	30	-	26	-
Cyber security skills	11	4	11	4
Software skills	9	22	10	21
Web development skills	6	10	5	10
Digital product/service marketing skills	6	6	6	6
Business and commercial skills	4	6	5	5
Web content creation	3	5	4	5
Information security skills	3	3	4	2
Coding skills	3	3	4	3
Digital leadership and management skills	3	2	2	2
Mobile development skills	2	3	2	3
Data analysis	2	2	3	2
Commercial use of data	2	3	1	3
<i>None of the above</i>	19	35	20	33
<i>Don't know</i>	26	24	23	24
Base: All who have digital skills gaps	879	838	2,464	2,220

Variation by sector and location

Specific skills gaps were more likely than average to be identified by certain sectors:

- Cyber security skills - construction sector (19%)
- Web development skills – hotels and restaurants (12%)

There was little variation by urban/rural area, but the following skills were more likely to be identified by HIE area office region:

- Basic digital technology skills – Lochaber, Skye and West Ross (38%) and Moray (39%)
- Information security – Caithness and Sutherland (11%)
- Use of communications and conference tools - Orkney (9%)

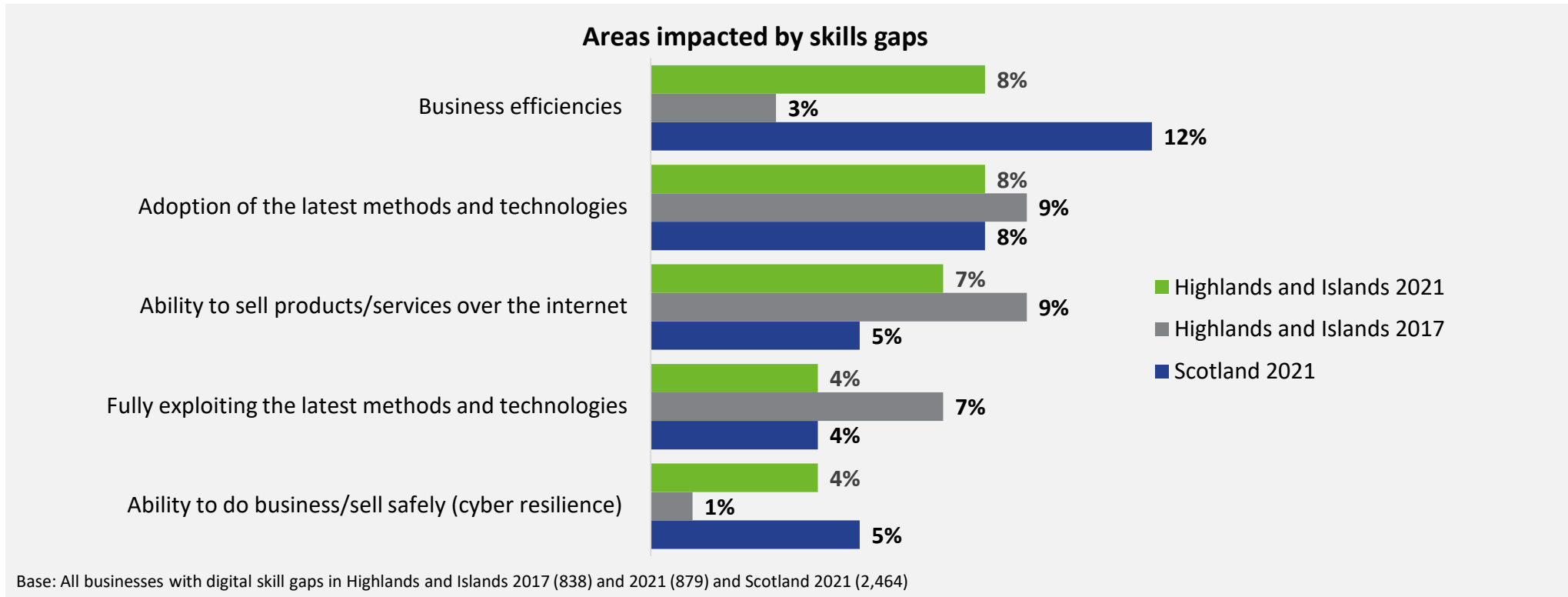
NOTES

The list of skills asked about was slightly different between 2017 and 2021 (e.g. “Basic digital technology skills” was not asked about in 2017), meaning that the data across the two years is not entirely comparable

IMPACT OF DIGITAL SKILLS GAPS

Digital skills gaps had impacted on businesses in a range of ways, with 28% identifying at least one area in which they had been impacted (in line with the Scottish average (28%)). **The most commonly mentioned impacts were business efficiencies** (8%, up from 3% in 2017); **adoption of the latest methods and technologies** (8%, and 9% in 2017); and **ability to sell products/services over the internet** (7%, and 9% in 2017).

Findings were broadly in line with those for Scotland as a whole. However, businesses in the Highlands and Islands were less likely to report a detrimental impact on business efficiencies (8% vs 12%), but slightly more likely mention a negative impact on e-commerce (7% vs 5%).



Variation

- **Financial, admin and other professional services** sector were more likely to say adoption of latest methods and technologies had been impacted (13%)
- **Construction** sector were more likely to report an impact on their ability to sell products/services over the internet (14%)

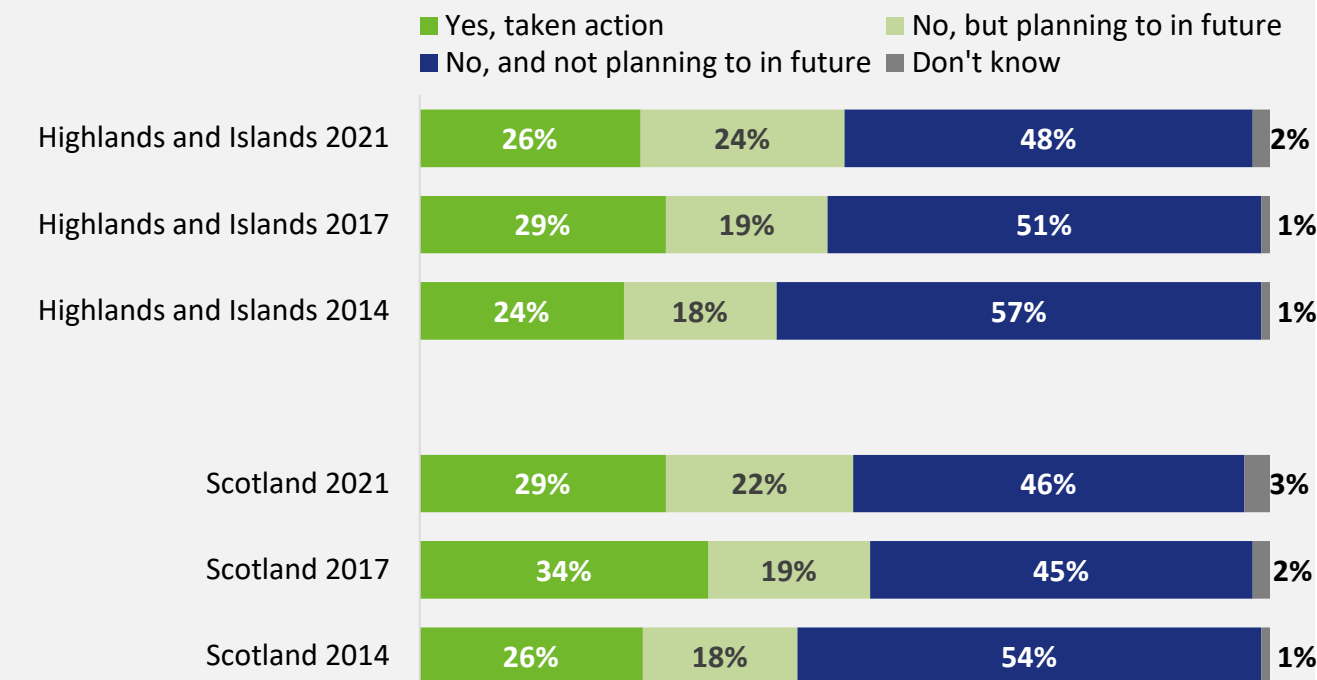
ACTION TO ADDRESS DIGITAL SKILLS GAPS

Although 76% of businesses identified at least some level of digital skills gap, only **26% were taking action to develop their employees' skills**. A further quarter (24%) were not currently taking action but planning to. Around half (48%) were not taking action and not planning to.

Findings were similar to those for Scotland as a whole. Appetite for addressing skills gaps was similar to that seen in 2017 – 50% were taking action or planning to, compared with 48% in 2017.

Of those with considerable skills gaps, 20% had already taken action and 28% planned to, but 51% were not taking/planning any action. Those with *some* skills gaps were more likely to have already taken action - 31% had done so, while 28% planned to, and 40% had/did not.

Action/future plans around addressing digital skills gaps



Base: 2021 All businesses in Highlands and Islands (1,150) and Scotland (3,346)

Taking action

Those more likely to have already taken action were:

- **Creative industries** (46%) and **financial and business services** (33%)
- Those with **20+ staff** (51%)
- Organisations that had **adopted 5-6 and 7-8 of the digital technologies explored in the survey** (36% and 62%)

Not taking action

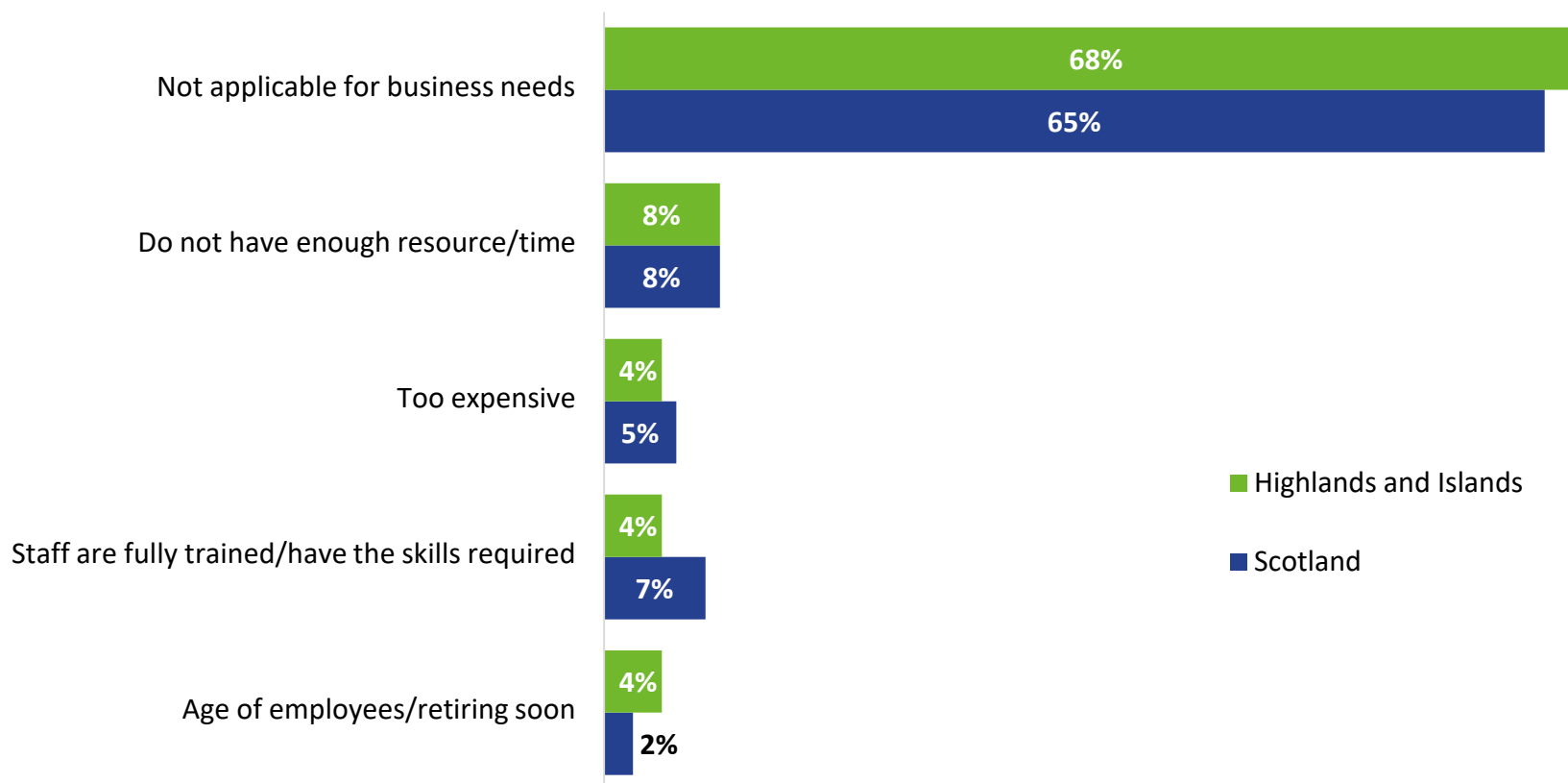
Those more likely to not have taken action and not be planning to were:

- **Tourism** (53%) and **food and drink** (52%) growth sectors
- Those with **1-4 staff** (53%)

REASON FOR NOT ADDRESSING SKILLS GAPS

Among businesses that were not taking or planning to invest in their employees' digital skills, the main reason (mentioned by 68%) was that they felt it was not applicable for their business needs. This is in line with the Scotland average.

Top reasons for not taking action to develop employees' digital skills



Base: All businesses not planning to invest in employees' digital skills in Highlands and Islands (498) and Scotland (1,449)

RECRUITING/RETAINING DIGITAL TECHNOLOGY SPECIALISTS IN LAST 12 MONTHS

Despite the apparent digital skills gaps among business in the Highlands and Islands, **the majority of businesses (96%) had faced no problems recruiting or retaining digital technology specialists** in the last 12 months:

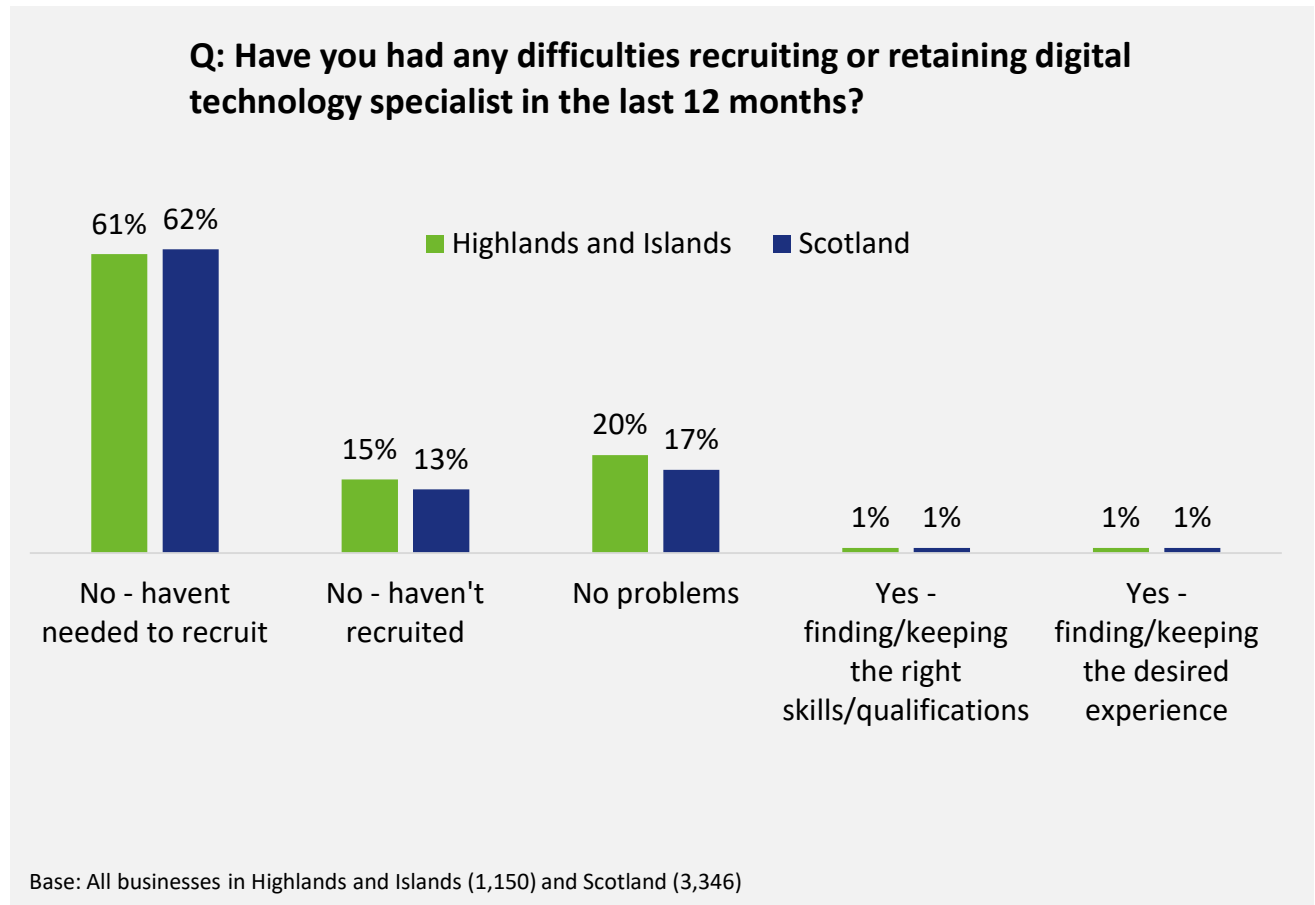
- 61% had not needed to recruit (62% in Scotland)
- 15% had needed to but didn't recruit (13% in Scotland)
- 20% had experienced no problems (17% in Scotland)

Just 2% had experienced difficulties (3% in Scotland overall).

Among those that *had* experienced difficulties, the most common way of overcoming these was to train or retrain current staff (23%), followed by recruiting straight from school, college or university (13%), recruiting from abroad (6%) and outsourcing recruitment to an agency (5%).

Variation by area

- Business in **rural** locations were more likely to say they had not needed to recruit (65% accessible rural, 62% remote rural vs 58% urban).



H. IMPACT OF COVID-19

IMPORTANCE OF DIGITAL TECHNOLOGY IN RESPONDING TO COVID-19

77% of businesses said digital technology had been important to the operation of their business in responding to COVID-19 (78% for Scotland overall)

Though the aggregate findings were similar, Highlands and Islands businesses placed lower than average importance on digital technology - they were less likely to say digital technology had been “essential” (32% vs 40% across Scotland overall), but more likely to say it was “important” (27% vs 22%).

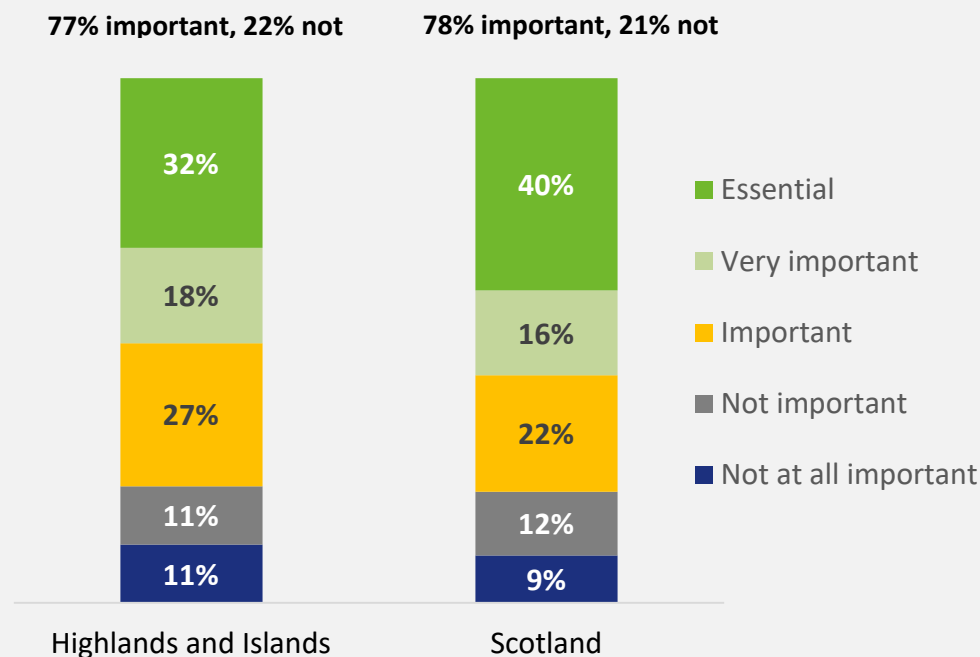
More likely to say digital technology was important

- **Financial and business services** (93%) and **creative industries** (93%) growth sectors
- Those with **10-19 and 20+ employees** (83% and 80%)
- Those selling to **rest of UK** (83%), **the EU** (86%) and **outside the EU** (85%)
- Those that had **increased their investment** in digital technology (88%)
- There was no significant variation in findings by location

More likely to say digital technology was *not* important

- **Food and drink** growth sector (27%)
- Small businesses with **1-4 employees** (25%)
- Businesses **expecting to downsize** (36%)
- Those whose **investment in digital technology remained unchanged** over last 12 months (31%)

Importance of digital technology in response to COVID-19



Base: All businesses in Highlands and Islands (1,150) and Scotland (3,346)

APPLICATIONS TO COVID-19 DIGITAL SUPPORT SCHEMES

Three-quarters of Highlands and Islands businesses (75%) had not applied to COVID-19 support schemes from the UK or Scottish Governments for enhancing digital capability (such as business grants and loan schemes).

Around one in five (22%) had applied: 14% were successful with all applications, 4% were successful with some and 3% were unsuccessful.

Findings were similar to the Scottish average (70% had not applied, 24% had).

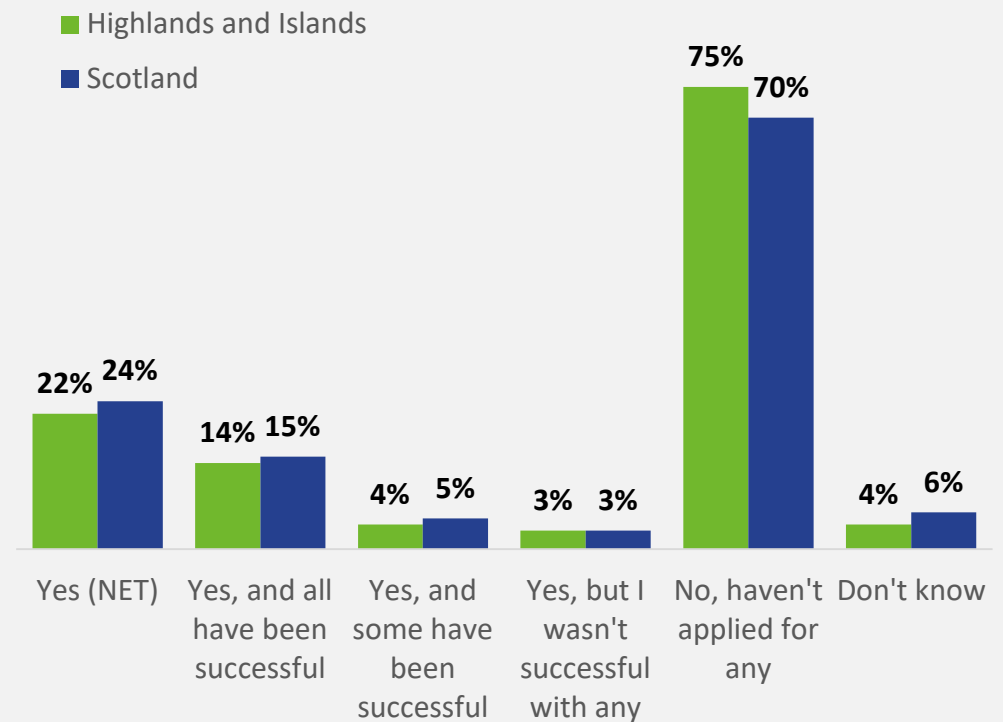
More likely to have applied for support schemes

- **Hotels and restaurants** (33%)
- Those with **20+ staff** (28%)
- Businesses selling to **rest of UK** (26%), **the EU** (28%) and **outside the EU** (29%)

Less likely to have applied for support schemes

- Those with **1-4 staff** (78%)
- Those **expecting to retain the status quo** in terms of their performance (**81%**)

Applications for COVID-19 digital capability support



Base: All businesses in Highlands and Islands (1,150) and Scotland (3,346).

I. DIGITAL ECONOMY MATURITY INDEX

DEMI INDICATORS

The **Digital Economy Maturity Index (DEMI)** aims to:

- measure the level of digitisation of businesses and segment the business population into levels of digital maturity;
- establish the characteristics of businesses in each segment and identify the opportunities to develop their use of digital technologies based on their strengths and challenges; and
- measure progress of digitisation of businesses over time

Originally constructed from the 2014 survey, the DEMI indicators have since been updated to reflect new areas that were included in the 2021 survey and in light of the changing context for digital maturity (e.g. newer forms of digital technology used, the importance of digital technology during COVID-19, and its impact on productivity and innovation).

Due to the changes in indicators between 2017 and 2021, findings are not directly comparable with those of 2017.

The 2021 index consists of six main strands (Adoption, Usage, Benefits, Cyber Resilience, Skills and Productivity), under which there are a total of 15 sub-indicators (see table below).

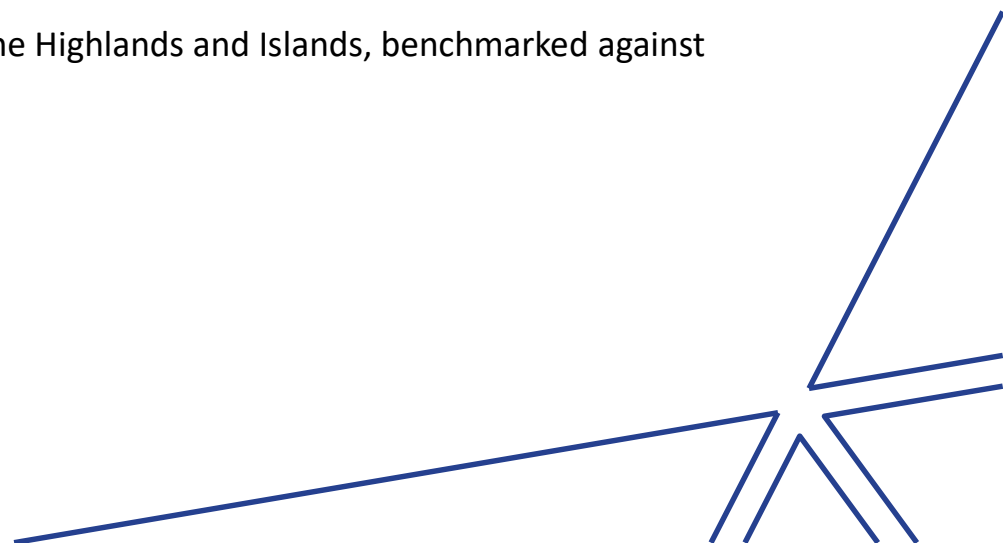
ADOPTION	USAGE	BENEFITS	CYBER RESILIENCE	SKILLS	PRODUCTIVITY
Type of internet connection	Technologies used	Benefits experienced from using digital technologies	Equipped to deal with cyber security threats	Digital technology skills gaps	Investment in digital technology
Importance of digital technology to business response to COVID-19	Strategy for use of digital technology	Use of digital technology to help innovation	Cyber security accreditation	Plans to develop employees' digital skills	Impact of digital technology on productivity
		Proportion of sales made over the internet			
Internationalisation					

MATURITY SEGMENTS AND SCORES

Each indicator has been given a score based on its relative importance in terms of digital maturity, with a maximum overall score of 100 being possible. Based on these scores, businesses are placed within one of the following six segments, which reflect the extent of their digital maturity (e.g. Minimal = the least digitally mature, Expert = the most digitally mature):

SEGMENT	DEMI SCORE
Minimal	0-10
Basic	11-30
Intermediate	31-49
Upper Intermediate	50-66
Advanced	67-80
Expert	81-100

The remainder of this section outlines the DEMI findings for businesses in the Highlands and Islands, benchmarked against the rest of Scotland where appropriate.

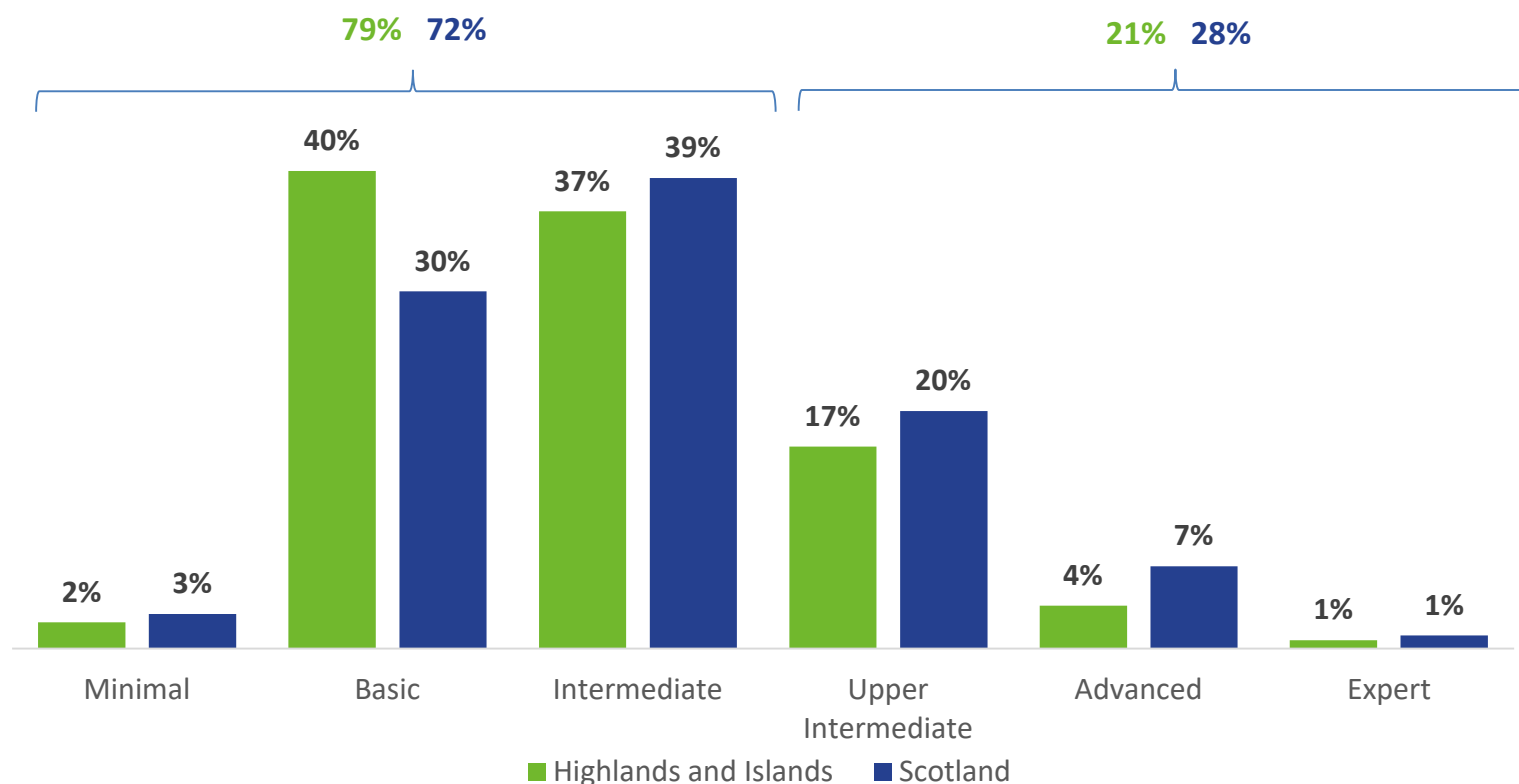


DEMI PROFILE OF BUSINESSES

Businesses in the Highlands and Islands exhibited a wide range of digital maturity, with representation in each of the six DEMI segments. The majority of Highlands and Islands businesses (79%) fell within the lower half of the index, with the largest proportions having either a Basic (40%) or Intermediate (37%) level of maturity.

Businesses in the Highlands and Islands were more likely than those in Scotland to fall within the lower half of the index (79% compared with 72%), and less likely to be in the upper half (21% compared with 28%).

The mean overall score for the Highlands and Islands was 36 (out of a maximum of 100), lower than the mean score for Scotland overall (40).



Base: All businesses in Highlands and Islands (1,150) and Scotland (3,346).

CHARACTERISTICS OF DEMI SEGMENTS

Digitally mature businesses tended to be larger, operate in international markets, and have expectations of growth in the next 12 months. They were more likely than average to work in the creative industries growth sector or financial, admin and other professional services sector and to have more than one establishment within the organisation. These characteristics echo those seen among the more digitally mature businesses in 2017.

The **less mature businesses** tended to be smaller, established for at least 10 years, and with expectations to continue to perform at the same level in the next 12 months. They were more likely than average to work in the food and drink growth sector or agriculture and utilities sector, have only one establishment in the organisation and sell only to domestic markets.

MINIMAL	BASIC	INTERMEDIATE	UPPER INTERMEDIATE	ADVANCED	EXPERT*
Food and drink (58% vs 33%) and Agriculture and utilities (48% vs 25%)	Food and drink (39% vs 33%) Agriculture and utilities (32% vs 25%)	-	Creative industries (13% vs 7%) and Financial, admin and other professional services (35% vs 20%)	-	-
Micro businesses (1-4 employees) (84% vs 59%)	Micro businesses (1-4 employees) (64% vs 59%)	-	Large businesses (20+ employees) (9% vs 5%)	Large businesses (20+ employees) (12% vs 5%)	-
Operating more than 10 years (96% vs 82%)	Operating more than 10 years (87% vs 82%)	-	-	Operating 5-10 years (28% vs 11%)	-
-	Family-owned businesses (84% vs 77%)	-	-	Non-family owned businesses (53% vs 22%)	-
Only establishment in the organisation (100% vs 91%)	-	-	One of a number of establishments (18% vs 9%)	-	-
In Caithness & Sutherland (38% vs 10%)	-	-	-	-	-
Sell only to domestic markets (92% vs 57%)	Sell only to domestic markets (68% vs 57%)	-	Sell to international markets (43% vs 26%)	Sell to international markets (63% vs 26%)	-
-	Expect to remain at same level in next 12 months (58% vs 45%)		Expect to grow in next 12 months (55% vs 42%)	Expect to grow in next 12 months (86% vs 42%)	-

*Note: the number of businesses in the Expert segment (8) is too small for analysis of their characteristics

LEVEL OF ACTIVITY AND OPPORTUNITIES FOR EACH SEGMENT

Those in the *Minimal* segment had low use of digital technologies, and were therefore least likely to have experienced their benefits. None had plans or strategies for future use of technology. It could therefore be argued that some businesses in the *Minimal* segment are unlikely to benefit from efforts to increase their digitisation.

However, the two least mature groups, *Minimal* and *Basic* were the least equipped for cyber security threats and sizeable proportions identified digital skills gaps. Therefore, **these segments may benefit both from digital skills development and enhanced cyber resilience.**

There are also opportunities for **future skills development among the more mature businesses.** For example, those in the *Intermediate*, *Upper Intermediate* and *Advanced* segments still identified at least some level of skills gaps in their organisations.

In addition, though digital technologies were widely used among the more mature segments, there is still potential to **drive engagement with some of the lesser-used technologies such as data analytics, management software and the Internet of Things.**

Levels of engagement with digital technology in each segment

	Minimal	Basic	Intermediate	Upper Intermediate	Advanced	Expert	All businesses
Average number of technologies used	0.2	2.4	4.4	5.9	7.0	7.6	3.8
% with plan or strategy in place	-	5	15	41	75	63	18
% using e-commerce	4	22	46	61	69	100	38
% trading internationally	8	18	24	43	63	75	26
% with skills gaps	64	72	80	77	80	71	76
% increased their investment in digital technology	8	21	48	76	98	100	43
% equipped for cyber security threats	36	69	84	92	95	100	79

K. APPENDIX

SECTOR CATEGORIES USED IN THE SURVEY

Growth sector grouping	
Sector name	Types of sector included
Creative industries	Definition of each and full list of individual sector categories are available from Scottish Government at https://www.gov.scot/publications/growth-sector-statistics/
Energy	
Financial and business services	
Food and drink	
Life sciences	
Tourism	
Standard sector grouping	
Sector name	Types of sector included (SIC 2007 label)
Agriculture and utilities	Agriculture, forestry and fishing; Mining, quarrying and utilities; Electricity, gas, steam and air conditioning; Water supply, sewerage and waste management
Financial, admin and other professional services	Finance and insurance; Real estate activities; Professional scientific and technical; Administrative and support services
Construction	
Health and social work	
Hotels and restaurants	Accommodation and food services
Manufacturing	
Other services	Arts, entertainment and recreation; Other service activities
Transport and communications	Transport and storage; Information and communication
Wholesale and retail	Wholesale and retail trade; Repair of motor vehicles

DEMI Indicators (1)

Indicator	Sub-indicator	Score	Max score
ADOPTION			
Type of internet connection	Next Generation Access	4	4
	Standard broadband	2	
	Internet not broadband	1	
	No internet connection	0	
Overall importance of digital technology to current operations of business	Essential	4	4
	Very important	3	
	Important	2	
	Not important	0	
USAGE			
Technologies used	Website or Social media	1	12
	Mobile or Cloud	1	
	Data analytics	2	
	Remote working software	2	
	Management software	3	
	Internet of Things	3	
Integration of technology into business	Essential	4	32
	Important	3	
	Not important	1	
Strategy for use of digital in delivering business	Yes	2	2
	No	0	

DEMI Indicators (2)

Indicator	Sub-indicator	Score	Max score
BENEFITS			
Benefits experienced from using digital technologies	Website	1	12
	Social media	1	
	Mobile internet and technologies	2	
	Cloud computing	2	
	Data analytics	3	
	Management software	3	
Using digital technology to help innovation	Research competitor products online	1	6
	Researching and gathering market data online	2	
	Collecting consumer feedback via website or social media	3	
Proportion of sales made over the internet	All - 100%	5	5
	80-99%	4	
	60-79%	3	
	40-59%	3	
	20-39%	2	
	<20%	1	
	None	0	
Internationalisation	Use of digital technology has helped expand into new or different international markets	2	4
	Website tailored to international markets	2	

DEMI Indicators (3)

Indicator	Sub-indicator	Score	Max score
CYBER RESILIENCE			
Equipped to deal with cyber security threats	Fully	5	5
	Somewhat	3	
	Poorly	1	
	Not at all	0	
Cyber security controls	Have technical controls in place and cyber security accreditation	3	3
	Have controls in place and planning to obtain cyber security accreditation	2	
	Have controls in place, but no accreditation or plans for accreditation	1	
	No controls in place and no accreditation/plans for accreditation	0	
SKILLS			
Digital technology skills gaps	No skills gaps	5	5
	Some skills gaps	3	
	Considerable skills gaps	1	
	Not applicable	0	
Doing anything to develop employees' digital skills	Yes	3	3
	No but planning to in future	1	
	No and not planning to in future	0	
PRODUCTIVITY			
Investment in digital technology	Increased	2	2
	Unchanged	1	
	Decreased	0	
Impact of digital technology on productivity	Significant	3	3
	Moderate	2	
	Slight	1	
	None	0	
TOTAL MAX			100

Ipsos MORI's Standards & Accreditations

Ipsos MORI's standards & accreditations provide our clients with the peace of mind that they can always depend on us to deliver reliable, sustainable findings. Moreover, our focus on quality and continuous improvement means we have embedded a 'right first time' approach throughout our organisation.



ISO 20252 – is the international market research specific standard that supersedes BS 7911 / MRQSA & incorporates IQCS (Interviewer Quality Control Scheme); it covers the 5 stages of a Market Research project. Ipsos MORI was the first company in the world to gain this accreditation.



MRS Company Partnership – By being an MRS Company Partner, Ipsos MORI endorse and support the core MRS brand values of professionalism, research excellence and business effectiveness, and commit to comply with the MRS Code of Conduct throughout the organisation & we were the first company to sign our organisation up to the requirements & self regulation of the MRS Code; more than 350 companies have followed our lead.



ISO 9001 – International general company standard with a focus on continual improvement through quality management systems. In 1994 we became one of the early adopters of the ISO 9001 business standard.



ISO 27001 – International standard for information security designed to ensure the selection of adequate and proportionate security controls. Ipsos MORI was the first research company in the UK to be awarded this in August 2008.



The UK General Data Protection Regulation (UK GDPR) & the UK Data Protection Act 2018 (DPA) – Ipsos MORI is required to comply with the UK General Data Protection Regulation and the UK Data Protection Act; it covers the processing of personal data and the protection of privacy.



HMG Cyber Essentials – A government backed and key deliverable of the UK's National Cyber Security Programme. Ipsos MORI was assessment validated for certification in 2016. Cyber Essentials defines a set of controls which, when properly implemented, provide organisations with basic protection from the most prevalent forms of threat coming from the internet.



Fair Data – Ipsos MORI is signed up as a 'Fair Data' Company by agreeing to adhere to ten core principles. The principles support and complement other standards such as ISOs, and the requirements of Data Protection legislation.

This work was carried out in accordance with the requirements of the international quality standard for market research, ISO 20252 and with the Ipsos MORI Terms and Conditions

FOR FURTHER INFORMATION:

Ciaran Mulholland, Associate Director, Ipsos MORI Scotland
ciaran.mulholland@ipsos.com

Catriona Millar, Senior Research Executive, Ipsos MORI Scotland
catriona.millar@ipsos.com

HIE's research team
hieresearch@hient.co.uk