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DIGITAL SCOTLAND HIGHLANDS AND ISLANDS RESEARCH

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Contents

Executive Summary

Highlands and Islands Enterprise's ambition is to make the Highlands and Islands a true "Digital Region" achieving a vibrant digital economy and a population with a high level of digital skills. Capitalising on the benefits of digital technologies is particularly important for the Highlands and Islands region, where the physical geography and the corresponding remoteness of many communities is a specific consideration. On the one hand this presents an extra barrier to getting the infrastructure in place, with many physical challenges to be overcome. On the other hand, it makes the availability of technologies even more crucial, providing a link to the wider market and helping businesses reach out beyond their immediate community surroundings.

The Digital Scotland survey was commissioned to provide a baseline of the current digital situation across Scotland, facilitating long term tracking of the progress of the digital economy. The survey measures current adoption, usage and importance of digital technologies to business, the sufficiency of the digital skills of the workforce and future intention to adopt and use digital technology. 4,002 telephone interviews were conducted with non-public sector enterprises across Scotland, 2,193 of which were with enterprises in the Highlands and Islands. Interviewing took place in June-July 2014. This report focuses on the data collected from the businesses located in the Highlands and Islands.

Adoption of Digital Technology

The adoption of digital technologies varied across businesses in the Highlands and Islands. Clear differences were seen by region in internet connectivity which then impacted on use of a company website, however beyond this regional differences were very small. Differences by size and sector of organisation were more prominent, with large organisations and those in the Business Activities, Transport and Communications and Other Services sectors more likely to be adopting more technologies. Conversely, small businesses and those in Agriculture, Health and Social Work and Wholesale and Retail were the least likely to be adopting digital technologies.

The vast majority of businesses in the Highlands and Islands (94%) had an **internet connection**; with 11% reporting they had high speed broadband[1], 81% had broadband that was not high speed and 2% a non-broadband connection. Of the 6% who had no internet connection, a third (2% of all businesses) said an internet connection was not available to them in their location.

Whilst the overall level of internet connectivity in the Highlands and Islands was equal to that seen in the rest of Scotland, businesses in the rest of Scotland were more likely to have high-speed broadband (20%). This difference is likely to be due to access and availability; the current wide-scale rollout of high speed broadband across the Highlands and Islands region is in progress and was at a relatively early stage at the time of interviewing; it was evident that businesses in the areas already benefiting from the rollout were more likely to have a high speed broadband connection.

Beyond internet connection, the survey covered **six specific types of technology** that could be used by businesses in their day to day operations. The overall proportions adopting each of these were:

- Having their own company website (65%);
- Mobile internet and technologies such as smartphones and tablets, mobile internet, and laptops with inbuilt internet connections (59%);
- Social media including social networks, business blogs, multimedia content sharing websites and wiki-based knowledge sharing tools (49%);

[1] "High speed broadband" is defined as being a download speed of at least 24 Megabits per second [Mbps].

- Data analytics (business intelligence and reporting, big data, data mining, predictive modelling or advanced statistical analysis – not standard accounting) (32%);
- Cloud computing services such as cloud-based email, software or data storage (19%); and,
- Business management software such as Enterprise Resource Planning (ERP) systems, Customer Relationship Management (CRM) software or Supply Chain Management software (9%).

A **company website** was the most widely used of all six digital technologies. This varied considerably by sector, from 85% in the Other Services and Hotels and Restaurants sectors to just 36% of businesses in the Agriculture sector.

For five out of the six digital technologies covered in the survey (with the exception of data analytics), the proportions of businesses in the Highlands and Islands using these technologies was significantly lower than the rest of Scotland. Businesses in the Highlands and Islands were more than twice as likely as those elsewhere to cite availability of and access to the appropriate technology and a poor internet connection as **barriers to further adoption** of technology; this could be a reflection of perceived or actual availability (and is in reality likely to be a mixture of both).

Other barriers to further adoption of technologies included lack of time and resource, funding, lack of a business need and lack of skills in the organisation to implement digital technologies. Highlands and Islands Enterprise, alongside other public sector organisations in the region, are addressing these barriers through a number of schemes (as well as the rollout of high-speed broadband) including the Digital Scotland Growth Voucher scheme to give assistance with funding, workshops to teach businesses about the benefits of technologies such as social media and how best to utilise them, and offering one-to-one specialist advice to businesses including a Digital Health Check.

Usage of Digital Technologies

As well as the level of adoption of technologies, the survey measured the degree to which they were used by the businesses including use for specific functions such as e-commerce, innovation and internationalisation, and to engage with public services.

The majority of businesses felt that the use of digital technologies had at least some **level of importance to the current operations of their business** (74%), which includes 28% that considered the use of technologies to be essential to their business's operations. However this leaves around a quarter who did not perceive digital technologies to be at all important to their operations. Larger businesses were far more likely to view their use of digital technology as essential to their business than smaller ones.

There was some variation according to the different technologies covered by the research. Although adoption of business management software was relatively low, it was integral to the running of the businesses who were using it; similarly those using mobile internet and technologies were likely to say it was a central part of how their business operates. In contrast, businesses using data analytics and social media were less likely to say it was a central part of the business, suggesting that the use of these technologies is a useful add-on to business practices rather than integral to them.

One way in which businesses can use digital technologies to increase revenue is to **sell their products and/or services online**, thereby increasing sales opportunities both in the context of being able to reach a greater number of potential customers and by being able to be open 24 hours a day, seven days a week. The majority of businesses with a company website made at least some of their sales via the internet (56%, equating to 36% of all businesses). However, this was typically in small volumes compared to their overall sales.

A further way in which the use of digital technologies can assist businesses in raising revenues is by **facilitating access to international markets** outside of the UK. Approaching one-in-five businesses (17%) were exporting goods or services, or licensing their products, outside of the UK. Of these, 73% agreed that their use of digital technologies has increased the number of international markets they have been able to export to.

Further evidence of the relationship between those who are using digital technologies and internationalisation is provided by the survey: businesses who were adopting more technologies were more likely to be international than those who were adopting fewer. High adopters of technology were also more likely to export to a greater number of regions than other businesses.

The use of digital technologies may also assist businesses by making it easier and more efficient to **engage with public services**. Two-thirds of businesses (66%) had engaged with public service websites over the past 12 months, to find information, fill in online forms, print forms to fill in offline and so on. Importantly, businesses based in regions categorised as fragile were more likely than other businesses to have interacted with public services (71% had done so compared with 65% of those in non-fragile areas), suggesting that businesses in these regions are using digital technologies to improve their access to public services. This is important with regards to equality of access and opportunity to all businesses in the region. Benefits most commonly reported by businesses who had engaged with public services online were that it saved time (83%), was easier to find information (82%), and saved the business money (61%).

The use of digital technologies may provide opportunities for businesses to innovate by aiding the **development of new products and services**. Measuring the extent to which digital technologies are used to support innovation is a difficult and complex matter. Nevertheless, the survey sought to get an indication of this by asking businesses whether they had used digital technology for online research into competitor products or market data, or whether they gathered customer feedback via their website or via social media. Overall, approaching two-thirds of businesses had done so (62%), most commonly to research competitor products online.

These different uses of technology provide evidence of digital technologies being used to increase sales (e.g. e-commerce) as well as increase efficiencies (e.g. accessing public services online), which should combine to increase profitability.

Digital Skills

In order to fully exploit the digital technologies available to them, businesses need to have access to the skills required to set up and use them. However, over half of businesses (56%) reported having **digital skills gaps** among their staff at the time of the survey – 39% had 'some' digital skills gaps among their staff while 17% had 'considerable' digital skills gaps. Just 36% reported their staff were fully equipped to meet their digital technology needs.

The prevalence of digital skills gaps was greatest among businesses in the Health and Social Work sector (71% of businesses in this sector had digital skills gaps) and among those in the Agriculture and Other Services sectors (both 61%).

Where digital skills gaps exist, these are likely to have a detrimental **impact on the business**. Indeed, among all businesses with digital skills gaps, around half (47%) said that this has had an impact on how their business performs. This equates to a quarter of all businesses (26%) with digital skills gaps that impacted on their organisation at the time of the survey. These impacts tended to focus on: an inability to adopt the latest methods and technologies, an inability to fully exploit the latest methods

and technologies; and an inability to sell products and/or services online (each mentioned by 7% of all businesses with digital skills gaps).

The impact of digital skills gaps was linked to the digital ambitions of the business. It is conceivable (but not possible to confirm from the survey data) that businesses largely perceive digital skills gaps to have had a minor impact because their digital technologies are being utilised to what they understand to be their maximum potential (or as much as necessary for the business at that time), but that respondents were unaware of the potential capabilities and opportunities available from such technologies.

When looking to **address digital skills gaps** within their workforce, businesses can either offer training to develop the skills of their employees, or they can look to recruit new staff with the required skills. When it comes to training, almost a quarter of all businesses were actively engaging in activities (such as training) to develop the digital technology skills of their workforce at the time of interviewing (24%). A further one-fifth of businesses were planning to develop the skills of their workforce in the future (18%).

Eight per cent of all businesses had attempted to recruit at least one ICT specialist over the 12 months preceding the survey; 7% had successfully managed to recruit whereas 1% had not yet been successful in their attempts to recruit.

The Future

The Digital Scotland survey provides a benchmark against which future technology use can be measured to track the progress of businesses in Scotland. However the survey also covered future intention, to give an indication of the likely pace of change; through identifying those who say they are likely to adopt a new technology, it allows us to make predictions as to future digital technology usage across the Highlands and Islands region.

Over a quarter (27%) of all businesses across the Highlands and Islands region stated that digital technology is essential to the future growth and competitiveness of their business, with a further 46% stating that it is important. Overall, a quarter felt that digital technologies were not important to their business.

A quarter of businesses (25%) stated that they planned to **improve their internet connection** in the following 12 months. If this were to happen, there would be a shift in quality of internet connection, with more having high speed broadband and fewer having non broadband internet. If all those with broadband who plan to improve their connection move to high speed, this figure could go up from 11% of all businesses to as high as 30% over just one year; this would be facilitated by the rollout of high-speed broadband that is currently in progress in the region.

Future adoption of the specific technologies was more limited; in general, if businesses did not currently use the individual technology, they were unlikely to begin using it over the next 12 months. That said, approaches being taken to remove the barriers of availability of technology may open up the potential for further future adoption as access improves and businesses become more aware of what is available to them.

The challenge to realising this predicted increase will therefore be twofold. Firstly it is important to ensure that those with plans to develop their digital capabilities are able to overcome the barriers that have so far prevented them from doing so. Secondly, it is important to inform less ambitious and less digitally advanced companies of the benefits of increasing the use of digital technologies within their business.

Key issues and implications of the research

The final chapter of this report highlights a number of key areas where evidence from the survey suggests that the public sector could play a role to encourage an increase in the adoption and use of digital technology in the region. In summary:

- The current rollout of next generation broadband will significantly improve internet access for many; this should lead to a corresponding increase in the use of technologies that rely on an internet connection including use of websites, social media, cloud computing; and even possibly of business software and data analytics (which can be facilitated online, and also due to increased access to information about them).
- The use of mobile technologies however is more dependent on mobile coverage and the availability of Wi-Fi. This will partially be facilitated by the rollout of high speed broadband (as this will increase the availability of Wi-Fi hotspots) however until mobile operators increase the coverage of their 3G and 4G networks across the region, the use of this technology will be limited.
- A lack of business need is a barrier that can be addressed, at least in part, by HIE and the public sector by communicating business benefits and stimulating demand among business.
- Use of digital technologies appears to be strongly linked to levels of internationalisation. Given the importance of internationalisation to the growth of the economy in the Highlands and Islands, it is important that businesses are aware of the potential available to them.
- The equality of access to public services is not only one of economic benefit, but of social good by ensuring the more remote areas have access to the same services and benefits as businesses in more urban/populated areas. Establishing internet connectivity throughout the region opens up access to online public services to all, and the associated benefits of time and cost savings that this brings.
- The survey shows the impact of having digital skills gaps among staff in terms of the extent to which it prevents them from adopting the latest technologies, fully exploiting the technologies available to them and limiting their operations in terms of selling online. As the demand for these technologies increases, these issues will become relevant to more employers. HIE currently run workshops which provide introductory level training, focusing mainly on business and commercial skills (for example designing social media strategies). The study identified that these skills are important to businesses, so further promotion and continuation of these programmes is an important step as the accessibility of technology improves. However, specialist technical skills (for example, software skills and web development skills) were more commonly reported as lacking than commercial and business skills and further ways to enable businesses to access these skills will be required to remove this barrier to digital technology use.

The levels of adoption and use of digital technologies in the Highlands and Islands is encouraging, as is the progress already made to increasing the availability of technologies through the high speed broadband rollout and the training provision already in place. Comparing the Highlands and Islands to the rest of Scotland shows that whilst the uptake of broadband is unsurprisingly lower, overall the adoption of other technologies is not far behind that seen elsewhere in the country. This suggests that there is a willingness among businesses as a whole to embrace the digital opportunities available to them.

1 Introduction

Background and context

A vibrant and thriving digital economy is central to economic growth and supporting communities. The Scottish Government has an overarching strategy aimed at creating a world-class digital economy, delivered under the "Digital Scotland" banner[2]. The activities range from improving the infrastructure of Scotland's broadband networks to encouraging more people and businesses to take advantage of the benefits of digital technologies.

Capitalising on the benefits of digital technologies is particularly important for the Highlands and Islands region, where the physical geography and the corresponding remoteness of many communities is a specific consideration. On the one hand this presents an extra barrier to getting the infrastructure in place, with many physical challenges to be overcome. On the other hand, it makes the availability of technologies even more crucial, providing a link to the wider market and helping businesses reach out beyond their immediate community surroundings.

The benefits to be gained from digital technologies are not only linked to economic growth, but also strengthening and supporting these remote communities, improving the delivery of public services, enabling remote education/distance learning (for example through e-learning packages) and ultimately reducing inequality through improving the access to these services for everyone.

Highlands and Islands Enterprise are investing in the roll out of Next Generation Broadband (NGB) in the Highlands and Islands. Equally as important is investment in Digital Economy knowledge and skills development. HIE have therefore embarked on a Digital Engagement Programme in partnership with Business Gateway to promote the use of digital technologies to businesses throughout the region, alongside the roll out of improved digital infrastructure across remote communities. This involves running workshops for employers to help develop digital skills and knowledge such as using and getting the most from company websites and developing a social media strategy. Also, provision of intensive specialist IT advice, a 'Digital Health Check' and IT Action Plan development opening access to a National Digital Voucher scheme and Digital Tourism pilot and grant scheme. HIE have made specific investment in Digital Communications to co-ordinate provision of Digital Highlands and Islands information.

Highlands and Islands Enterprise are investing in the development of a Digital Scotland Excellence Centre, supported by ERDF and the Digital Scotland Business Excellence Partnership. The first of a network of Digital Demonstration Centres in Scotland, the Centre will provide a public and private sector opportunity to showcase current and innovative technologies to SMEs at a local, national and international level.

Highlands and Islands Enterprise, along with Scottish Enterprise, the Scottish Government and Skills Development Scotland, are committed to tracking the progress of the digital economy in Scotland. A survey was commissioned to provide a baseline of the current digital situation across Scotland. The survey was designed around a Measurement Framework that was created to measure four key elements of digital technology use in business: the Adoption of technologies, their Usage, the Benefits gained from their use and whether the Skills levels of the workforce are sufficient to ensure the benefits to the economy are maximised.

The survey highlights pockets of the economy where digital technologies are proving to be of particular benefit, and pockets where digital technologies are not being utilised to the benefit of business. This

[2] http://www.digitalscotland.org/

information can help develop targeted interventions and inform policy to support the development of the digital economy across the Highlands and Islands region.

This report documents the findings from the study in relation to organisations across the Highlands and Islands.

Survey methodology

The survey was conducted by IFF Research on behalf of Highlands and Islands Enterprise, Scottish Enterprise, the Scottish Government and Skills Development Scotland.

In total 4,002 telephone interviews were conducted with non-public sector enterprises across Scotland between 10th June and 25th July 2014. Of these, 2,193 were conducted with businesses in the Highlands and Islands – this equated to a high proportion of all enterprises in the Highlands and Islands (approximately one in five), giving the survey comprehensive and robust coverage of the region. It should be noted that businesses were sampled at the enterprise level rather than at the establishment level. This approach was taken as for multi-site organisations it was felt that the corporate headquarters would be best placed to answer questions concerning the strategic implementation of digital technologies. This approach was also in line with the approaches taken for previous surveys carried out in this area.[3] However, this enterprise level approach did mean that businesses whose headquarters were located outside of Scotland but who have branches or sites within Scotland were excluded from the survey as it was found during the questionnaire development phase and piloting that respondents in such enterprises struggled to answer questions specifically with regard to their sites based in Scotland.

The interviews were designed to cover a wide range of topics relating to the adoption and usage of digital technologies, and the benefits and barriers to using them. This would provide a baseline measure of the current situation in Scotland, which can then be tracked over time in future studies to measure progress towards becoming a world class digital economy.

Interviews were carried out with the individual who was responsible for the decision making regarding the IT systems. This was usually the IT or Technical Director, or an Operations Manager, but in smaller companies it may have been the owner or Managing Director.

Profile of businesses

Interviews were achieved across the business population, ensuring sufficient interviews for robust analysis by various business characteristics. The data were weighted to be representative of the business population in Scotland by organisation size, sector and broad geography. Table 1.1 details the number of interviews achieved by organisation size. Large organisations were purposely over-sampled to give a large enough number of interviews to support robust sub-group analysis by size.

[3] Including: The Scottish ebusiness survey; and the EU Digital agenda scorecard.

Table 1.1: Interviews completed by organisation size

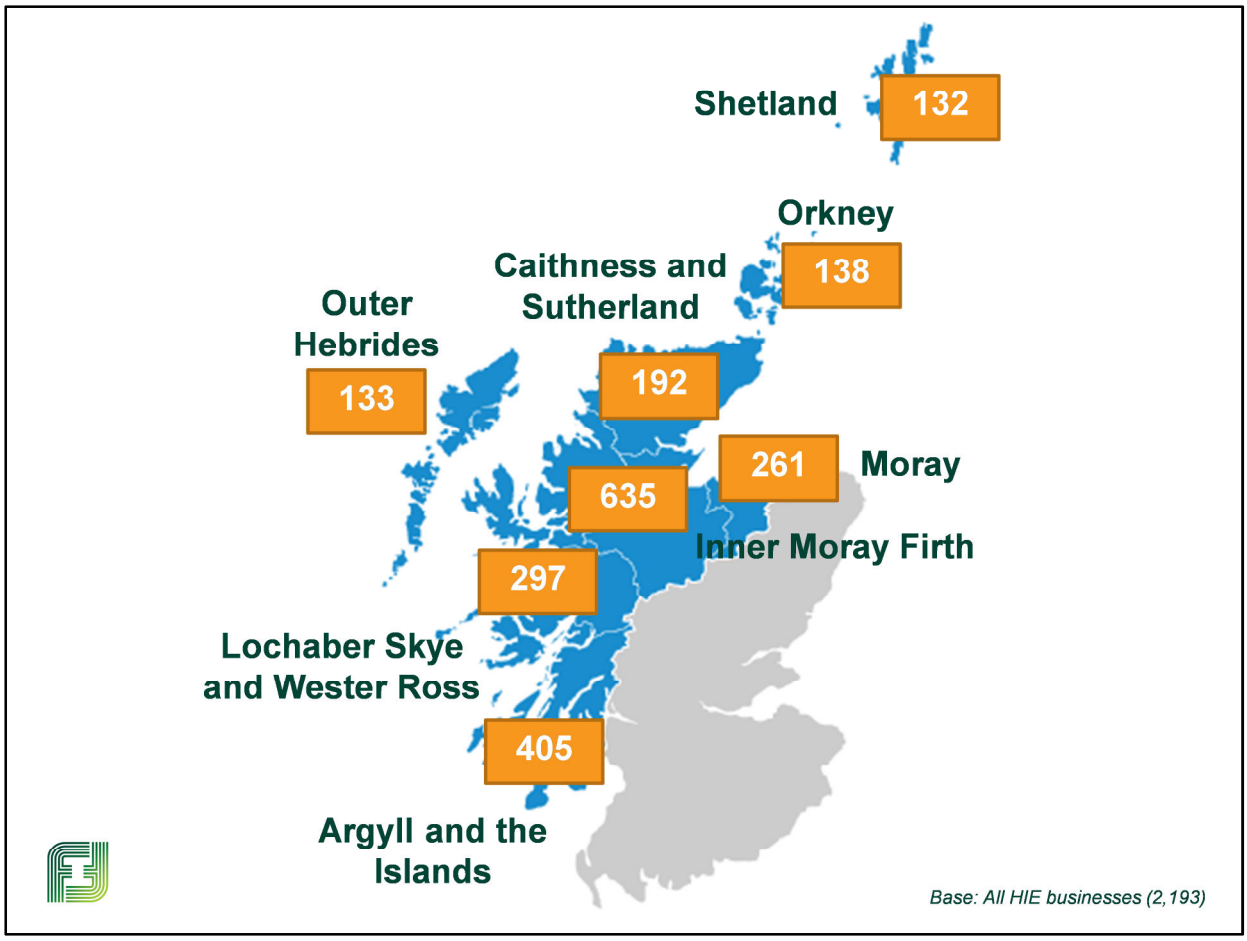
	Number of interviews achieved	Number of interviews achieved as % of all interviews	% each sizeband represents in the population
By Size			
2-4 employees	854	39%	64%
5-9 employees	525	24%	19%
10-19 employees	364	17%	10%
20-49 employees	286	13%	4%
50-99 employees	72	3%	1%
100+ employees	92	4%	1%
Total	**2,193**	**100%**	**100%**

This report also presents analysis by growth sector; these are the sectors identified by the Scottish Government as having particular potential for economic growth. If support is targeted to these sectors they could make a significant difference to the rate of growth of the country. There was a total of 875 businesses interviewed that fall into one of the growth sector categories.

Tables A.1 and A.2 in Appendix A detail the profile of interviews achieved by broad sector and by growth sector, respectively.

Interviews were conducted across the various sub-regions of the Highlands and Islands; Figure 1.1 shows the breakdown of interviews by region.

Figure 1.1: Interviews completed by region



The regions were broken down into two groups, those defined by Highlands and Islands Enterprise as 'fragile', and those classed as non-fragile[4]. There were 395 interviews with businesses in fragile areas, and 1,798 interviews conducted in non-fragile areas.

[4] Fragile areas are characterised by declining population, under-representation of young people within the population, lack of economic opportunities, below average income levels, problems with transport and other issues reflecting their rural geographic location. These areas tend to face particular and severe difficulties including increased cost of living and increased business operating costs.

2 Adoption of Digital Technology

The Digital Scotland survey was designed to provide a baseline of the current use of digital technologies in Scotland. This chapter looks at this at the most fundamental level: how many businesses have adopted different digital technologies.

Internet Connection

Businesses across the Highlands and Islands have different levels of internet access available to them. Around 2% reported that they had no option of an internet connection at all. The remaining 98% were able to connect in some way, whether or not they actually did, via broadband connections or more rudimentary dial-up or satellite (or similar) connections.

The vast majority of businesses in the Highlands and Islands (94%) had an internet connection; with 11% reporting they had high speed broadband (defined as being a download speed of at least 24 Megabits per second [Mbps])[5], 81% broadband that was not high speed and 2% a non-broadband connection. Businesses in the Rest of Scotland were equally likely to have an internet connection (94%), however these businesses were more likely to report having a high speed broadband connection than those located in the Highlands and Islands (20%).

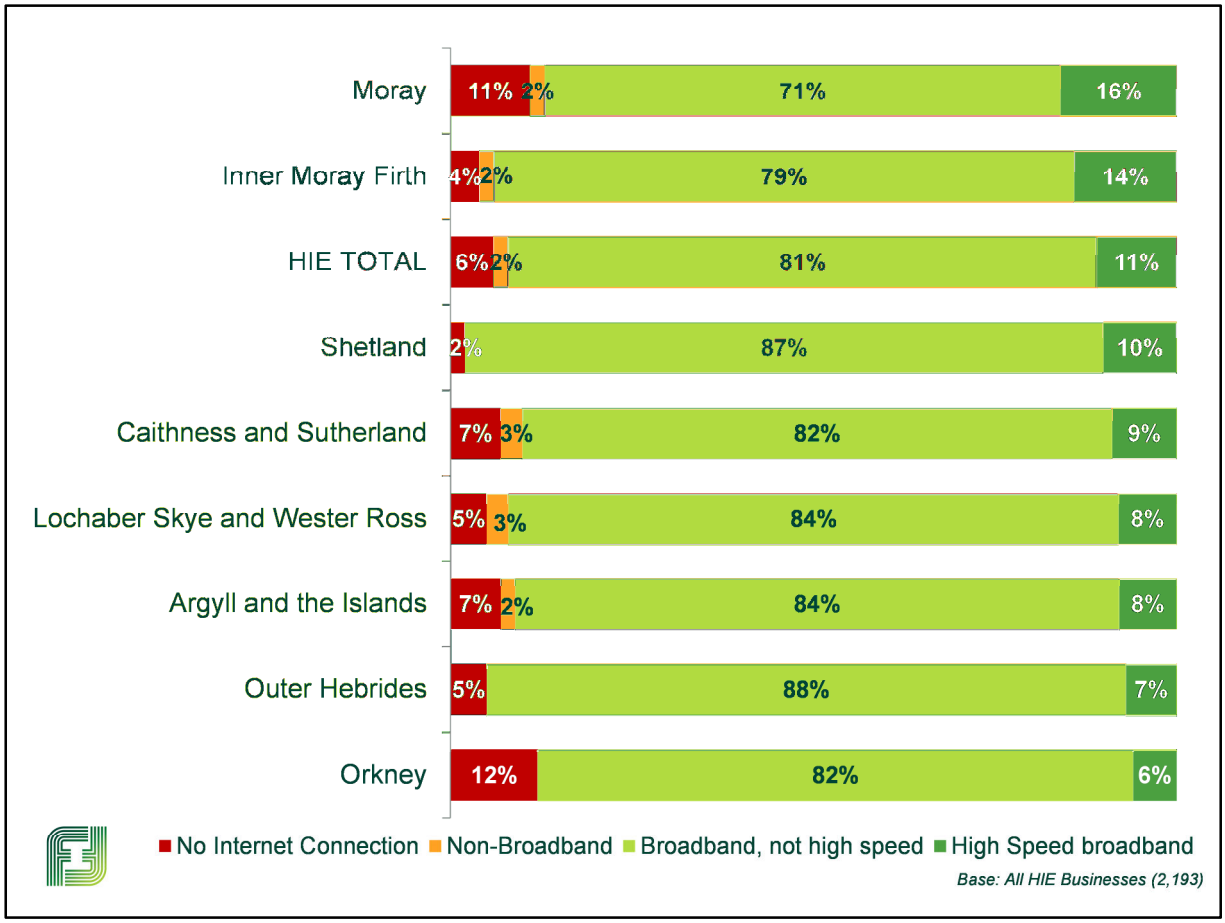
This difference is likely to be due to access and availability. Due to the geography of the regions and the concentration of businesses and residences, the rest of Scotland has benefited from commercial rollout of high speed broadband more so than the Highlands and Islands, and early Scottish Government initiatives have also focused on regions with the higher concentration of premises (business and residential).

To make up the differences, Highlands and Islands Enterprise have embarked on a wide-scale rollout of high speed broadband across the region with the aim of having 84% of premises covered by the end of 2016 and 100% by 2020. This ambitious scheme involves providing access to fibre broadband services, including the laying of subsea cables to connect the remote islands communities (completed in December 2014). At the time of interviewing (in June and July 2014), the overall rollout was in its early stages with Moray and the Highland region (encompassing Caithness and Sutherland, Inner Moray Firth and Lochaber, Skye and Wester Ross) having already benefited from the rollout and work being in progress for some parts of Shetland, Orkney and Argyll and Bute.

It is therefore to be expected that there are differences in the internet connection of businesses across the different regions of the Highlands and Islands. Figure 2.1 shows that where the high speed rollout has begun the take up of high speed broadband is much higher, however across the board the proportion of businesses with any internet connection, and the proportion with a broadband connection (whether high speed or not) is high. There were no differences between fragile and non-fragile areas in terms of likelihood to have an internet connection and likelihood of having a broadband connection, however businesses in non-fragile areas were more likely to have high-speed broadband (12%, compared to 7% in fragile areas).

[5] This definition of high speed broadband is in line with the definition of the term 'superfast broadband' used by many commercial internet service providers (including BT). Note, however, that the use of 24+ Mbps as the definition of high speed broadband is different to the 30+ Mbps definition used by the European Commission.

Figure 2.1: Internet connectivity by region



There was variation in the likelihood of businesses to have an internet connection by the broad sector they operated in. Businesses in the Health and Social work and Construction sectors had the highest proportion of businesses with an internet connection (99% for both). However in terms of the quality of the internet connection it was the Business Activities sector where organisations were most likely to have high speed broadband (14%).

At the other end of the spectrum, businesses in the Agriculture and Wholesale and Retail sectors were the least likely to have an internet connection (89% and 88% respectively).

Looking specifically at growth sectors, it was businesses in the Creative Industries that were more likely to have an internet connection (99%), compared to businesses in the Food and Drink Sector where just 88% did so. Relating to the finding at broad sector level, the growth sector where businesses were most likely to have high speed broadband was Financial and Business Services (18%).

Larger businesses were both more likely to have an internet connection and more likely to have high speed broadband; 92% of businesses with 2-4 staff had an internet connection of any type, compared to 98% of those with 100 or more staff. In regards to connection speed the figures are consistent at 10-12% across the lower sizebands, with a sudden jump among companies with over 100 employees where 30% have high speed broadband. This is likely to be a result of the resources available to larger companies to pay for the infrastructure for leased lines and other types of high speed connection, and reflects the business needs and activities of these larger businesses (such as dealing with higher

volumes of customers, and communicating with employees across the region, country and potentially across the world).

In terms of the type of internet connection, the majority of businesses in the Highlands and Islands had a broadband connection via a telephone line (83%, significantly greater than the rest of Scotland at 78%), with the use of a leased line the second most prevalent connection types (13%, significantly lower than the proportion in the rest of Scotland with this connection type at 16%).

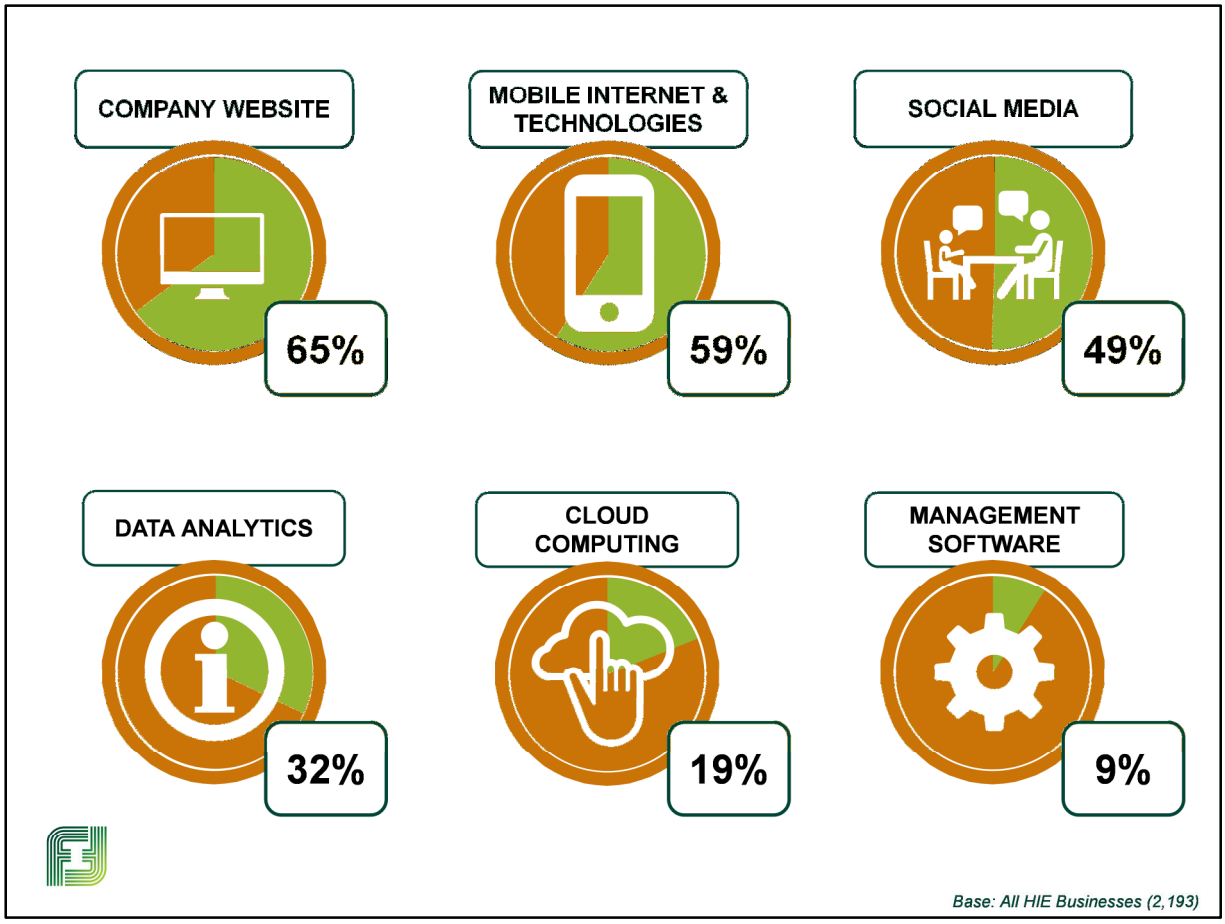
Digital Technology Usage

As well as internet connection, the survey covered six specific types of technology that could be used by businesses in their day to day operations. These were:

- Having their own company website;
- Mobile internet and technologies such as smartphones and tablets, mobile internet, and laptops with inbuilt internet connections;
- Social media including social networks, business blogs, multimedia content sharing websites and wiki-based knowledge sharing tools;
- Data analytics (business intelligence and reporting, big data, data mining, predictive modelling or advanced statistical analysis – not standard accounting);
- Cloud computing services such as cloud-based email, software or data storage; and,
- Business management software such as Enterprise Resource Planning (ERP) systems, Customer Relationship Management (CRM) software or Supply Chain Management software (again note that these did not include standard accounting packages given that they do not offer the same level of management functionality as these other software).

Figure 2.2 summarises the proportion of businesses adopting each technology.

Figure 2.2: Summary of adoption of technologies



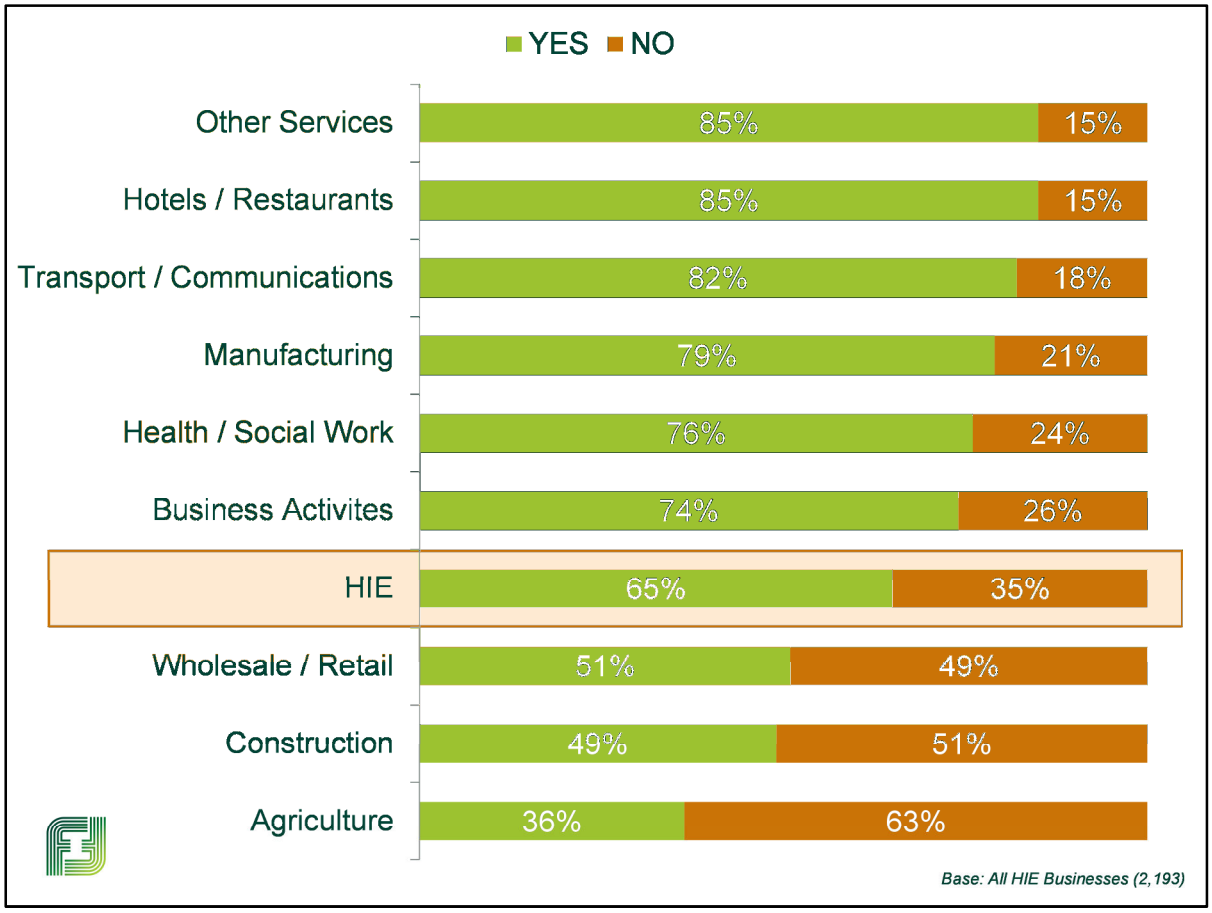
Company Website

A company website was the most widely used of all six digital technologies, with almost two thirds (65%) of all businesses in the Highlands and Islands having one.

The prevalence of company websites varied considerably across the business population. As might be expected, groups less likely to have an internet connection were also less likely to have a website. However it was not the case that those most likely to have the internet or high speed internet were also most likely to have a website, and the variation was far more pronounced across the economy.

By sector we see a clear divide between those with a higher than average proportion of businesses with a company website and those with a lower proportion, as displayed in Figure 2.3. Every sector figure differed significantly from the average; there was a clear divide between three sectors where half or less of businesses had a website and the remaining sectors where the figure was three-quarters or more.

Figure 2.3: Businesses with a company website by sector



Clear differences were also seen by growth sector. Businesses in Creative Industries and Sustainable Tourism were more likely than average to have a company website (87%). Conversely, those in Food and Drink were least likely (34%).

Larger businesses were more likely to have a company website (94% of those with more than 100 employees, compared with 60% of those with 2-4 employees).

Businesses in Lochaber, Skye and Wester Ross were most likely to have a company website (76%), followed by those in Inner Moray Firth (70%).

Businesses in Moray and Orkney were, as we have seen, least likely to have an internet connection and they were also least likely to have a company website (59% and 50%). Businesses in Shetland were less likely to have a company website (56%), despite having a relatively high proportion of businesses with an internet connection.

The 'gap' in digital technology development between the Highlands and Islands and the rest of Scotland was obvious in the use of a company website, with 65% of businesses in the region having a company website compared to 74% of businesses elsewhere.

Mobile Internet and Technologies

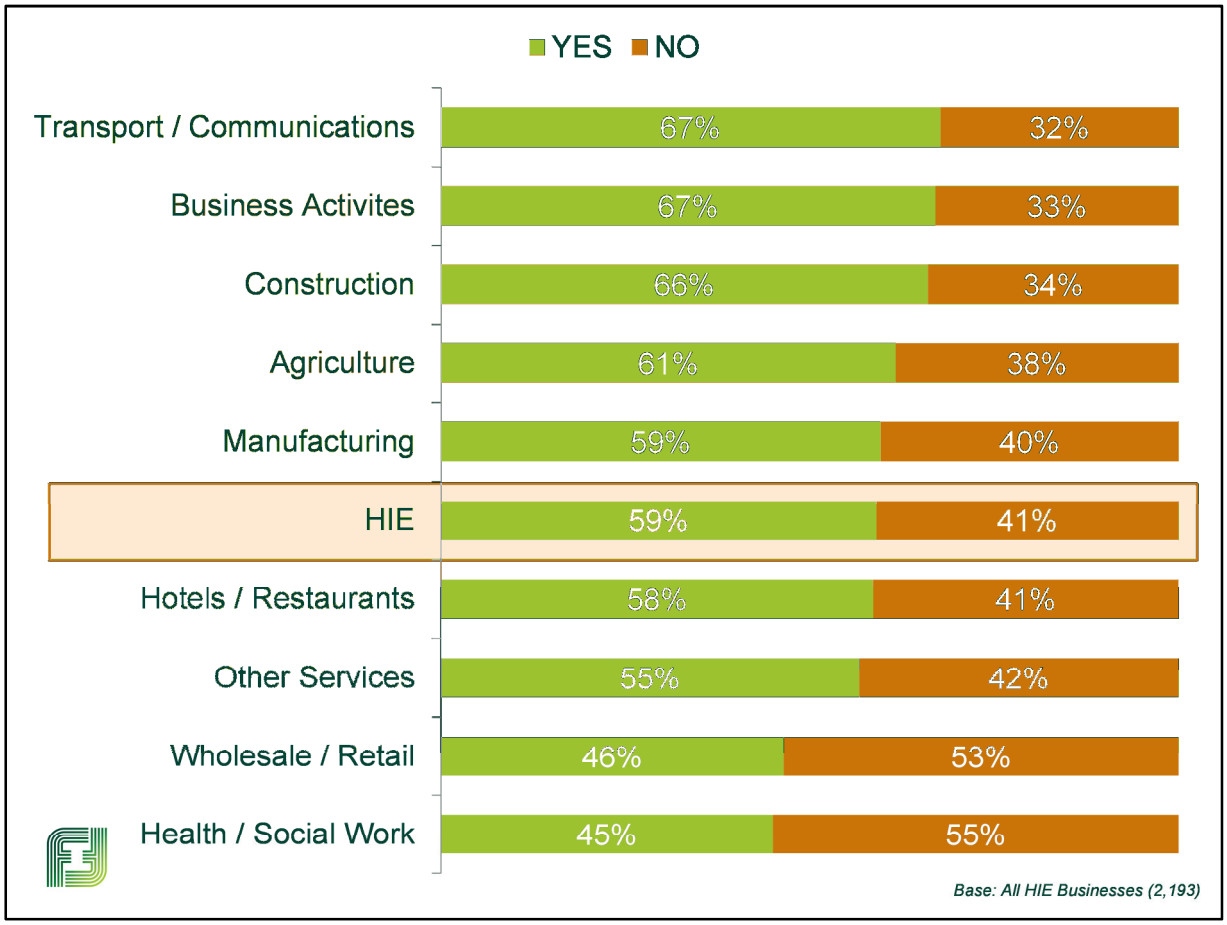
Over half of businesses (59%) reported that they used mobile internet and technologies in some way. Specifically:

- Mobile broadband connection via portable device, for example tethering to mobile 3G or 4G (24%);
- Portable computers using mobile phone networks, for example laptops with in built 3G or 4G (24%);
- Other portable devices like smartphones or tablets (52%).

Again it was the business sector that showed the most variation in the use of this technology, as shown in Figure 2.4. As is common across all technologies, businesses in the Transport and Communications and Business Activities sectors were more likely than average to use this technology, however we also see a high incidence of mobile technology use among Construction firms (which were, in general, less likely to be adopting the various technologies covered by the survey). This is likely a reflection of the way Construction firms are organised, with a lot of site work and potentially employees spread around numerous locations working in non-office environments.

It was businesses in Health and Social Work and Wholesale and Retail that used mobile technologies the least. Notably, businesses in the Agriculture sector (who were typically least likely to use each technology) are in line with the businesses use overall (61% compared with 59%), again reflecting the nature of the work in this sector.

Figure 2.4: Use of mobile internet and technologies by sector



By growth sector, businesses in the Creative Industries sector were again most likely to use mobile internet and technologies (75%).

As seen throughout the analysis, larger businesses used mobile internet and technologies more than smaller businesses.

Differences by region were far less pronounced than was seen for internet connection and having a website. The only significant differences by region were that businesses in Inner Moray Firth were more likely than businesses overall to have mobile technologies (64%) whilst Caithness and Sutherland were less likely than businesses overall (49%) to do so.

Businesses in the rest of Scotland were slightly more likely than those in the Highlands and Islands to use mobile internet and technologies (65% compared with 59%); this can largely be attributed to the availability of a mobile signal (see later section on the barriers to using technology).

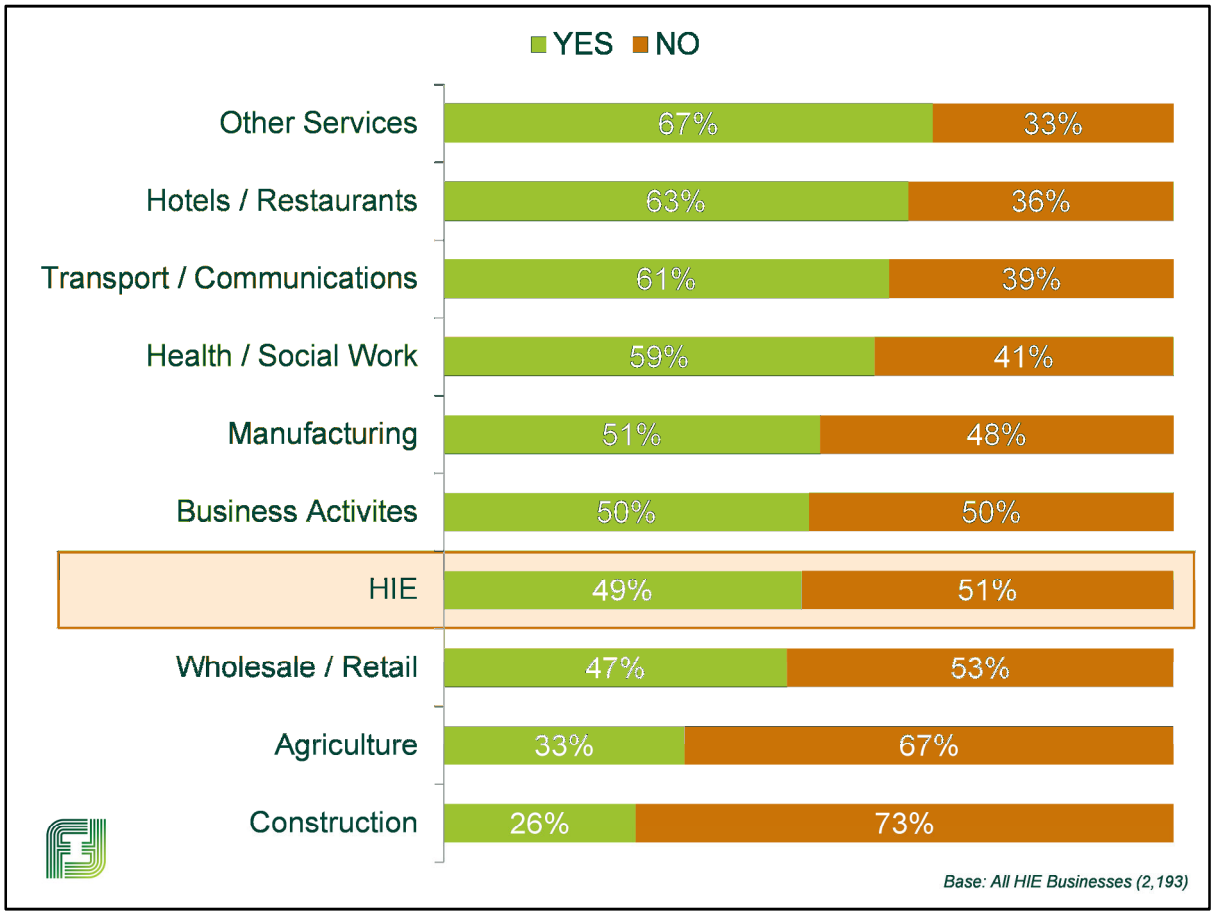
Social Media

Just under half of all businesses across the Highlands and Islands (49%) used at least one of the following types of social media:

- Social networks (46%)
- Business blogs or microblogs (18%)
- Multimedia content sharing websites (12%)
- Wiki based knowledge sharing tools (2%)
- Any other social media (1%).

The differences in the use of social media by sector and size were similar to those seen for having a website. Figure 2.5 illustrates the pattern by sector.

Figure 2.5: Use of social media by sector



In terms of growth sectors, it was again the Creative Industries sector that was more likely to use social media (73%), followed by those in the Sustainable Tourism sector (64%). Businesses in the Food and Drink sector were much less likely to be using any forms of social media (35%).

Larger businesses were more likely to use some form of social media, with over three quarters (78%) of those with over 100 employees doing so compared with almost two thirds (65%) of those with 50 to 99 employees and less than half (44%) of businesses with 2 to 4 employees.

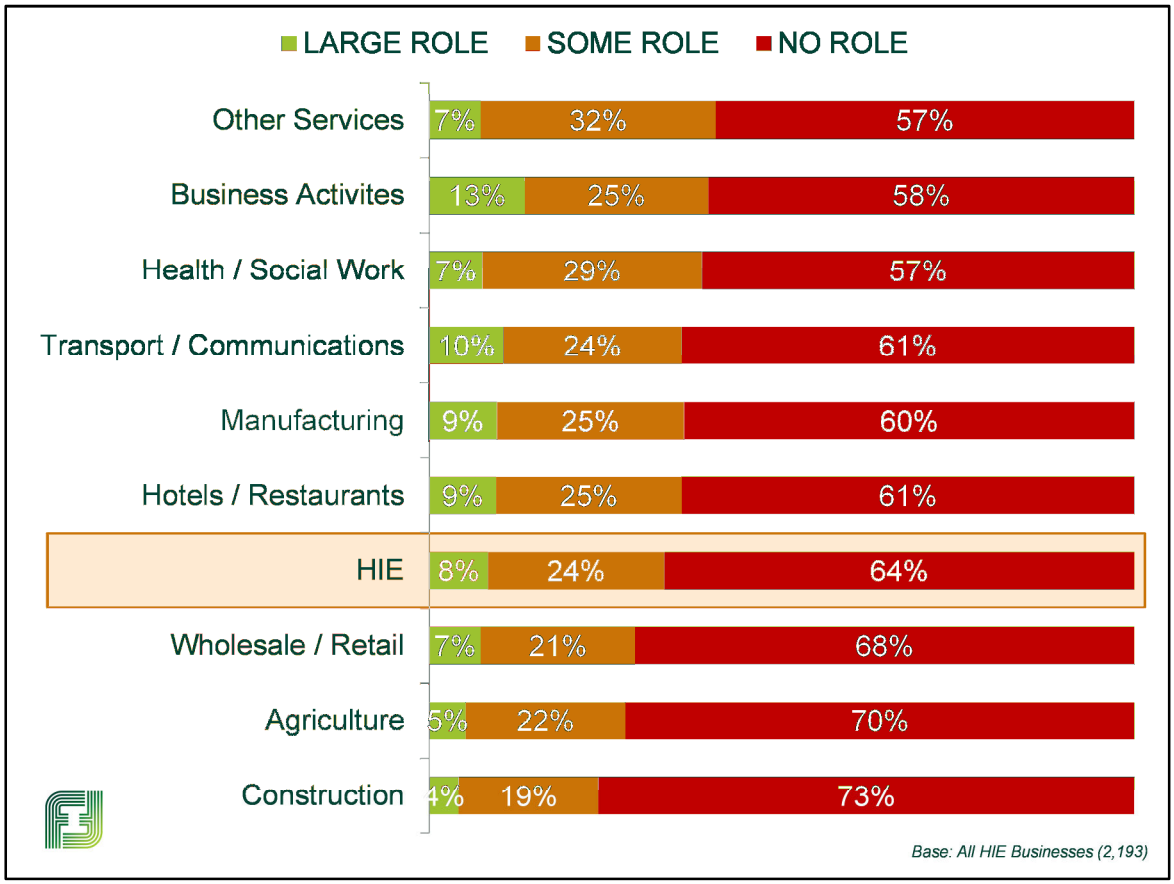
Sub-regional differences were much less pronounced in terms of social media usage compared with internet connection and a company website, with no region differing from the Highlands and Islands average (49%). However businesses located elsewhere in Scotland were slightly more likely to use some form of social media (53%)

Data Analytics

Data analytics includes the use of business intelligence and reporting, big data, data mining, predictive modelling or advanced statistical analysis. It goes beyond standard accounting and gathering basic management information. Just under a third of businesses (32%) stated that the use of data analytics played a role in their organisation; 8% said it played a large role, and 24% said it played some role.

The extent to which data analytics plays a role in organisations within different sectors is displayed in Figure 2.6. Businesses in the Other Services, Business Activities and Health and Social Work sectors were most likely to use it, although it was among Business Activities companies that data analytics was most likely to play a large role. The sectors that were least likely to use data analytics were consistent with the general pattern: Construction, Agriculture and Wholesale and Retail.

Figure 2.6: The role of data analytics by sector



Growth sector differences in usage were fairly small, however, it was businesses in the Sustainable Tourism sector that were more likely to use data analytics than businesses overall (38%).

In keeping with the use of all the other technologies, large businesses were more likely to have data analytics play a role in their organisation. In particular, businesses with over 100 employers were more likely than all others to state that it played a role (74% compared with 32% overall). In addition, 40% of these businesses stated that data analytics played a large role in their organisation (compared with 8% overall).

There was very little difference across the area, with all sub-regions in line with the Highlands and Islands as a whole. Unlike the technologies previously discussed, there was no difference between businesses elsewhere in Scotland and those in the Highlands and Islands in their use of data analytics.

Cloud Computing Services

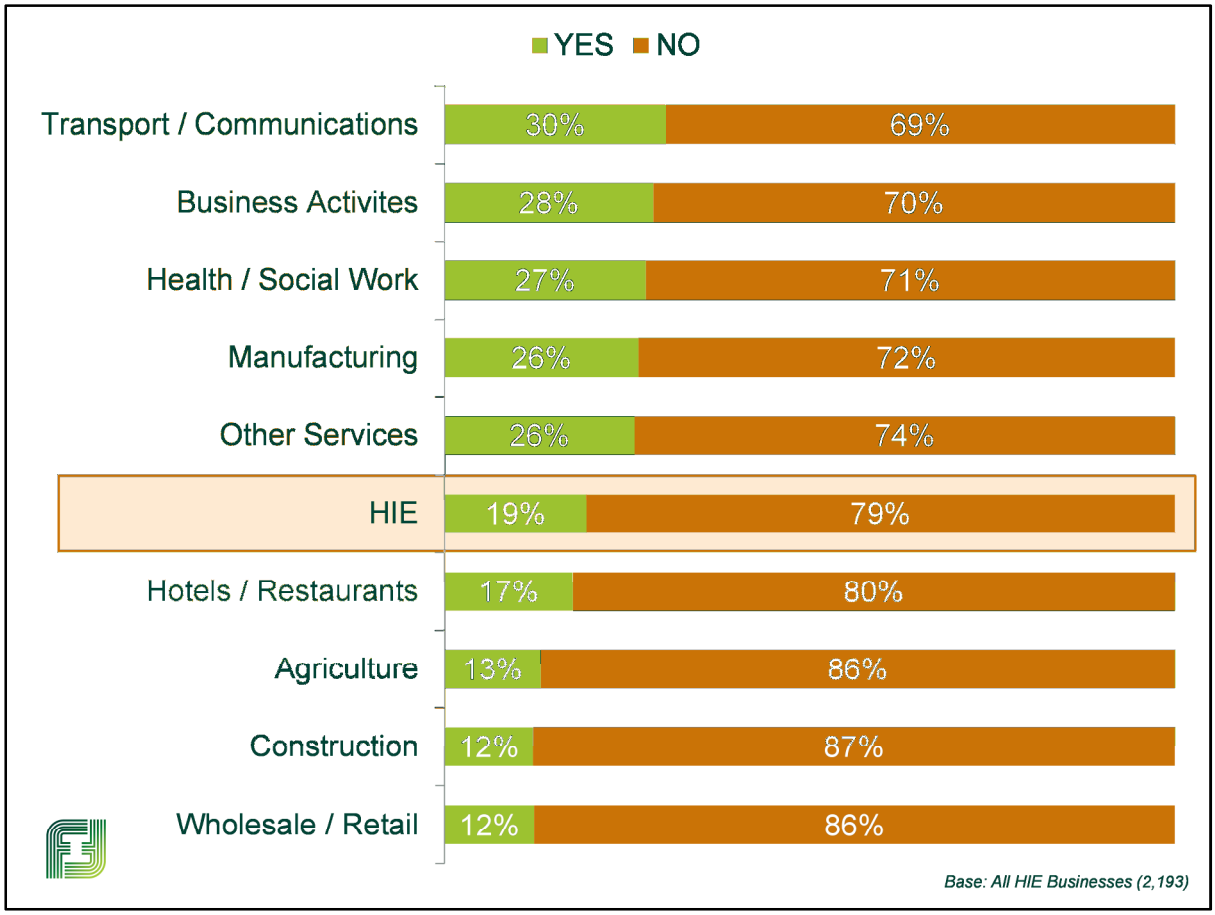
Cloud computing services cover anything that involves storing data or using software that is located away from the company's own network, in a shared storage space accessed via the internet. This could be email and office software functions, data storage and archiving, business management software that is not installed on the company machines but accessed online, and so on. Just under one in five businesses (19%) subscribed to any cloud computing services.

Of those businesses that did subscribe to cloud computing services the most frequently used services were email (75%) and storage of files (74%). Other cloud computing services used included; office software (54%), hosting organisation databases (33%) and finance or accounting software applications (33%).

As shown in Figure 2.7, differences by sector largely followed the familiar pattern in terms of which sectors had the highest and lowest incidence of cloud computing use. Businesses in the Transport and Communications sector and Business Activities sector were both more likely to subscribe to cloud computing than businesses overall, as were businesses in Health and Social Work, Manufacturing and Other Services sectors.

Businesses within the Agriculture, Wholesale and Retail and Construction sector reported lower than average usage of cloud computing technologies in comparison to businesses overall.

Figure 2.7: Use of cloud computing services by sector



In terms of growth sectors, again businesses in the Creative Industries sector were the most likely to have subscribed to cloud computing services (46% compared with 28% of businesses in Financial and Business services, 17% of those in Sustainable Tourism and 11% of those in Food and Drink sectors).

Again, larger businesses were more likely to subscribe to cloud computing services than smaller businesses, with a particular difference between those with less than 19 employees and those with over 20 employees (19% of those with 10 to 19 employees compared with 27% of those with 20 to 49 and 47% of those with over 100 employees).

There were no significant differences across the Highlands and Islands with regards to subscribing to cloud computing. However as with other technologies, businesses elsewhere in Scotland were more likely to subscribe to cloud computing services than those in the Highlands and Islands (26% compared with 19%).

Business Management Software

The digital technology that was used the least across businesses, used by less than one in ten businesses (9%), was Business Management Software. The specific types of software covered in the survey were:

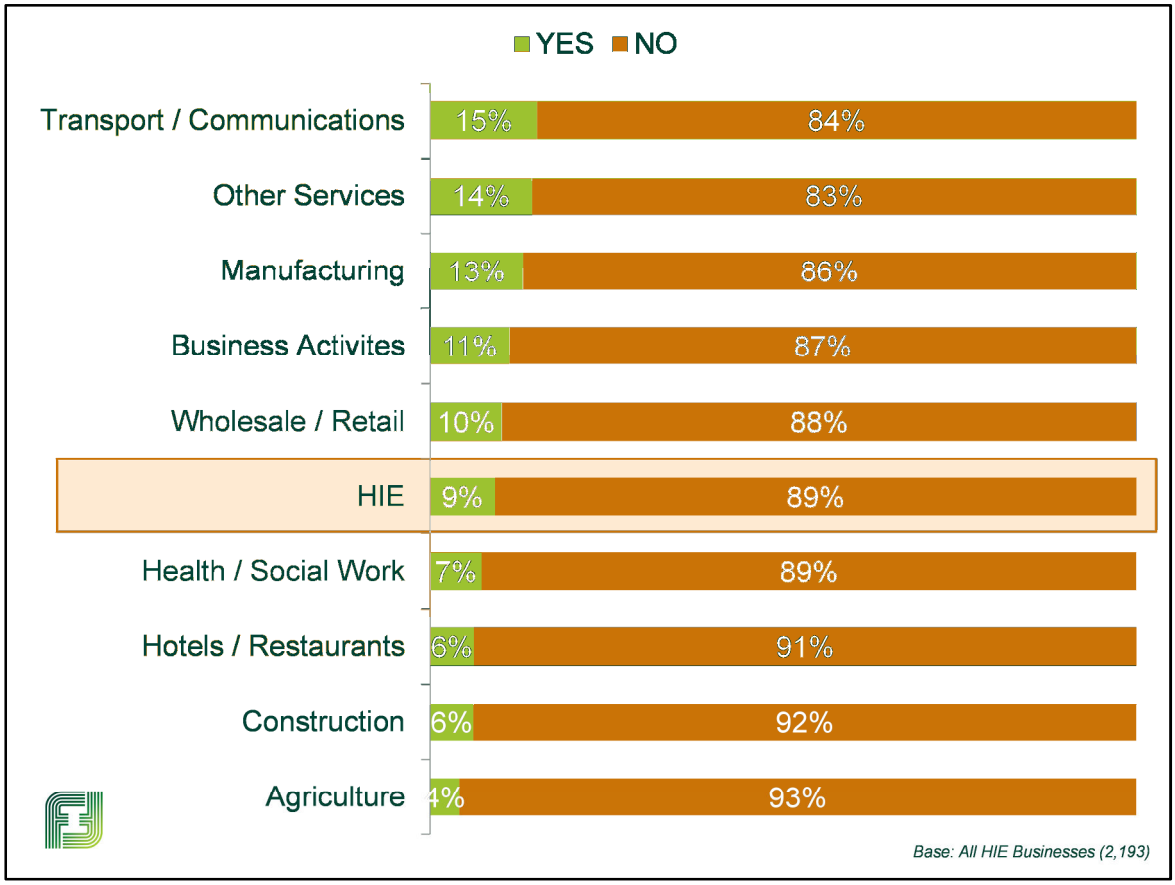
- Customer Relationship Management (CRM) software (6%);
- Supply Chain Management software (3%);

- Enterprise Resource Planning (ERP) software (2%).

As shown in Figure 2.8 sector differences showed that businesses in the Transport and Communications sector (15%) and Other Services (14%) were again more likely to use Business Management software than businesses overall (9%). Agriculture businesses remained the sector that uses the technology the least (4%).

Businesses in the Wholesale and Retail sector were more likely than average to use Supply Chain Management software specifically (7% compared with 3%), as were those in Manufacturing (6%). Manufacturing businesses were also more likely than average to use ERP software (7%) alongside businesses in Transport and Communications (6%). CRM software was most common among Transport and Communications (12%), Other Services (11%) and Business Activities (9%).

Figure 2.8: Usage of business management software by sector



Businesses in the Financial and Business services growth sector were more likely than businesses overall to use these technologies (18%), in particular CRM software which was used by 17% in this sector. Businesses in the Sustainable Tourism growth sector were least likely to use these technologies, with just over one in twenty (6%) businesses using any form of business management functions.

Larger businesses were more likely than smaller organisations to use Business Management Software, with a large divide seen between those with 100 employees and above (59%) compared with businesses with fewer than 100 employees (8%).

Sub-regional differences were prevalent in terms of the use of Business Management Software compared to other technologies, with Inner Moray Firth more likely than businesses overall to use them (11%) and Orkney less likely than businesses overall (3%). Within sectors these regional differences remained.

Much like the majority of the other technologies, businesses located elsewhere in Scotland were more likely than those in the Highlands and Islands to use these types of technology (14% compared with 9%).

Barriers to Adopting Digital Technology

In order to develop the digital economy across the Highlands and Islands, identifying the main barriers preventing businesses from adopting or increasing their use of digital technologies over the next 12 months could then help identify methods of overcoming them.

Almost three-quarters (73%) of all businesses mentioned at least one barrier that was preventing them developing their digital technology use at the overall level. A fifth (22%) stated that there were no barriers at all preventing them from developing their digital technology use (5% were not able to say whether they were facing barriers or not).

Access to Technology

The most frequently mentioned barrier to increasing the use of digital technologies by businesses across the Highlands and Islands was that the appropriate digital technologies are not available (19%). This was markedly higher than that reported in the rest of Scotland (8%). It could be the case that this is a reflection of *perceived* availability of digital technologies owing to a lack of awareness of what is available (rather than digital technologies actually being unavailable) but it is not possible to distinguish this using the data collected from the survey.

Poor internet connection was also mentioned as more of a barrier for businesses in the Highlands and Islands compared with those in the rest of Scotland (12% compared with 6%).

The extent to which this was a barrier differed by sector. A quarter of Agriculture businesses (25%) stated that availability of appropriate technology was a barrier to increasing their use of digital technologies. This is significantly higher than the average for all businesses (19%).

Wholesale and Retail businesses were much less likely to view this and poor internet connection as a barrier than businesses overall (12% and 8% respectively).

Businesses across the Creative Industries and Food and Drink sectors were both more likely than businesses overall to state that appropriate technologies are not available (28% and 27% respectively). This is noteworthy as Creative Industry businesses were more likely to be making use of the digital technologies whereas Food and Drink were generally least likely.

Companies that were in areas identified as fragile were much more likely than those in regions that were not perceived to be fragile to view availability of technology and poor internet connection as a barrier (29% compared with 17% and 16% compared with 11% respectively).

Location is a key determinant for these barriers and there were large regional differences presented by businesses in terms of whether the availability of appropriate technology or poor internet connection were barriers to developing their digital technology. Some of the regional differences correlated with the level of digital technology use:

- Businesses in the Inner Moray Firth tended to have a high usage of digital technologies and were less likely to state availability of technology (15%) and poor internet connection (9%) as barriers compared with businesses overall.
- Orkney businesses fell slightly below average businesses in terms of technology use and were more likely to cite availability of appropriate technology as a barrier (26%).

Other regions were developed with regards to digital technology use, despite stating that the availability of technology and poor internet connection were barriers:

- Businesses in the Outer Hebrides were more likely to state both of these barriers than businesses overall (29% and 25% respectively), but remained in line with other businesses when it came to digital technology use.
- Similarly, businesses in Lochaber, Skye and Wester Ross use digital technologies along with other businesses but were more likely to state availability of technology as a barrier than businesses overall (30%).

Lack of Resources

Two of the most frequently mentioned barriers were associated with lack of some form of resources. Businesses stated the following were barriers to increasing use of digital technologies:

- Lack of time or resource (16%); and
- Cost or lack of funds (15%).

The frequent mention of costs or lack of funds as being a barrier ties in with the high demand experienced by HIE when piloting the Digital Scotland Growth Voucher scheme which offered 75% towards up to £5,000 of eligible costs for a digital project. The voucher scheme is due to be implemented nationally from February 2015.

Businesses in the Highlands and Islands were less likely to find cost or lack of funds a barrier than those located elsewhere in Scotland (15% compared with 22%).

Certain sectors were more likely to find a lack of resources a barrier than others. Businesses in Health and Social Work were much more likely than businesses overall to find lack of funds a barrier (38%). Businesses in Other Services were also more likely to find a lack of funds and lack of time or resource barriers (25% and 22% respectively).

Despite having a low adoption of digital technologies, Agricultural businesses were less likely than businesses overall to state that lack of time or resource (9%) was a barrier. This provides further evidence that for these businesses the main barrier was a lack of appropriate technology.

Similarly across the growth sectors businesses in the high-adopting Creative Industries and Sustainable Tourism sectors were more likely to view lack of time or resource as a barrier (24% and 20% respectively), compared to businesses in the Food and Drink sector (11%), where adoption of technology was less widespread. Sustainable Tourism businesses were less likely than average to view lack of funds as a barrier (11%).

There were no differences between businesses in fragile areas compared with those in non-fragile areas.

There were no differences between businesses of various sizes when it came to lack of time or resource. However, larger businesses were much more likely to identify lack of funds or costs as a barrier (43% of businesses with over 100 employees compared with 13% of businesses with 2 to 4 employees). This may seem surprising given that larger businesses generally have access to greater financial resources than smaller businesses. However, smaller businesses were more likely to cite other barriers such as a lack of business need which might mean they have not even attempted to pursue the adoption of more digital technologies and, thus, have not had a chance to consider the financial viability of doing so.

No Business Need

Not seeing a business need or a strong business case for digital technologies was a barrier for 15% of all businesses when asked about general barriers to increasing their use of digital technologies. Furthermore, in relation to each specific digital technology 'not being relevant to the business' was the most frequently mentioned reason why businesses did not yet have that technology.

Whether businesses felt they had no need to increase the use of digital technologies within their businesses is likely to be a key driver of the sectoral differences in use of digital technologies. Businesses in the Wholesale and Retail sector, who don't tend to have a high digital technology usage, were more likely than businesses overall (18%) to state that they had no business need. Conversely, businesses in sectors with a higher use of digital technology such as the Transport and Communications and Other Services sectors (6% and 9% respectively) were less likely to cite this barrier.

Growth sector businesses followed a similar pattern, with those in the high-adopting Creative Industries sector less likely to state this barrier (7%).

Businesses in fragile areas were less likely to state that this was a barrier compared with those in non-fragile areas (11% compared with 16%).

There were also some small regional differences in the extent to which business need was cited as a barrier. Businesses in Moray were more likely than businesses overall to hold the perception that they had no business need (20% compared with 15% overall), and businesses in the Inner Moray Firth area were also more likely to state that they had no business need (17%).

There were some size differences presented in relation to the barrier of having no business need. Smaller businesses were more likely to state they had no business need when compared with larger businesses (17% of businesses with 2 to 4 employees compared with 3% of businesses with over 100 employees); there may be a perception that the use of these technologies are better suited to "big business" whereas, as we explore in later chapters, small businesses also see a lot of benefits from using digital technologies.

Lack of understanding or skills

Lack of understanding or skills within the organisation was mentioned by 14% of all businesses when asked what general barriers there were to increasing the use of digital technologies within their business.

Certain sectors were more likely to find a lack of understanding or skills a barrier. Businesses in Health and Social Work were much more likely than businesses overall to find lack of understanding a barrier (23% compared with 14% overall). These businesses may benefit from (further) training or support to help understand or develop the skills required to increase their usage of digital technologies.

Small organisations were more likely to cite a lack of understanding or skills as a barrier to increased digital technology usage than large organisations (14% of businesses with fewer than 100 employees compared with 5% of businesses with 100 or more employees).

Chapter 4 of this report looks at the digital skills of the workforce and the impact this has on the businesses' ability to exploit the digital technology available to them.

Summary

The adoption of digital technologies varied across businesses in the Highlands and Islands. Clear differences were seen by region in internet connectivity and thus use of a company website, however beyond this regional differences were very small.

The main differences seen in the adoption of technologies were between different sectors with Business Activities, Other Services and Transport and Communication sectors typically reporting greater digital technology usage. It was notable that companies in the Business Activities sector were consistently high in their technology usage compared to other sectors when it comes to those that focus more on efficiencies, rather than exposure, including mobile internet and technologies, cloud computing and data analytics.

At the other end of the scale, businesses in Agriculture, Construction and Wholesale and Retail were commonly less likely than average to be adopting digital technologies.

Those in the Creative Industries growth sector were consistently more likely than average to be adopting digital technologies; this contrasts with the Food and Drink growth sector, where figures were consistently lower than average.

Consistently, larger businesses used each technology more that smaller businesses, which appeared principally to be due to a lack of business need and a lack of skills or understanding within small businesses.

On the whole businesses using fewer technologies were more likely to say that there was no business need for them to do so, although among Agriculture (who were typically low on adoption levels) a lack of technology was key. Those using more technologies were more likely to cite costs or time, or that they did not have access to better technology as the main barriers.

For five out of the six digital technologies covered in the survey (with the exception of data analytics), the proportions of businesses in the Highlands and Islands using these technologies was significantly lower than the rest of Scotland. Businesses in the Highlands and Islands were also more likely than those elsewhere to cite access to appropriate technology and a poor internet connection as being barriers to adopting technologies; these issues are discussed further within Chapter 5: The Future.

3 Use of digital technology

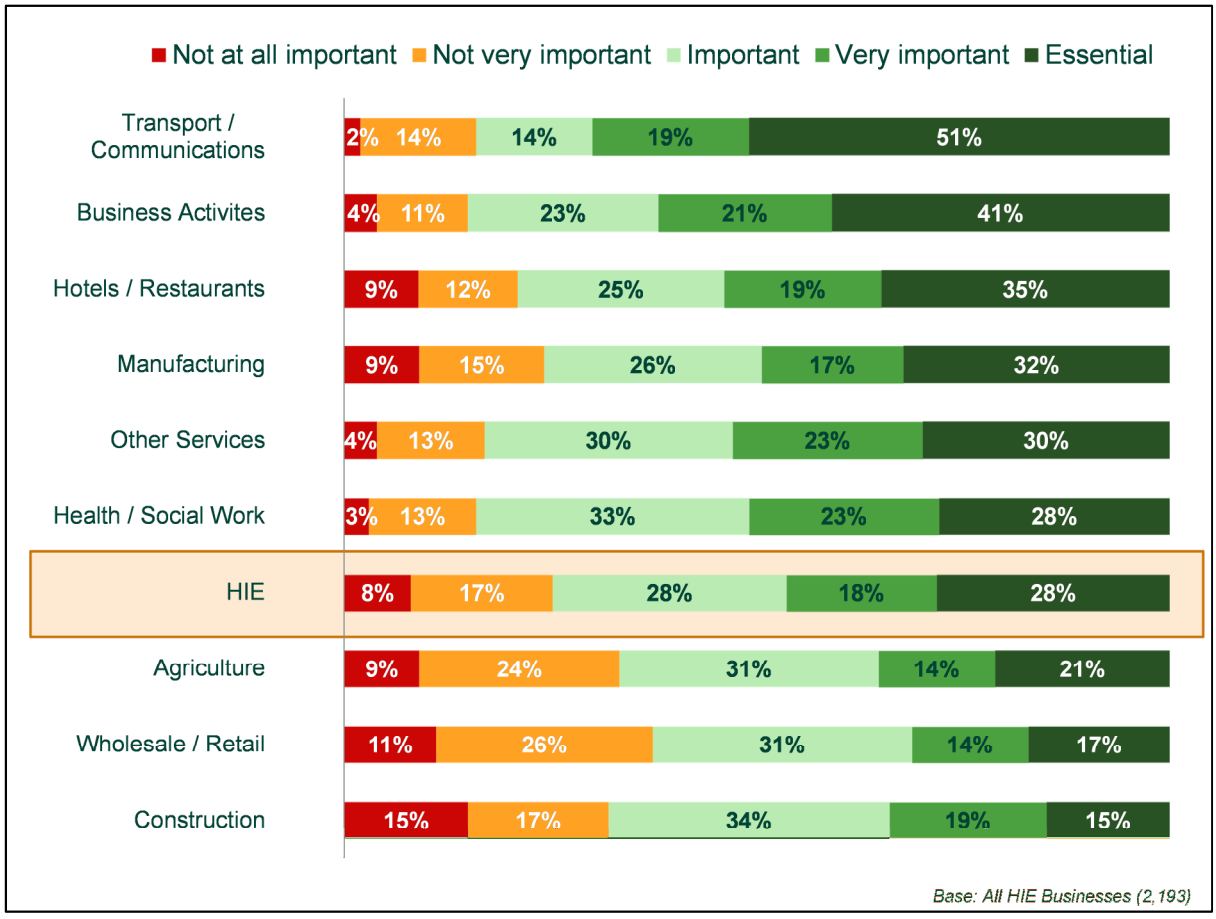
Having explored the levels of adoption of digital technologies, this chapter will consider the importance that businesses place on their use of such technologies, before considering some of the key ways in which digital technologies are used by businesses and the benefits accruing from their use.

Importance of digital technologies to businesses

The majority of all businesses felt that the use of digital technologies had at least some level of importance to the current operations of their business (74%; this rose to 81% of all businesses that were using at least one of the six digital technologies covered by the survey), which includes 28% that considered the use of technologies to be essential to their business's operations. However, in contrast, a quarter of all businesses did not perceive digital technologies to be important to their operations.

As detailed in Figure 3.1, there were wide variations by sector with those in the Transport and Communications sector most likely to perceive the use of digital technologies to be essential to their operations (51%), and those in the Construction sector least likely to perceive the use of digital technologies to be essential to their operations (15%). Nevertheless, across all sectors, the majority of businesses perceived digital technologies to have at least some level of importance to their business (ranging from 62% of businesses in the Wholesale and Retail sector deeming them to be important through to 85% among businesses in the Business Activities sector).

Figure 3.1: Perceived importance of digital technologies to the current operations of the business, by sector

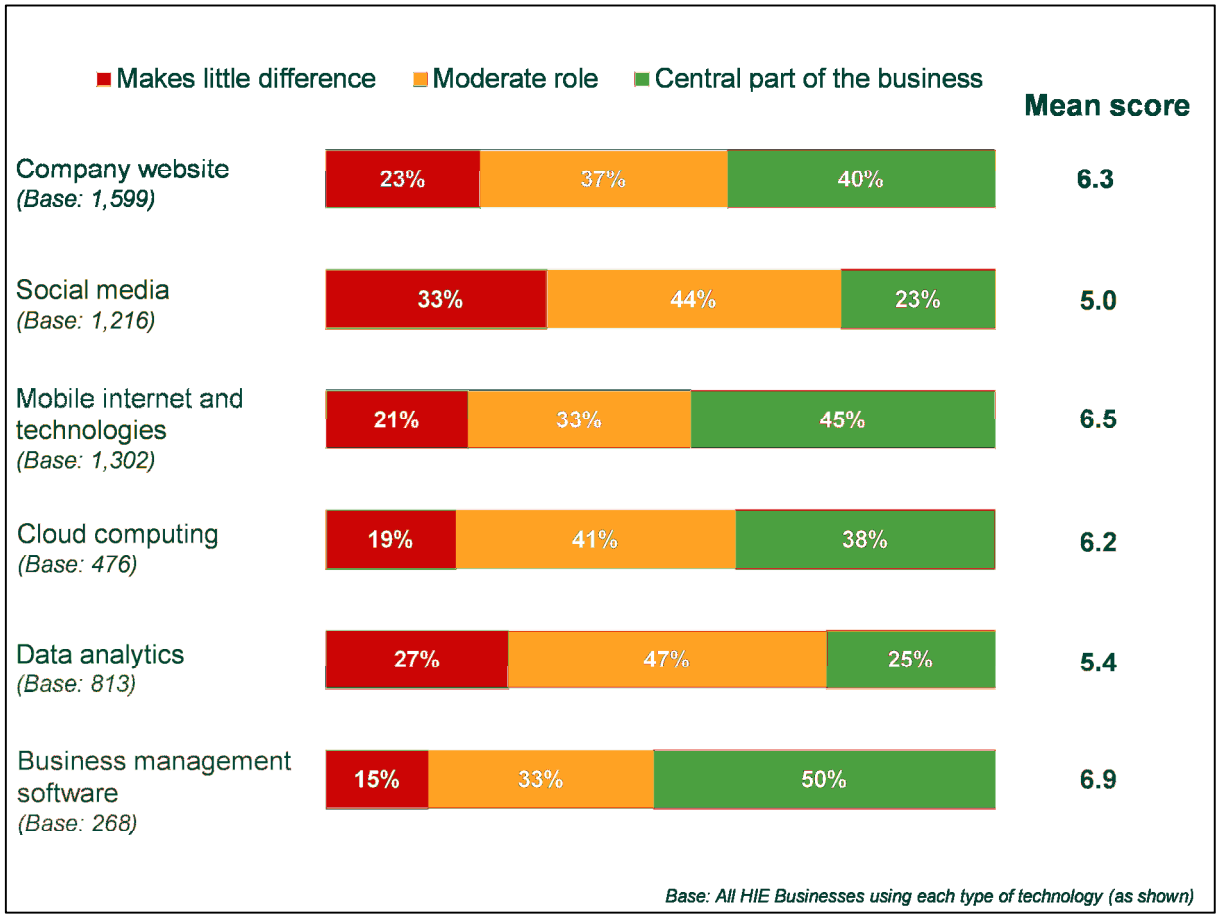


Large businesses with 100 or more employees were far more likely to view their use of digital technologies as essential than smaller businesses (57% compared with an average of 28% of employers with fewer than 100 employees). The importance attached to digital technologies was largely consistent by region.

Importance attached to specific technologies

In the survey, businesses using each type of digital technology were asked to rate on a scale of one to ten how integral the use of each specific technology was to their business (where a score of one meant that the technology makes little difference to the business and a score of ten meant that the technology plays a central part in the business). Figure 3.2 details the importance attached to each technology and displays the means scores from the scalar ratings.

Figure 3.2: Summary of how integral each technology is perceived to be to the business using each technology



This section of the report will consider each technology in turn, firstly in terms of the importance attached to it, and secondly in terms of the benefits experienced by the business using each technology.

Company website

Businesses generally felt that their company website played an important part in the business (mean score of 6.3) with 40% of businesses with a website reporting that it plays a central part in the business.

Businesses in the Hotels and Restaurants sector were more likely than average to say that their website plays a central part in the business (66%). Businesses in the Sustainable Tourism and Creative Industries growth sectors were also more likely than average to say that their website plays a central role in their business (65% and 50% respectively).

Unlike other technologies, the importance of the company website was more keenly felt among smaller businesses with 43% of organisations with fewer than five employees reporting that their website played a central role compared with 22% of employers with 100 or more employees.

By sub-region, considerably fewer businesses in Moray with a company website considered it to be central to their business (30% compared with the average of 40%). However, in comparing the Highlands and Islands as a whole with the rest of Scotland, company websites did appear to be of greater importance to those that had them (mean score of 6.3 compared with 5.9, respectively). In contrast, the importance attached to the other technologies was largely consistent across Scotland (or considered slightly less important among businesses in the Highlands and Islands).

The majority of businesses who used a website felt that the main benefit was that it generated exposure for the business (78%). Those operating in the Business Activities sector were most likely to report this (89%), compared with other sectors, such as Agriculture, where the proportion was somewhat lower (62%).

Social media

In comparison with the other digital technologies, businesses generally felt that their use of social media played a moderately important role in the business (mean score of 5.0) with only 23% of businesses using social media reporting that it plays a central part in the business.

By sector, a greater proportion of businesses in the Hotels and Restaurants (28%), Manufacturing (29%), Health and Social Work (29%), and Other Services sectors (36%) reported that social media plays a central role in the business in comparison with those in the other sectors, such as Agriculture (15%) and Construction (14%).

The largest businesses, with 100 or more employees, were the least likely to say that social media plays a central role in their business (12%, compared with an average of 23% across smaller employers with fewer than 100 employees). Unlike other technologies, size was not a key driver determining the importance attached to the use of social media with the proportions of businesses deeming it to be central to their business largely consistent among employers with fewer than 100 employees.

Similar to the benefits experienced from having a company website, business reported that a key benefit of social media has been the increased exposure for the business (62%). In particular, employers in the Wholesale and Retail, and Other Services sectors (72% and 78% respectively) were most likely to have experienced this benefit, compared with other sectors (such as Construction at 47%). Another benefit of social media – mentioned by around a fifth of all businesses using it – was that it has increased responsiveness to customers and generally improved their customer service (19%).

Mobile internet and technologies

Businesses generally felt that the use of mobile internet and technologies played an important role in their business (mean score of 6.5), with approaching half of all business using such technologies reporting that it plays a central part of the business (45%). Indeed, it is worth noting that for some businesses – such as those without a fixed business premise – the use of mobile internet and technologies is fundamental to their very existence.

Businesses in the Transport and Communications, and Business Activities sectors were more likely than average to say that the use of mobile technologies plays a central role in the business (58% and 52% respectively), whereas those in the Wholesale and Retail sector were the least likely to say that it plays a central role (30%).

Mobile technologies were less likely to play a central role in businesses in the Highlands and Islands compared with elsewhere in Scotland (45% and 49% respectively).

The main benefit identified by business using mobile technologies was that it has allowed employees to work remotely (60%). This was particularly so for businesses in the Other Services sector (72%), as well as those in the Creative Industries sector (72%). Other benefits included a general increase in efficiency and increased responsiveness to customers (both 16%).

Cloud computing

Cloud computing was generally felt to play an important role in the businesses that subscribe to such services (mean score of 6.2); with 38% reporting that it plays a central role in the business. This was consistent across sector, size and region (albeit small base sizes restrict the level of meaningful sub-group analyses).

The main cloud computing services that businesses subscribed to included:

- Email (75%);
- Storage of files (74%);
- Office software such as word processors and spreadsheets (54%);
- Hosting the organisation's database (33%);
- Finance or accounting software applications (33%);
- System and network management (18%); and
- Infrastructure and computing power to run the organisations own software (15%).

The main benefits experienced by businesses subscribing to cloud computing services included the ability to access company data and services from anywhere (52%), improved security (20%) and increased efficiency (15%).

Data analytics

Businesses using data analytics generally felt that they played a moderately important role in the business (mean score of 5.4) with only a quarter of businesses using data analytics reporting that it plays a central part in the business (25%).

Those in the Business Activities sector were most likely to report that data analytics plays a central role in the business (38%; a much higher proportion than what was reported by those using data analytics in the Construction and Agriculture sectors [9% and 19% respectively]).

The largest employers with 100 or more employees were also most likely to state that data analytics plays a central role (39%) compared with all other employers with fewer than 100 employees (25%). This difference by size also exists when considering annual turnover with those with a turnover greater than £250,000 more likely to say that data analytics plays a central role (29%) compared with those with a turnover of less than £250,000 (20%).

Unlike the other digital technologies discussed previously, the benefits experienced from using data analytics were more varied among the businesses using them and related to various aspects including: efficiencies and performance, customer engagement and outreach.

The most common benefit reported was the informing of more accurate and better targeted marketing communications (26%). This was most frequently experienced by businesses in the Manufacturing (37%) and Hotels and Restaurants sectors (34%) compared with businesses in the Construction, and Transport and Communications sectors (both 15%). This benefit was also more commonly cited among businesses in the Orkney region (45%).

Other specific benefits mentioned by at least one-in-ten businesses using data analytics included:

- Improved data quality and compliance / retention (19%);
- Increased responsiveness to customers and generally improved customer service (19%);
- The production of data-driven forecasts and projections to help plan for the future (13%); and
- The allowing for more effective monitoring and understanding of business performance (12%).

Business management software

Finally, in terms of business management software, businesses using such software felt that it played an important role in the business (mean score of 6.9); with half of all businesses using it reporting that it plays a central part in the organisation (50%). This suggests that once businesses have made the decision to invest in the use of this technology, it tends to play an integral role in how the business operates and functions. Due to a low base size the scope for sub-group analyses is limited but, broadly, the proportions of businesses who felt that such software plays a central role in the business was consistent across sector, size and region.

As with data analytics, the benefits of using business management software varied among those using it.

The two most common benefits were the collection of vital data such as customer details and order histories (32%) and a general increase in efficiency (31%). Other specific benefits included:

- Increased responsiveness to customers and generally improved customer service (22%);
- Improved communication with suppliers (14%); and
- The allowing for more effective monitoring and understanding of business performance (9%).

High adopters and low adopters of technology

Combining the data concerning the levels of integration of particular technologies presented so far in the chapter, together with the data on adoption of technologies in Chapter 2, it is possible to categorise businesses as "high adopters" or "low adopters" of digital technologies. More specifically:

- A "high adopter" has broadband (next generation or otherwise), and a top-quartile score on the adoption of the six technologies covered by the survey.
- A "low adopter" does not have high-speed broadband and has a bottom quartile score on the adoption of the six technologies covered by the survey.

Overall, 22% of enterprises fell into the "low adopters" category, and 20% were "high adopters".

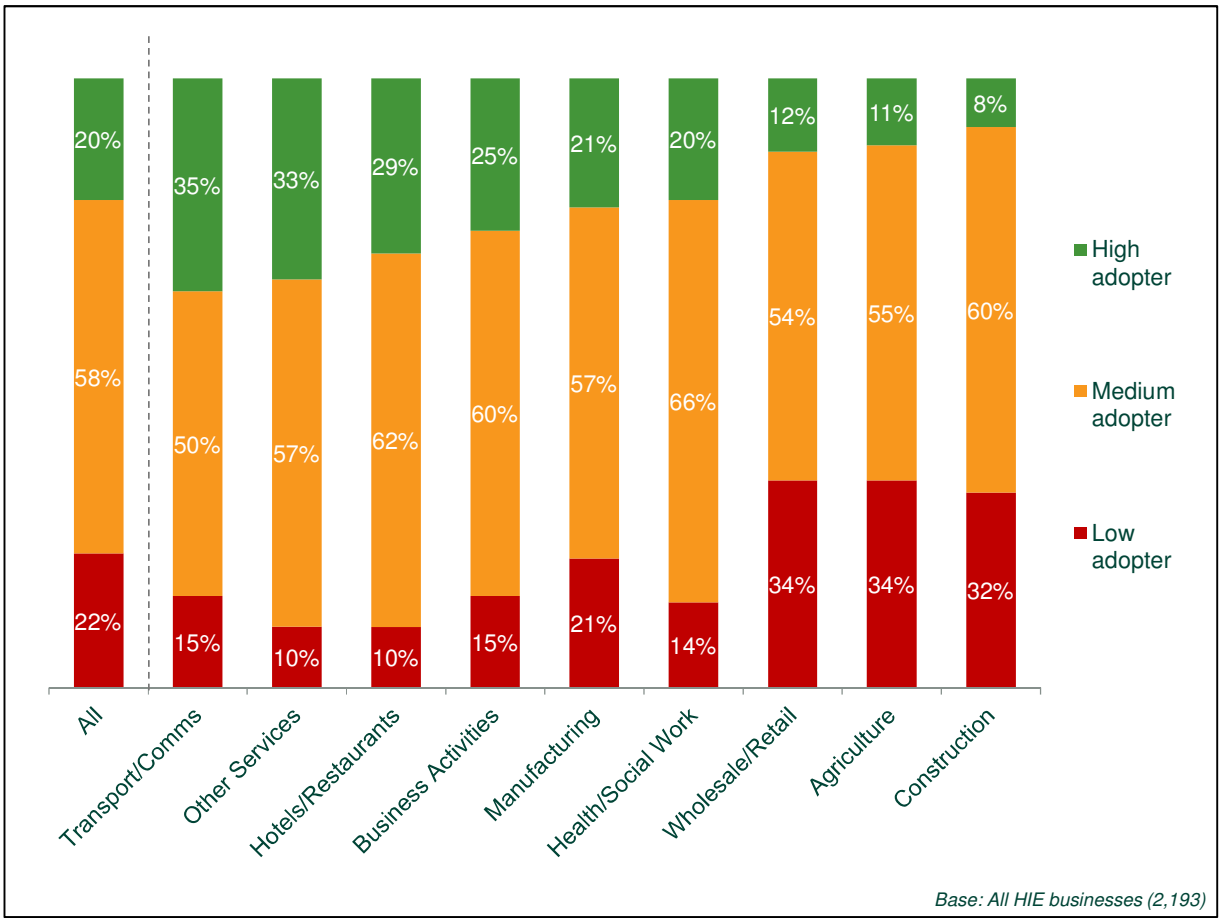
As detailed in Figure 3.3, businesses in the Transport and Communications (35%), Other Services (33%), Hotels and Restaurants (29%) and Business Activities (25%) sectors were the most likely to fall into the "high adopters" category. Large businesses with 100 or more employees were also more likely to be "high adopters" (60%), as well as those based in Lochaber, Skye and Wester Ross (23%) and the Inner Moray Firth (22%).

Conversely, businesses with the following characteristics are most likely to fall into the "low adopters" category:

- Within the Wholesale and Retail (34%), Agriculture (34%) and Construction (32%) sectors;
- Small organisation with 2-4 employees (26%);
- Be based in the Orkney (31%), Moray (30%) and Shetland (29%) regions.

Fewer businesses in the Highlands and Islands were high adopters, compared with the rest of Scotland (20% and 25% respectively). Conversely, a higher proportion were low adopters (22% compared to 17% elsewhere in Scotland). As internet connectivity was a large factor in defining the measure, this finding, unsurprisingly, reflects the extent of the connectivity gap between the Highlands and Islands and the rest of Scotland. However, in terms of connection type, high adopters were much more likely than low adopters to be using a leased line for their broadband connection (27% compared with 11%, respectively).

Figure 3.3: Breakdown of 'high', 'medium' and 'low' adopters of digital technologies, by sector[6]



Moving on to consider how digital technologies are used by businesses, this next section will explore the extent to which businesses have used digital technologies in order to:

- Sell products and/or services online;
- Expand internationally;
- Engage with public services; and
- To innovate.

To sell products and/or services online

One way in which businesses can use digital technologies to increase revenue is to sell their products and/or services online, thereby increasing sales opportunities both in the context of being able to reach a greater number of potential customers and by being able to be open 24 hours a day, seven days a week. A company website facilitates access to the online market which, as detailed in Chapter 2, 65% of business did have at the time of the survey. Here, we firstly consider what proportions of sales were being made online by companies with their own website and, secondly, what specific facilities and services their websites host.

[6] See the previous page for an explanation on how businesses have been grouped into these three categories.

Percentage of sales made online

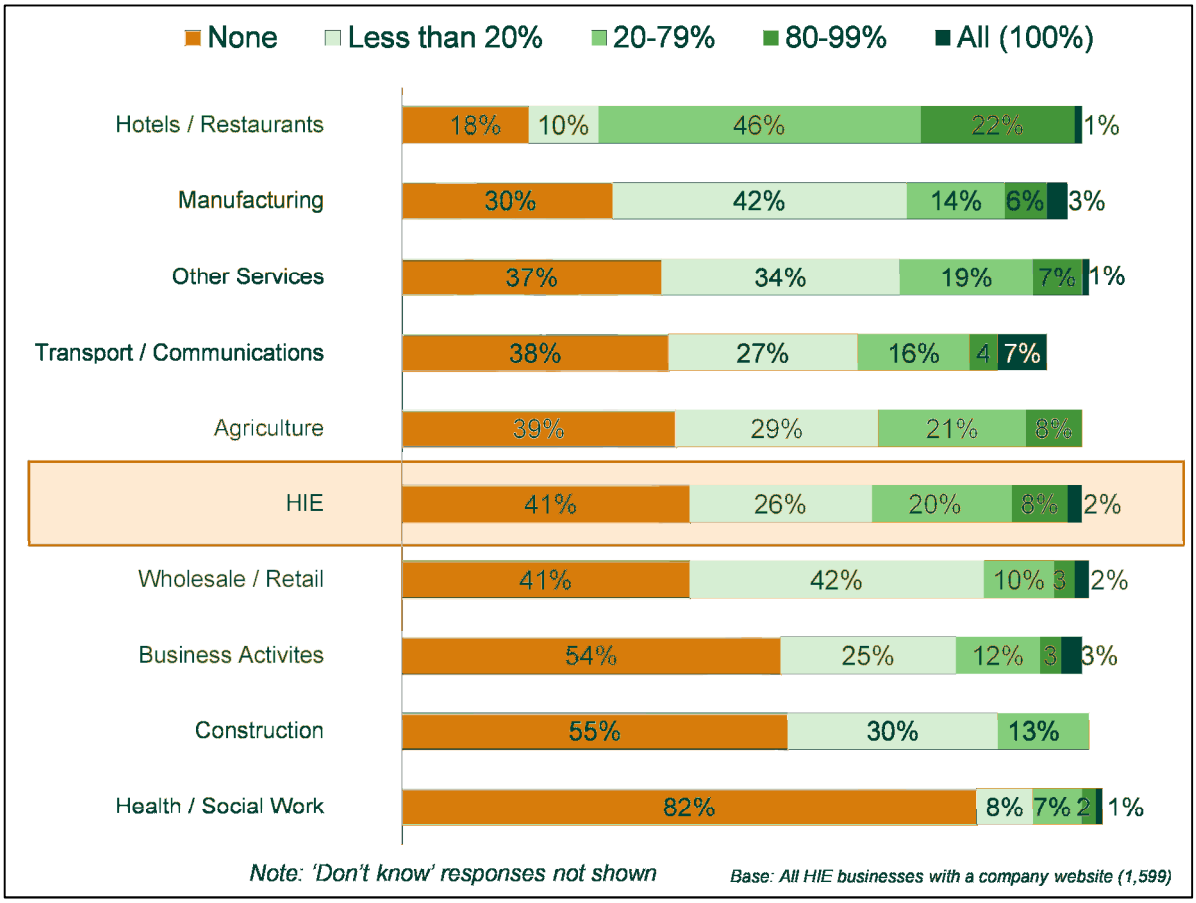
As detailed in Figure 3.4, the majority of businesses with a company website made at least some of their sales via the internet (56%, equating to 36% of all businesses). However, this was typically in small volumes compared to overall sales with around half of those selling via the internet (47%) reporting that their web sales accounted for less than a fifth of their overall sales. In all, just 2% of these businesses said that all of their sales were made online (equating to 1% of all businesses).

There were wide variations by sector with business in the Hotels and Restaurants sector the most likely to make at least some of their sales via the internet (79% of businesses with a company website in this sector did so), whereas those in the Health and Social Work sector with a company website were least likely to make sales via the internet (only 17% did so[7]).

The proportions of businesses making at least some of their sales online were broadly consistent across most regions, although businesses in Lochaber, Skye and Wester Ross, and the Outer Hebrides were more likely than average to make at least some sales via the internet (64% and 62% respectively). In contrast, businesses in the Moray region were less likely to do so (only 49% of businesses in this region with a company website did so). Generally, businesses with a company website in the Highlands and Islands were more likely to have been making at least some of their sales via the internet compared with those elsewhere in Scotland (56% and 48% respectively).

[7] Note in Figure 3.4 the breakdown of these figures for Health and Social Work sums to 18%, this difference is due to rounding and 17% is the correct combined figure.

Figure 3.4: Proportion of the business's sales that are made via the internet, by sector



Facilities and functions hosted by company websites

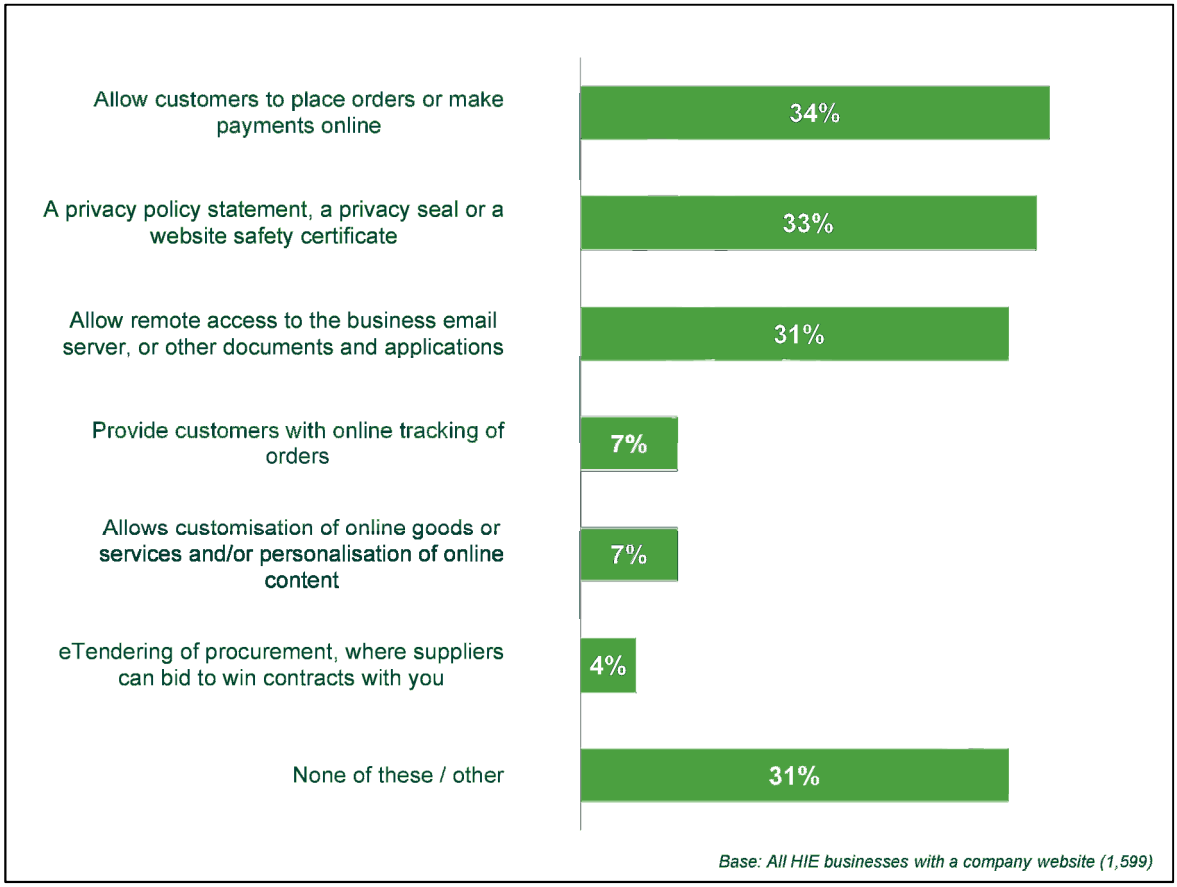
Businesses with their own company website were asked about which specific facilities or services their website hosts and, as detailed in Figure 3.5, the most common service hosted was the allowing of customers to place orders or make payments online (34%); a service which is both centred on raising revenues and reducing costs. Two other main facilities which were hosted by around a third of businesses with a company website included: the displaying of a privacy policy statement, a privacy seal or a website safety certificate (33%); and allowing remote access to the business email server, or other documents and applications (31%).

By sector there were a few notable differences in the services hosted by companies on their websites. In particular:

- Businesses in the Hotels and Restaurants sector were more likely than average to provide an online service for customers to place orders and make payments online (47%), whereas those in the Business Activities, and Health and Social Work sectors were less likely than average to provide this service (21% and 13% respectively).
- Those in the Wholesale and Retail sector were more likely than average to be using their website to display a privacy policy statement or similar (44%). In contrast, those in the Agriculture, Health and Social Work and Construction sectors were less likely than average to be doing this (21%, 27% and 28% respectively).

- Transport and Communications businesses were more likely than average to be using their company website to allow remote access to the business email server or other documents and applications (44%). With the exception of the Health and Social Work sector (23%), the proportion of businesses in all other sectors did not significantly deviate from the average of 31%.
- Businesses in the Wholesale and Retail, Manufacturing, and Transport and Communications sectors were more likely than average to be using their company website to host a facility allowing customers to track orders online (16%, 15% and 15% respectively, compared with the average of 7%).
- Businesses in the Construction sector were more likely than average to be using their website to host eTendering or procurement services (9% compared with the average of 4% across all businesses with a company website).

Figure 3.5: The facilities and services hosted by company websites (prompted)



To expand internationally

A further way in which the use of digital technologies can assist businesses in raising revenues is by facilitating access to international markets outside of the UK. Indeed, this is an important area for consideration given that the Scottish Government's Economic Strategy sets out an ambitious target to deliver a 50% increase in exports by 2017.

Approaching one-in-five businesses (17%) were exporting goods or services, or licensing their products, outside of the UK (they are referred to as 'international businesses' for the remainder of the report). International businesses were more likely than average to be operating in the following sectors:

- Manufacturing (38%);
- Transport and Communications (31%); and
- Hotels and Restaurants (26%).

International businesses were also more likely to be large (55% of businesses with 100+ employees and 28% of businesses with 50-99 employees were exporting internationally). At the smaller end, businesses with 5-9 employees were the least likely to be exporting internationally (12%) compared with 18% of businesses with fewer than five employees.

Employers who fall into the 'high adopter' categorisation depending on the extent of the adoption of digital technologies[8] were far more likely than other companies to be an international business[9] (34% of high adopters were exporting internationally compared with only 4% of low adopters and 16% of those that fall somewhere in between).

Furthermore, among those businesses not exporting internationally at the time of the survey, it was also the case that high adopters of technology were more likely to be planning to start exporting internationally over the next 12 months (8%) compared with less than 0.5% of low adopters, and 2% of those that fall somewhere in between.

In terms of the regions that businesses export to, the vast majority of international businesses exported to countries in:

- Europe (92%);
- North America (61%);
- Asia (49%);
- Australasia (47%);
- Middle East (34%);
- Africa (28%); and
- South America (27%).

Looking at the number of regions that companies export to it was apparent that high adopters of technology were more likely to export to a greater number of regions than those classified as either a low adopter or somewhere in between. Specifically, 42% of high adopters exported to five or more of the regions listed above compared with just 23% of non-high adopters.

Indeed, in support of this relationship between the adoption of technology and the number of international regions a business exports to, 73% of international businesses agreed that their use of digital technologies had increased the number of international markets they have been able to export to (49% 'strongly' agreed and 23% 'slightly' agreed). Businesses in the Hotels and Restaurants sector

[8] Businesses have been classified as 'high adopters' and 'low adopters' depending on their type of internet connection and whether they fall into the top or bottom ends of the scale of those using each of the digital technologies and how well they are integrated into the business. For full details see Chapter 2: Adoption of Digital Technologies.
[9] In this research this was classified as one that exports goods, services or licences their product outside of the UK.

were particularly likely to agree that their use of digital technologies had increased the number of international markets they have been able to export to (85% compared with 73% across all businesses).

To underscore the importance of accessing international markets, around half (51%) of all international businesses reported that sales coming from international markets outside of the UK accounted for up to a fifth of their total sales (see Table 3.2). Due to low base sizes the scope for sub-group analysis is limited. However, these proportions of sales which were made from international markets are broadly consistent across sector, size and region.

Table 3.2: Proportion of overall sales that comes from international markets outside of the UK

Proportion of overall sales that comes from international markets	% of all international businesses	% of all international businesses making sales via their company website
Unweighted base	*(413)*	*(215)*
All (100%)	1	8
80-99%	8	10
60-79%	7	7
40-59%	14	12
20-39%	15	10
Less than 20%	51	46
None	1	6
Don't know	3	1

As also detailed in Table 3.2, where businesses were exporting to international markets it tended to account for only a small volume of their total sales (46% reported that less than a fifth of all sales made via their website were made to customers outside of the UK).

A third of international businesses with a company website had tailored their website for different international markets (such as providing different language options or different product ranges). Although it is not possible to establish a causal link between the two, the data suggests that such tailoring can help improve the success of businesses exporting internationally as a greater proportion of businesses who had tailored their website reported that international sales accounted for more than a fifth of all sales made via their website (58%), compared with 41% among those who had not tailored their website for different international markets.

In terms of how these proportions of online international sales compare to 2-3 years ago, 47% of international businesses with a website reported that the proportion had increased in that time period (26% said it had increased by up to a fifth and 22% said it had increased by more than a fifth), whereas 39% said that the proportion had stayed the same. In contrast, only 5% reported that the proportion had decreased over the past 2-3 years.

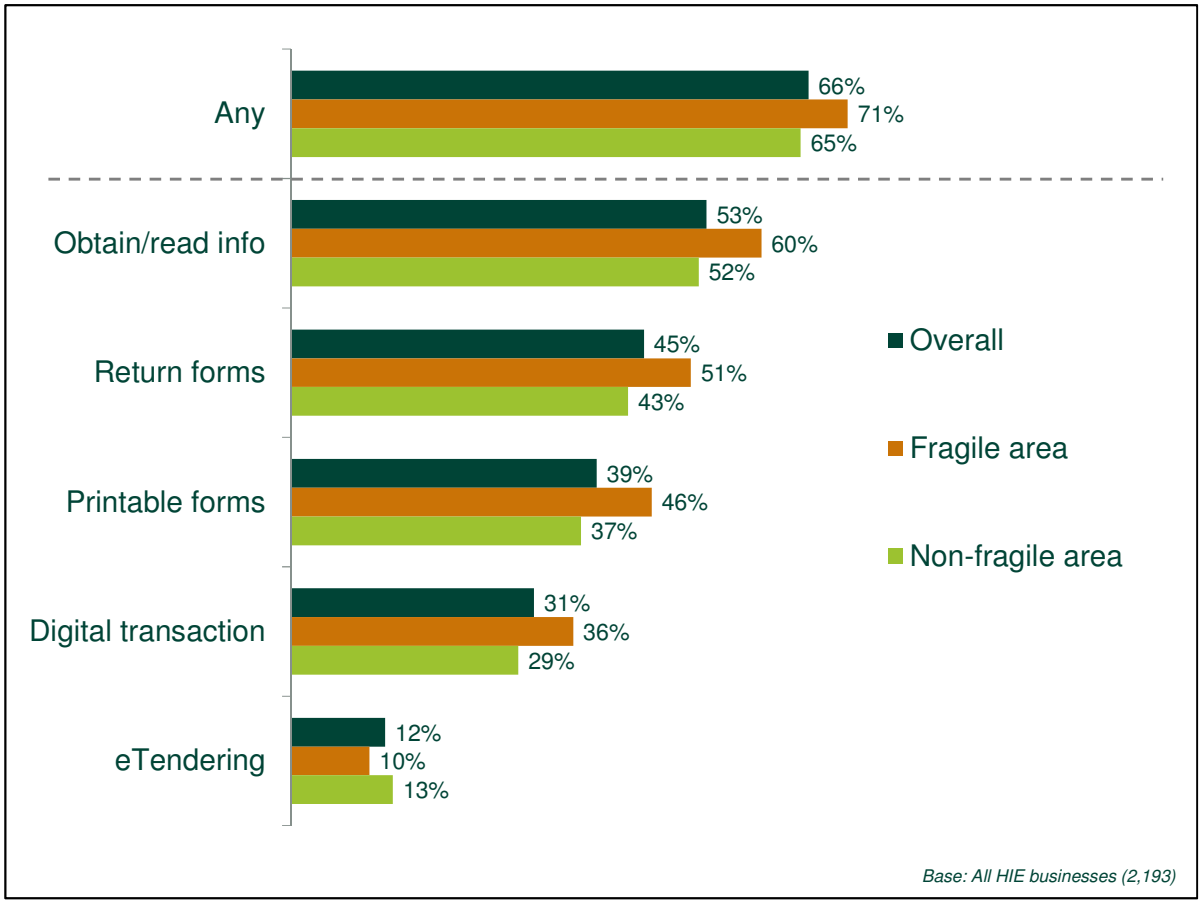
To engage with public services

The use of digital technologies may also assist businesses by making it easier and more efficient to engage with public services.

Two-thirds of businesses (66%) had used any of the Scottish Government, Scottish Local Authority or other Scottish public service websites over the past 12 months. Businesses in the Health and Social Work and Business Activities sectors were more likely than average to have used these websites (84% and 75% respectively). Larger businesses were also more likely to have engaged with public services, both in terms of those with a larger workforce (increasing from 63% of businesses with fewer than five employees to 84% of businesses with 100 or more employees) and in terms of annual turnover (80% of those with a turnover of £1 million or more did so compared with 68% of those with lower turnover).

As detailed in Figure 3.6, businesses based in regions categorised as fragile were more likely than other businesses to have interacted with public services (71% had done so compared with 65% of those in non-fragile areas), suggesting that businesses in these region are using digital technologies to improve their access to public services. Indeed, as also detailed in Figure 3.5, businesses based in fragile regions were – with the exception of eTendering – more likely to have engaged with public services in each of the ways listed.

Figure 3.6: Summary of whether businesses have used the websites of public services over the past 12 months and for what purpose, by area fragility



The vast majority of businesses had experienced some benefit from being able to interact with public services via the internet (92%). Specifically, the benefits experienced included:

- Saving time (83%);
- It being easier to find relevant information (82%);
- Saving the business money (61%); and
- Allowing for 24/7 access to information (7%).

There were few differences by sector and size in terms of the benefits experienced (although those in the Health and Social Work sector were more likely than average to say that it had saved time [92%]).

By region, a greater than average proportion of businesses in the Outer Hebrides reported that they had saved time (93%), found it easier to find relevant information (92%) and saved money (74%) by interacting with public services online.

To innovate

Finally, the use of digital technologies may provide opportunities for businesses to innovate by aiding the development of new products and services. Measuring the extent to which digital technologies are used to support innovation is a difficult and complex matter. Nevertheless, the survey sought to get an indication of this by asking businesses whether they had used digital technology for online research into competitor products or market data, or whether they gathered customer feedback via their website or via social media. Overall, approaching two-thirds of businesses had done so (62%), broken down as follows:

- 49% had researched competitor products online;
- 35% had researched and gathered market data online; and
- 31% had collected customer feedback via their website or social media.

The use of digital technologies to support innovation was particularly common among businesses in the Hotels and Restaurants (76%), Manufacturing (71%) and Health and Social Work (70%) sectors, whereas it was least common among businesses in the Agriculture and Construction sectors (51% and 48% respectively). Looking at growth sectors, those in Creative Industries (82%) and Sustainable Tourism (75%) were more likely than average to be using digital technologies for innovation. Overall this could be a reflection on how innovative firms in each sector are, however it is still the case that the sectors where adoption of technologies was highest, were the ones most likely to be using it for the purpose of innovation.

Similarly larger businesses were more likely to be using digital technologies to support innovation than smaller businesses, ranging from 59% of businesses with fewer than five employees to 88% of those with 100 or more employees.

The use of digital technologies for innovation was largely consistent across the regions, though was lower than average among businesses in Moray (55%).

Summary

Digital technologies were important to the running of the majority of businesses, with over a quarter saying they were essential to their business' operations. There was some variation according to the different technologies covered by the research. Although adoption of business management software was relatively low, it was integral to the running of the businesses who were using it; similarly those using mobile internet and technologies were likely to say it was a central part of how their business operates. In contrast, businesses using data analytics and social media were less likely to say it was a central part of the business, suggesting that the use of these technologies is a useful add-on to business practices rather than integral to them.

Combining the adoption of technologies with the importance they have to the business illustrates the differences between businesses that can be classed as "high adopters" and "low adopters". Businesses in Transport and Communications, Other Services, Hotels and Restaurants and Business Activities sector size region were more likely to be among the "high adopters"; conversely, businesses in Agriculture, Construction and Wholesale and Retail were most likely to fall into the "low adopters" category.

The survey illustrates a number of ways that digital technologies are helping businesses grow and develop.

Around a third were able to use their website to sell online, although this commonly accounted for a low volume of sales. It was businesses in the Hotels and Restaurants sector that were most commonly selling online, and at the highest volumes.

There was a strong correlation between the level of adoption of digital technologies and the internationalisation of the businesses, with high adopters far more likely to be selling their goods and services outwith the UK. The majority of these international businesses reported that their use of digital technologies had helped them reach more international markets. In particular, businesses in the Hotels and Restaurants sector were likely to agree that their use of digital technologies had increased the number of international markets they have been able to export. This finding could be used to inform businesses in this sector that do not currently export internationally of the benefits experienced by other businesses in this sector with the intention of encouraging them to increase their adoption of digital technologies.

Around two-thirds had also used the internet to inform the innovation activities.

There is also evidence of digital technologies being used to increase efficiencies of running the business. Two-thirds of businesses had interacted with Scottish public services online, reporting that this saved time, money and improved access to information. This was particularly evident among businesses based in "fragile" regions suggesting that digital technology is helping them overcome the geographical barriers to reaching the services available to them.

4 Digital Skills

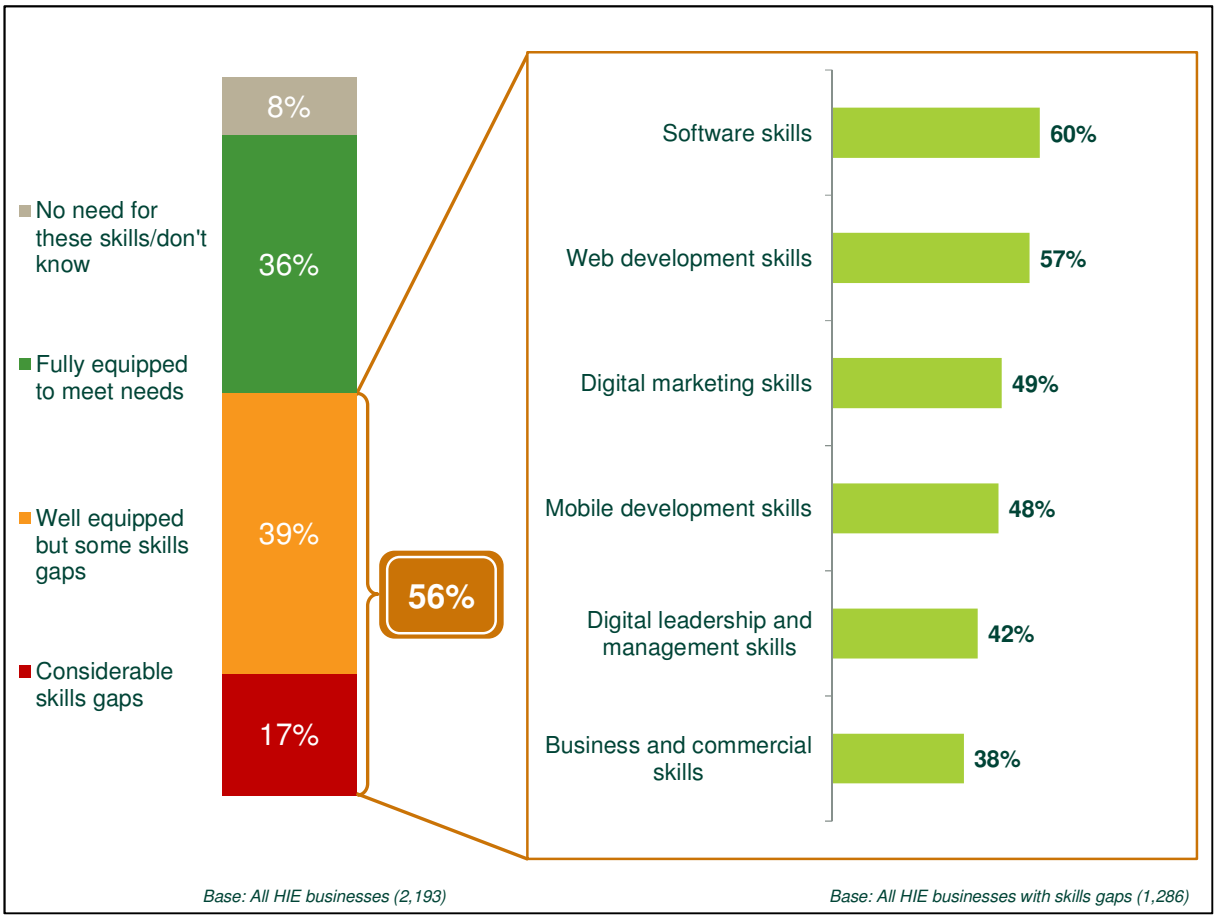
Digital Highlands and Islands together with their partners, including the Scottish Government, are investing a great deal in the digital skills of the workforce. In March 2014, Skills Development Scotland published their Sector Skills Investment Plan (SIP) for ICT and Digital Technologies, focusing primarily on businesses operating in the sector but also more widely on ensuring the workforce have the skills to benefit the economy across sectors. Ensuring the workforce has the opportunity to develop the digital skills demanded by employers is a key objective of the Digital Scotland Business Excellence Partnership. To emphasise the importance placed on digital skills among businesses in the region, Digital Highlands and Islands, together with its partners, have also engaged in initiatives to support individuals with a range of free business skills workshops, including website building, social media and online trading.

In order to help understand the digital proficiency of the workforce among businesses in the Highlands and Islands, this chapter will first explore the prevalence of digital skills gaps among businesses before exploring the impacts these digital skills gaps have had on the business and whether employers are engaging in activities, such as training and recruitment, in order to improve the digital technology skills of the workforce.

Digital Skills Gaps

In order to fully exploit the digital technologies available to them, businesses need to have access to the skills required to set up and use them. However, just 36% of businesses overall reported that their staff were fully equipped to meet their digital technology needs. Around four in ten (39%) had some digital skills gaps among their staff while 17% had considerable digital skills gaps (see Figure 4.1). Thus, 56% of all businesses had digital skills gaps among their staff at the time of the survey. This group are distinct from the 8% who reported that they did not require digital skills (or did not know how well equipped skills-wise their workforce was).

Figure 4.1: Summary of digital skills gaps along with the skills deemed to be lacking among businesses with digital skills gaps (prompted)



The prevalence of digital skills gaps was greatest among businesses in the Health and Social Work sector (71% of businesses in this sector had digital skills gaps) and among those in the Agriculture and Other Services sectors (both 61%).

The proportions of organisations with digital skills gaps progressively increased from 55% of those with fewer than five employees to 72% of businesses with 100 or more employees. This is likely to be a product of the more prevalent use of technology among larger businesses.

By sub-region, the prevalence of digital skills gaps was above average among businesses in Shetland (71% compared with 56% across all businesses) and was below average among businesses in the Outer Hebrides (46%).

The skills perceived to be lacking among businesses could broadly be split into two categories: 'technical skills'[10] and 'business and commercial skills'[11]. A lack of technical skills was most common (81% of businesses with digital skills gaps identified skills lacking in this area) with approaching two-thirds of those with digital skills gaps identifying a lack of business and commercial skills (61%). Figure 4.1 details the specific (prompted) skills identified as being lacking among businesses with digital skills gaps.

[10] These included: software skills, web development skills and mobile development skills.
[11] These included: digital marketing skills, digital leadership and management skills, and business and commercial skills.

Certain digital skills gaps were more prevalent among businesses in particular sectors, as detailed below:

- Digital skills gaps relating to software skills were most common among businesses in the Manufacturing sector (70%); and
- A lack of proficiency in mobile development was more common than average among businesses in the Hotels and Restaurants sector (55%).

The data also allows for the identification of certain skills lacking within specific regions. For instance, the prevalence of digital skills gaps pertaining to mobile technology development skills (59%) was above average among businesses in the Caithness and Sutherland region. A lack of web development skills (74%) and digital leadership and management skills (53%) were above average among business in Shetland.

Impact of digital skills gaps

Where digital skills gaps exist, these are likely to have a detrimental impact on the business. Indeed, among all businesses with digital skills gaps, around half (47%) said that this has had an impact on how their business performs (5% reported a major impact on the business although 42% considered the impact minor). Therefore, overall, a quarter of all businesses (26%) had digital skills gaps that impacted on their organisation at the time of the survey. It is conceivable – though not possible to confirm from the survey data – that businesses largely perceive digital skills gaps to have had a minor impact because their digital technologies are being utilised to what they understand to be their maximum potential (or as much as necessary for the business at that time), but that respondents were unaware of the potential capabilities and opportunities available from such technologies.

That around half (52%) of employers with digital skills gaps had seen no impact on their business may seem surprising. However, these employers were far more likely to be low adopters of digital technologies (38% compared with 18% of high adopters who had seen no impact). This suggests that the demand for skills among these employers is lower than average and, thus, the impact of digital skills gaps is limited.

Turning to focus on businesses that had seen an impact of their digital skills gaps, employers in the Health and Social Work and Other Services sectors were more likely to have had skills gaps and seen an impact from them (40% and 36% respectively) compared with the average of 26% across all businesses. Employers in the Creative Industries sector were also more likely than average to have digital skills gaps that were having an impact on the business (33%).

By size, businesses with 100 or more employees were more likely to report that digital skills gaps have had an impact on how their business performs (64% compared with 46% of all businesses with fewer than 10 employees).

Analysis of the adoption and usage of digital technologies against perceived skills deficiencies can help identify whether a lack of skills is proving a barrier to maximising the benefits to be gained from digital technologies:

- Firstly, employers who had considerable digital skills gaps among their workforce were least likely to have an internet connection (10% did not compared with 6% overall), and were significantly less likely than average to use each type of technology covered by the survey (with the exception of social media where usage was in line with the overall average). Employers who fell into the ‘low

adopter' categorisation used in Chapter 3[12] were far more likely than other companies to have considerable digital skills gaps (22% compared with 10% of 'high adopters' and 17% of those that fall between the two categorisations).

- Employers with a fully equipped workforce with no digital skills gaps were as likely as the average to have an internet connection and to use each of the digital technologies covered in the survey. An equal proportion of high and low adopters of digital technologies reported that their staff were fully equipped to meet their business's digital technology needs. This suggests that there is a cohort of businesses that use a large array of digital technologies and have a sufficiently skilled workforce, alongside a cohort of businesses who use very few technologies but have a workforce perceived to be 'fully equipped'. Among this latter cohort it may be the case that the businesses are not fully utilising their digital technologies to their full potential and that if their demand for using digital technologies increased they would find digital skills gaps among their workforce.
- Finally, the largest group of employers were those whose staff were, on the whole, well equipped to meet the business's digital technology needs, but that had some digital skills gaps within the organisation. This group were the most engaged with digital technologies, being most likely to have an internet connection (97% compared with 94% overall) and most likely to use each type of technology covered in the survey. High adopters of digital technology were far more likely to fall into this group (54%) than low (12%) or medium adopters (38%). Whilst it might feel counter-intuitive that those with some digital skills gaps are more likely to be adopting technologies than those with no gaps, it reflects that these businesses are more engaged with digital technologies and therefore have higher demands from their staff in terms of digital skills.

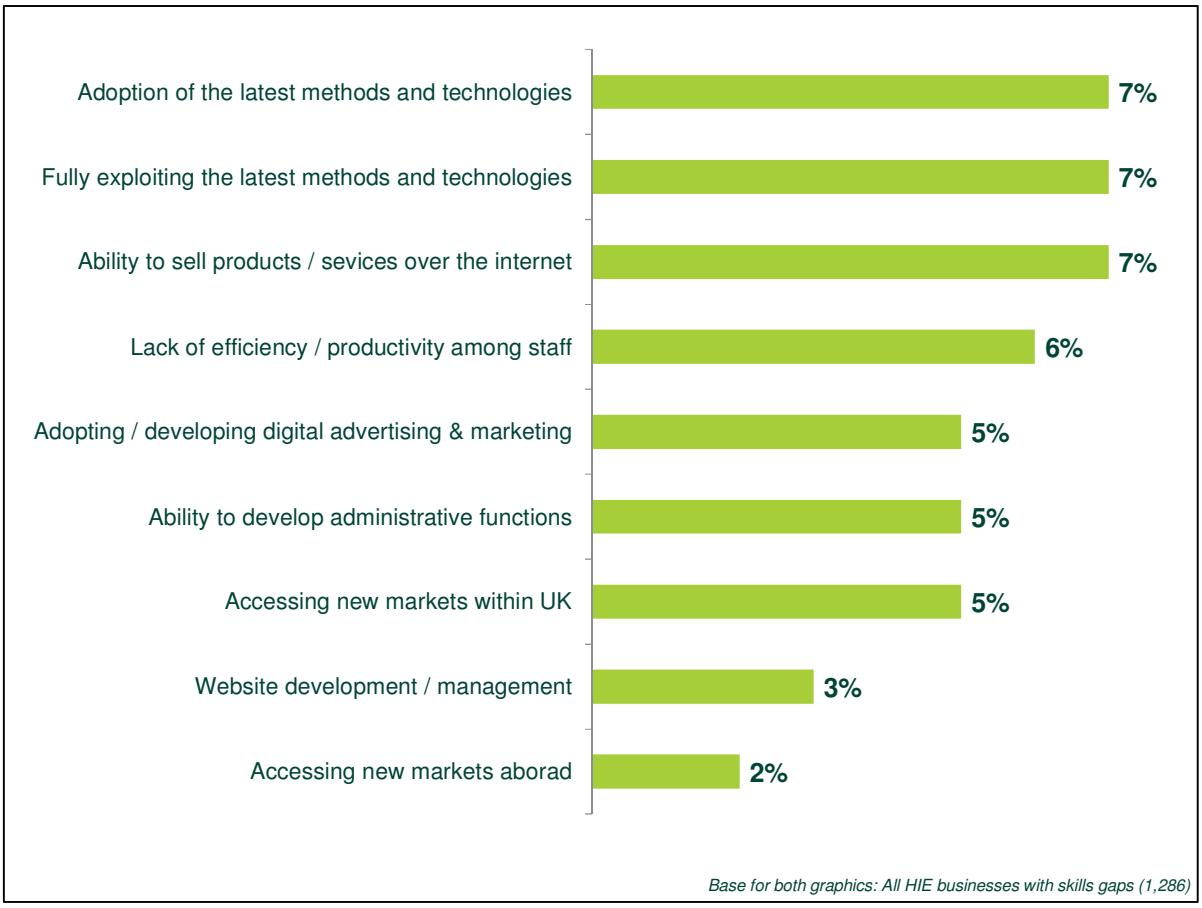
Figure 4.2 shows the variety of impacts experienced by businesses with digital skills gaps, the most common being: an inability to adopt the latest methods and technologies, an inability to fully exploit the latest methods and technologies; and an inability to sell products and/or services online (each mentioned by 7% of all businesses with digital skills gaps).

There were some variations in the impacts seen by sector. In particular:

- Businesses in the Manufacturing sector were more likely to have had their ability to *adopt* the latest methods and technologies impacted by skills gaps (13%, compared with the average of 7%).
- Businesses in the Health and Social Work sector were more likely than average to have seen an impact on their ability to *exploit* the latest methods and technologies (15%).
- Businesses in the Manufacturing (14%) and Hotels and Restaurants (12%) sectors were more likely than average to have seen an impact on their ability to sell products and services over the internet.
- Businesses in the Health and Social work sector were more likely to have had their ability to develop and improve general administrative functions impaired by their digital skills gaps (10% compared with the average of 5%).

[12] Businesses have been classified as 'high adopters' and 'low adopters' depending on their type of internet connection and whether they fall into the top or bottom ends of the scale of those using each of the digital technologies and how well they are integrated into the business. For full details see Chapter 3: Use of Digital Technologies.

Figure 4.2: Summary of whether digital skills gaps have had an impact on businesses and, where this has been the case, the specific impacts that have been experienced



Overcoming digital skills gaps

When looking to address digital skills gaps within their workforce, businesses can either offer training to develop the skills of their employees, or they can look to recruit new staff with the required skills. This next section of the chapter will look firstly at the extent to which employers have engaged in activities to develop their employees' digital technology skills and, secondly, whether they have recruited, or at least tried to recruit, any ICT specialists over the 12 months preceding the survey.

Training

Almost a quarter of all businesses were actively engaging in activities (such as training) to develop the digital technology skills of their workforce at the time of interviewing (24%). A further one-fifth of businesses were planning to develop the skills of their workforce in the future (18%), whereas the majority (57%) were not planning to develop their workforces' skills in the future.

Employers in the following sectors were more likely than average to have been engaging in activities to improve the digital skills of the employees at the time of interviewing:

- Health and Social Work (43%);
- Transport and Communications (41%);

- Manufacturing (32%);
- Business Activities (31%); and
- Other Services (30%).

In terms of growth sector, employers in the Creative Industries and Financial and Business Services were more likely to be engaging in training related activities to improve the digital technology skills of their employees (46% and 35% respectively).

There was an evident relationship by size with the proportions of businesses engaging in training related activities progressively increasing from 21% among businesses with fewer than five employees through to 72% among those with 100 or more employees. This relationship between size and training is not unexpected as it was reported in the Employer Skills Survey 2013 that staff training in general is much more prevalent – indeed, near universal – among large organisations[13].

The provision of training was particularly prevalent among businesses in the Outer Hebrides (33% of businesses in this region were engaged in training related activities at the time of the survey compared with the average of 24% across all businesses). However, businesses in the rest of Scotland were slightly but significantly more likely to be providing training to their staff than those in the Highlands and Islands (27% compared with 24% respectively).

Recruitment

Eight per cent of all businesses had attempted to recruit at least one ICT specialist over the 12 months preceding the survey (7% had successfully managed to recruit whereas 1% had not been successful in their attempts to recruit).

Attempting to recruit an ICT specialist over the past year was also more prevalent among businesses in the Transport and Communications and Other Services sectors (13% and 11% respectively compared to the average of 8% across all businesses). Businesses in the Creative Industries and Financial and Business Services growth sectors were also more likely to have at least attempted to recruit at least one ICT specialist over the past year (14% and 13% respectively).

There was a relationship by size with the larger employers more likely to have attempted to recruit an ICT specialist than smaller employers (7% of employers with fewer than 10 employees had recruited compared with 12% of businesses with 10 or more employees).

Whilst there were no significant sub-regional differences, there was a small but significant difference overall with businesses in the rest of Scotland more likely to have recruited an ICT specialist over the past 12 months (9%) compared to businesses in the Highlands and Islands (7%).

Unsurprisingly, employers with a high adoption of digital technologies were considerably more likely to have attempted to recruit an ICT specialist (17%) compared with low adopters (2%) and those that fall in between these categories (7%). This emphasises the importance of needing to maintain a sufficient talent pool to satisfy the skills demands of these high adopter businesses in order to help avoid an increase in the prevalence of skills gaps.

[13] Winterbotham et al. (2014) The UK Commission's Employer Skills Survey 2013: UK Results. UK Commission for Employment and Skills.

Summary

Over half (56%) of businesses had digital skills gaps within their workforce at the time of the survey with the greatest prevalence of digital skills gaps occurring among businesses in the Health and Social Work (71%), Agriculture (61%) and Other Services (61%) sectors.

Technical digital skills were more commonly perceived to be lacking among the workforce than business and commercial skills (81% and 61% of businesses with digital skills gaps identified skill lacking in these areas, respectively).

Just under half (47%) of all businesses with digital skills gaps had seen an impact of these gaps in terms of how their business performs. This equates to 26% of all business having had skills gaps that have had an impact on their organisation at the time of the survey. These impacts tended to focus on: an inability to adopt the latest methods and technologies, an inability to fully exploit the latest methods and technologies; and an inability to sell products and/or services online (each mentioned by 7% of all businesses with digital skills gaps).

The presence of digital skills gaps did not necessarily translate into an impact on how businesses perform; indeed, 52% of businesses with digital skills gaps reported that these had not impacted on their business. However, these businesses were far more likely to be low adopters of digital technology suggesting that their demand for digital skills at the time of interviewing was lower than average. However, it could be the case that if these businesses attempt to increase their use of digital technologies in the future, these digital skills gaps could impair their ability to do so.

In terms of engaging in activities which can help to overcome digital skills gaps, a quarter of businesses were providing training related activities to develop the digital skills of the workforce (24%) with a further one-fifth planning to do so in the future (18%). Employers in the Health and Social Work and Transport and Communications sectors (43% and 41% respectively) were the most likely to have been training their staff. However, the levels of engagement in training did not differ depending on the presence of digital skills gaps.

In terms of recruitment, 8% of all businesses had attempted to recruit at least one ICT specialist over the 12 months preceding the survey. Recruitment activities were most common among businesses in the Transport and Communications and other Services sectors (13% and 11% respectively). Recruitment attempts were also far more common among businesses with a high adoption of digital technologies (17%, compared with 2% of low adopters).

5 The Future

As previous chapters have demonstrated, the advancement of digital technology opens up opportunities within businesses to help them grow, increase efficiencies and reach out to more customers. The Digital Scotland survey provides a benchmark against which future technology use can be measured to track the progress of businesses in Scotland. However the survey also covered future intention, to give an indication of the likely pace of change. This is important given the Scottish Government's Economic Strategy stated focus of promoting the digital economy in Scotland's cities, towns and rural areas. Improving Scotland's digital infrastructure is also one of the national indicators under the Scottish Government's National Performance Framework.

There is a desire within Highlands and Islands Enterprise to promote the use of digital technologies to ensure the region remains competitive in the global market, and encourage investment in the region. As well as the previously discussed multi-million pound rollout of next generation broadband to the region, which aims to reach 84% of the region by 2016 and potentially all by 2020, HIE provides Digital Engagement workshops in partnership with Business Gateway and specialist IT advice to educate businesses about the digital opportunities out there and how to harness them to the benefit of the business. These initiatives, among others referenced throughout this section, go some way to addressing the barriers that businesses have to developing their use of digital technologies further (see Chapter 2 for more detail).

This chapter identifies those areas and groups keen to develop and those that are less ambitious. Through identifying those who say they are likely to adopt a new technology, it also allows us to make predictions as to future digital technology usage across the Highlands and Islands region.

The importance of digital technology to future business growth

The survey provides evidence on the importance of digital technologies to the future growth of business, not only through the advantages they bring businesses which have already been discussed, but through measuring businesses' direct perceptions of this importance. Over a quarter (27%) of all businesses across the Highlands and Islands region stated that digital technology is essential to the future growth and competitiveness of their business, with a further 46% stating that it is important. Overall, a quarter felt that digital technologies were not important to their business.

Businesses within certain sectors were more likely to see the importance of digital technologies in their future growth than others; unsurprisingly this correlated with the sectors that were most and least likely to be adopting and using digital technologies. Businesses in the Transport and Communications, Business Activities and Hotels and Restaurants sector were all more likely than businesses overall to state that digital technologies are essential in the future growth of their business (49%, 37% and 36% respectively). Conversely businesses in the Agriculture (20%), Construction (18%) and Wholesale and Retail (14%) sectors were least likely to see digital technologies as essential. Businesses in the growth sector of Creative Industries were most likely to see digital technologies as essential to the future growth of their business (59%), in contrast businesses in the Food and Drink sector were least likely to state that digital technologies were essential (19%) – this again correlates with patterns of usage.

Similarly, larger businesses were more likely to view digital technologies as essential in future development of their business (55% of those with over 100 employees compared with 27% overall).

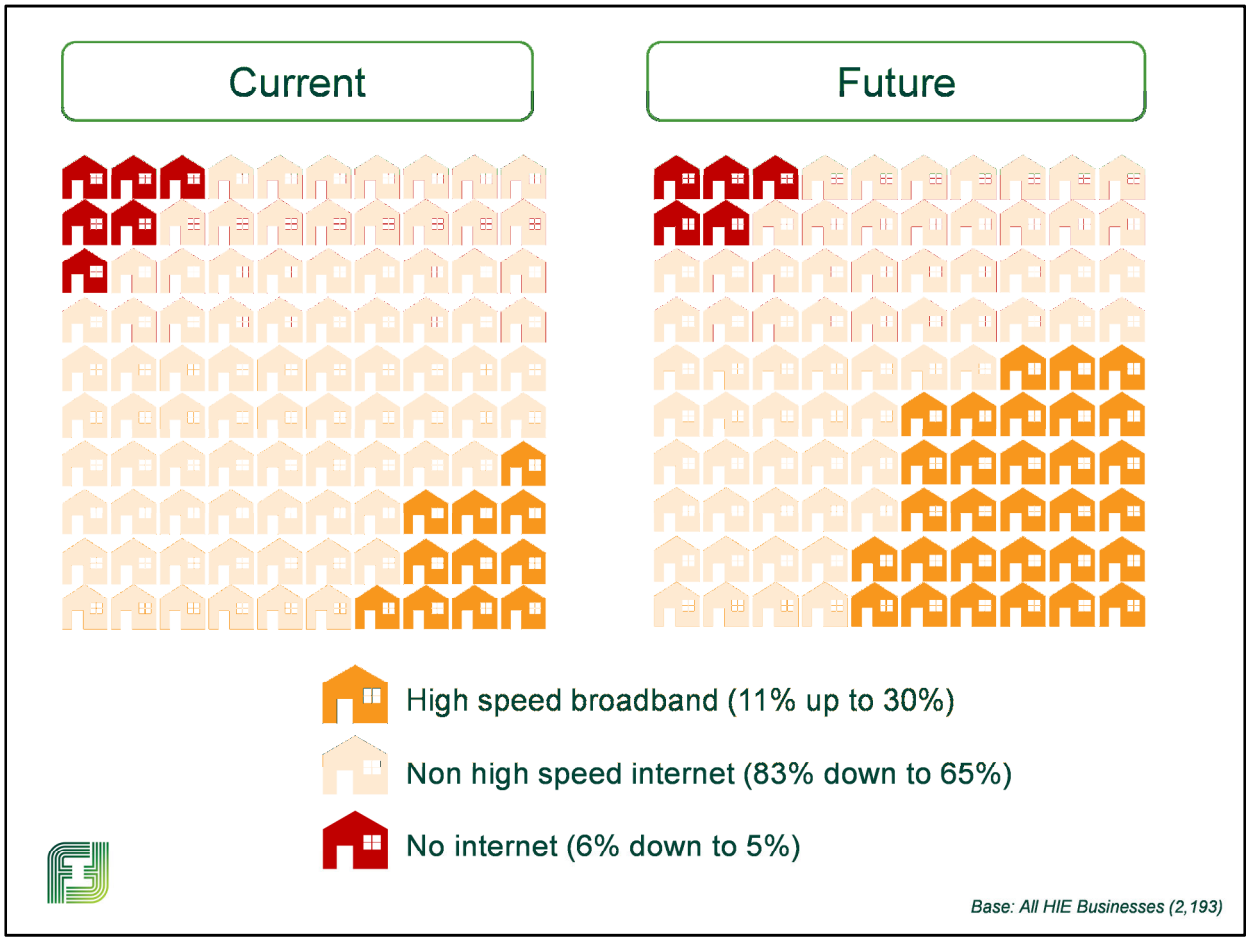
Internet Connection

The majority (94%) of businesses across the Highlands and Islands had an internet connection. At the time of the interview, of the 6% of businesses that did not have an internet connection, a third (34%)

did not have one available to their business at all. The majority of those without internet connection (68%) stated they were unlikely to get one in the next 12 months, however around a quarter of those without a current internet connection (23%) did intend to get one in the next 12 months, suggesting there is still scope for increasing the reach of the internet (of any speed connection) across the Highlands and Islands.

A quarter of businesses (25%) stated that they planned to improve their internet connection in the following 12 months. If this were to happen, there would be a shift in quality of internet connection, with more having high speed broadband and fewer have non broadband internet. This makes the assumption that those that plan to improve will move up to the next band of internet connection[14]. Figure 5.1 demonstrates the future of internet connection, assuming businesses who stated that they planned to improve do so into the next band.

Figure 5.1: Quality of internet connection at present and predicted for the future.



Businesses with an internet connection in the Hotels and Restaurants sector were more likely to plan to improve their connection (31%) compared with businesses overall (25%). The majority of businesses in this sector had a broadband connection that was not high speed (84%), suggesting that if these businesses were to improve up to using the next band of internet speed, there would be a

[14] Businesses that have no internet connection will get basic connection, those with basic internet connection will improve to broadband connection and those with broadband connection will get high speed connection.

higher percentage upgrading to high speed broadband. Other sectors did not differ by a large percentage in terms of likelihood of improving their connection.

Businesses that were higher adopters of technologies were generally more likely to upgrade their internet connection, this varied amongst the businesses in different growth sectors and size bands.

Amongst the growth sectors, the sectors in which businesses were more likely to report an intention to upgrade their internet connection were Sustainable Tourism and Creative Industries (30% and 34% respectively), which were the sectors currently using more technologies.

Similarly, the pattern by size is consistent with adoption and importance of technologies, with larger businesses more likely to plan to improve their internet connection over the next 12 months (ranging from 22% of businesses with 2 to 4 employees up to 51% of those with over 100 employees).

There were considerable regional differences across the Highlands and Islands; businesses in the Outer Hebrides were more likely than businesses overall to improve their internet connection over the next 12 months (33%), even though the planned rollout in many parts of this region will not begin until 2016. Those in Caithness and Sutherland were less likely to improve their internet connection (15%), although the publicity surrounding the rollout, which is planned for earlier (2015/16) across many parts of this region, could encourage more digital development in the near future.

Businesses in the Highlands and Islands were slightly more likely than those in the rest of Scotland to plan to improve their internet connection (25% compared with 23%). The barriers to this varied markedly, with businesses across the Highlands and Islands much more likely to cite a lack of availability of improved internet connection (40% compared with 16%). The planned rollout of high speed broadband will, region by region, remove this barrier for many, although this will take some time yet to fully realise. Other initiatives, such as the HIE's partnership with Citizens Online, BT and other local partners to help people in rural communities go online and take advantage of information technology may also help raise awareness of increased opportunities for businesses in rural areas to go online and take advantage of the rollout of next generation broadband.

There were very few differences between sectors and size with regards to availability of internet connection preventing the upgrade of business' internet connection. However there were significant variations by region, reflecting the progress of the high speed broadband rollout thus far.

Among businesses not likely to improve their internet connection, there was some regional variation in whether this was due to a lack of availability of improved internet connection:

- Orkney (62%)
- Outer Hebrides (52%)
- Caithness and Sutherland (50%)
- Lochaber, Skye and Wester Ross (47%)

The lack of availability of improved internet connection for businesses in Orkney could be partly explained by the fact that over a quarter of businesses in the region (29%) already had the best that they could get. The planned rollout was due to be underway throughout 2014, therefore may have encouraged adoption of the best internet connection available.

The Inner Moray Firth (31%) and Moray (17%) were less likely to be facing a lack of availability of an improved connection as a barrier. The rollout of next generation broadband was in progress in Moray throughout 2014, and Inner Moray Firth has a larger concentration of businesses in urban areas so it

might be expected that the internet connections available are already high quality for most businesses in these regions.

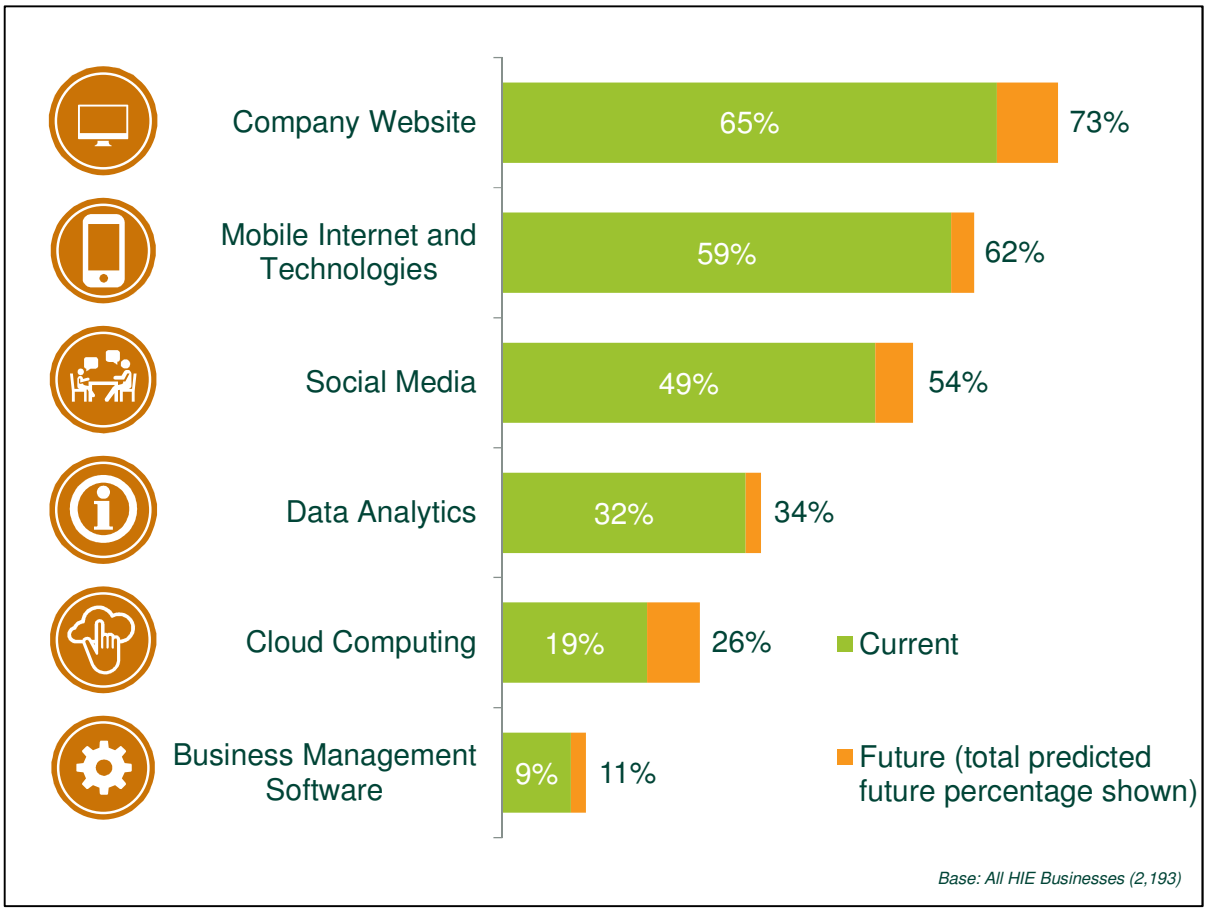
Future plans to improve or get an internet connection did not directly link with the planned rollout timings, with regions targeted at a similar time differing significantly. This could be due to a lack of awareness and knowledge about the planned rollout; if businesses are unaware that improved internet connection is soon going to be available to their business, or know other important information such as what the cost will be when it arrives, they may not have factored it into their plans. In contrast, it could be related to their lack of demand for better internet, in which case education of the benefits will need to accompany the rollout to maximise its impact.

Planned use of individual technologies

Plans related to developing each individual technology were measured in terms of whether businesses planned to start using it if they did not currently, or whether they planned to develop or use that particular technology more over the next 12 months. This could help to predict the development of digital technologies in the future.

If we were to assume that businesses that stated they were likely to start using each digital technology are going to implement this plan and start using the technology, the future of the digital economy of businesses in relation to use of individual technologies is shown in Figure 5.2. These figures are very much an estimate, due to the assumptions made that businesses will upgrade as they stated they were likely to.

Figure 5.2: Predicted future adoption of each technology



Generally, if businesses did not currently use the individual technology, they were unlikely to begin using it over the next 12 months. However, as detailed previously in Chapter 2: Adoption of Digital Technology, perceived lack of availability of digital technologies and poor internet connection were two of the most commonly cited barriers to increasing use of digital technologies. Through continued initiatives, such as the rollout of next generation broadband, it should be possible to help many businesses to overcome these perceived barriers.

Almost a quarter of businesses who did not currently have a company website (23%) were likely to set up a company website, however, only around one in ten of those that do not currently use social media, mobile internet and technologies and cloud computing, were likely to start using social media (11%), mobile internet and technologies (8%) and cloud computing (9%) respectively. That said, cloud computing showed the biggest proportional increase (from 19% to 26% - a predicted increase of over a third). HIE programmes and initiatives such as the workshops which are offered in building websites and developing a social media strategy, and one-to-one specialist advice to provide a Digital Health Check and IT action plan, can be used to help businesses fulfil their intentions for developing a company website and engaging in social media. This model has proved to be very successful and will become a national programme during financial year 2015.

Even smaller numbers were likely to start using data analytics (3%) and business management software (2%), if they did not currently use it.

The differences in barriers to using each type of technology can help to explain the differences seen between the predicted future adoption levels of each. Across the board, the main reason for not planning to adopt each technology was lack of business need. However looking beyond this, other reasons relating to data analytics and business management software included lack of understanding which may present an opportunity, through the Digital Engagement workshops, to help increase awareness of these types of software among businesses. Amongst smaller businesses a view that they were too small to need this and that these technologies are for ‘big’ businesses only. This may give reason for encouraging small businesses to collaborate with one another with regards to digital technologies such as data analytics where businesses can co-operate in mutually beneficial arrangements.

Reasons for not currently using a company website were more fundamental; in general businesses who did not have a website could not see how the company would benefit from one, with reasons such as preference for current business model and lack of customer demand stressed by many businesses.

Businesses who were currently using technologies were generally likely to expect to increase their use of these technologies over the following 12 months. This was particularly the case for their company website and their use of social media; around three-quarters of businesses currently using each expected to increase their usage (73% and 72% of those who currently use the technologies).

Around six in ten businesses using mobile internet and technologies planned to increase their use of them (58%), as did a similar proportion of those using cloud computing (59%). Around half of businesses using data analytics and business management software planned to increase their use over the next 12 months (49% and 50% respectively).

There was a significant ‘gap’ between sectors that were likely to adopt and increase their use of individual technologies and those that were less likely. Consistent with their lesser use of technologies, businesses in the Agriculture sector were least likely to intend to improve their usage and adoption of the majority of technologies they used.

Businesses across Health and Social Work, Hotels and Restaurants and Manufacturing sectors however were commonly the sectors more likely to increase their use of digital technologies both in terms of new adoption, and increased usage. This was particularly the case with regards to a company website, the use of social media, mobile internet and technologies and cloud computing.

Particular sectoral differences can be identified in relation to mobile internet and technologies. Businesses in the Manufacturing and Hotels and Restaurant sectors (14% and 13% respectively) were more likely than average (8%) to plan to adopt mobile internet and technologies. Businesses in the Health and Social Work sector however were more likely to increase their current use of mobile internet and technologies (71% compared with 58% overall).

Differences between sectors were less prevalent in relation to the other two technologies; except for businesses in Other Services being more likely to increase their use of data analytics, there were very few sector differences with regards to this and business management software. As discussed earlier, one of the main reasons for businesses not planning to adopt these two types of technologies was a lack of understanding about them. HIE's Digital Engagement Programme and a Digital Centre of Excellence being established at the new Inverness Campus may prove to offer useful vehicles in which to help raise understanding among businesses about technologies such as data analytics and business management software.

The future development of digital technologies across growth sectors were broadly in line with the use of digital technologies; where there were differences, it was businesses in Creative Industries and Sustainable Tourism that were more likely to develop the technologies in the future. In the case of the Creative Industries sector this readiness among businesses to increase their use of digital technologies could be harnessed in order to target initiatives to encourage the increased usage of digital technologies to help HIE achieve its target for increasing turnover within this sector, in line with the aspirations outlined in HIE's Creative Industries Strategy. The apparent appetite among businesses in the Sustainable Tourism sector also tallies with the high levels of demand experienced by HIE when running a pilot for an intensive support programme for the Tourism sector which will provide tourism businesses with specialist advice and workshops coupled with an opportunity to access a digital grant.

Small regional differences were evident across the Highlands and Islands in relation to some of the individual digital technologies;

- Businesses in Shetland were more likely to expect to increase their use of a company website than businesses overall (84% compared with 73% of those that currently use a company website). Of those businesses that did not yet have a company website, those in Orkney were less likely to plan to develop a company website (75% compared with 57%).
- Businesses across Caithness and Sutherland (16%) and Inner Moray Firth (12%) were more likely to start subscribing to cloud computing services than average (9% of those that did not currently subscribe to cloud computing).
- Caithness and Sutherland businesses were also more likely than businesses overall to start using business management software, if they didn't already (5% compared with 2%).
- Businesses in Moray that did not use data analytics were less likely to start using data analytics (37%) compared with the average for businesses overall (49%).

Businesses across Caithness and Sutherland consistently showed the prospect of developing individual technologies, despite businesses in this region being less likely than average to plan to improve their internet connection. Other regions showed variation in their planned ambitions for the development of certain digital technologies, with Shetland and Inner Moray Firth demonstrating more

plans to develop and Orkney and Moray less so. There were no differences in plans for future development between businesses in areas classed as fragile and those classed as non-fragile.

In terms of size of business, it was the larger businesses that were more likely to adopt or increase their use of each technology, with the exception of social media; smaller businesses were more likely to plan to use social media more.

Although differences between the Highlands and Islands and the rest of Scotland were fairly small, businesses in the Highlands and Islands without a company website at the time of interviewing were more likely to intend creating a company website (23% compared with 18%).

Summary

These findings provide evidence that the further adoption and use of digital technologies in the Highlands and Islands could contribute to future performance of business. There is evidence, however, of a widening gap between the adopters and the non-adopters of technology with businesses that were already using technologies being more likely to plan to increase their usage than those not using technologies were to start using them. This could indicate that businesses that are already engaged with advanced digital technology are more open to future development compared to those that do not currently use a wide range of technology. The widening gap between the future intentions among adopters and non-adopters would appear to be a mix of digital skills gaps (as detailed earlier, businesses categorised as low adopters were more likely to have considerable digital skills gaps among their workforce) and lack of awareness of the benefits of using digital technologies (low adopters were much more likely than high adopters to cite having no need / no strong business case for increasing their use of digital technologies).

The challenge to realising this predicted increase will therefore be twofold. Firstly it is important to ensure that those with plans to develop their digital capabilities are able to overcome the barriers that have so far prevented them from doing so. Secondly, it is important to inform less ambitious and less digitally advanced companies of the benefits of increasing the use of digital technologies within their business. Particularly with this latter group it will be important for public sector organisations to lead the way in raising awareness of the benefits of digital technologies in order to encourage increased uptake of digital technologies.

Differences in future plans for digital technology use varied by sector and region, particularly in relation to specific technologies, illustrating the variances in the different sectors' demands from the technologies they use. For example businesses in the Hotels and Restaurants sectors were more likely to plan to use more and develop company websites and social media, which would have benefits such as exposure for the business. Businesses in Other Services were more likely to develop data analytics, which would increase efficiencies.

In terms of sub-regions, businesses in Caithness and Sutherland, though less likely to improve internet connection, were consistently more likely to want to improve their use of digital technologies. Other regional differences varied dependent on the technology. Plans to improve internet connection were not necessarily linked with the planned rollout schedule, with businesses in Moray unlikely to plan improvements despite the planned rollout already taking place there. However, the planned rollout and the surrounding increase in publicity is likely to further encourage development by making high-speed internet more accessible.

6 Key Issues and Implications of the Research

Highlands and Islands Enterprise's ambition is to make the Highlands and Islands a true "Digital Region" achieving a vibrant digital economy and a population with a high level of digital skills. This final summary chapter highlights a number of key areas where evidence from the survey suggests that the public sector could play a role to encourage an increase in the adoption and use of digital technology in the region.

Availability of technology

The current rollout of next generation broadband will significantly improve internet access for many. HIE strongly believe that this will lead to higher adoption of most of the technologies. Lack of access was the largest barrier cited by businesses to increasing their use of digital technology, and removing this barrier for so many will directly lead to increases in the use of the internet and speed of connection, and in turn open up opportunities for businesses to create their own website, use social media and use cloud computing (all of which are dependent on an internet connection). Beyond this, however, one would also expect use of ERP and other business software solutions and, to an extent, data analytics to increase, partly because these can be facilitated online (e.g. the ERP systems are often run from supplier systems or via "the cloud", rather than being installed on the user PCs) and partly due to the internet increasing businesses' access to information and contact with suppliers of these services.

This also suggests that it is imperative to push coverage of next generation broadband beyond 84% to as close to universal provision as possible.

The use of mobile technologies however is more dependent on mobile coverage and the availability of Wi-Fi. In one sense, the rollout of high speed broadband will facilitate Wi-Fi hotspots and this may drive an increase in the use of mobile devices to access data and the internet. However until mobile operators increase the coverage of their 3G and 4G networks across the region, the use of this technology will be limited. Although HIE's next generation broadband project provides a stronger backhaul network which could enable improved mobile coverage, it does not enhance mobile connectivity directly, HIE will be investigating the barriers to better mobile coverage and whether there is anything that it can do to help facilitate improved services.

Overcoming barriers

Other than the availability of technologies, which is being addressed, the survey highlights other barriers faced by businesses which the public sector will need to tackle to help maximise the benefits of digital technologies in the region. These included a lack of resources, lack of skills, and a perceived lack of business need.

A lack of business need is a barrier that can be addressed, at least in part, by HIE, communicating business benefits and stimulating demand among business. The survey can help with this by identifying subgroups where "lack of business need" was a particularly barrier[15], and identify what high adopters are using digital technologies for to help build a case to persuade current low-adopters with similar business characteristics to consider using more digital technology. Overall, 28% of low adopters said they had no business need, and 36% were not able to give any particular barriers, totalling 63% of all low adopters.

[15] For this purpose we can define "lack of business need" by combining the responses of those who specifically gave this as a barrier (unprompted), and those who said they had no barriers but were still low adopters of technology as we can assume this latter group simply do not have digital technologies high enough on their list of priorities to be actioned.

The clearest pattern was seen by business sector; sectors that particularly stand out in this regard are Business Activities, where 77% of low adopters said there was no business need or no particular barriers to their adoption of technologies, as well as Manufacturing (73%) and Construction (70%).

Overall the benefits seen by high adopters were fairly consistent across the business population. Increased responsiveness to customers was seen by over half of high adopters (52%), and 35% had seen increased sales, turnover or profits. Over one in six had seen increases in the productivity of their staff (15%) and one in eleven (9%) had reduced costs.

Looking at the sectors highlighted above as being particularly likely to find a lack of business need as a barrier shows a few differences:

- Among Manufacturing businesses who were high adopters of technology, as well as improving customer service (65%) and increasing sales (38%), more than a fifth (22%) had seen an increase in productivity of staff and 14% reduced costs.
- Similarly High adopters in the Business Services, as well as half seeing an improvement in their customer service levels (53%), and a fifth an increase in profits (18%), they were more likely than average to have seen increases in staff productivity (18%) and reduced costs (10%).
- High adopters in the Construction sector were less likely to say they had seen each of the benefits overall, however the highest benefit they saw by some margin was an improvement in their customer service (35%).

There were also some sectors that were particularly likely to see certain benefits to using digital technologies:

- High adopters in the Health and Social Work sector were particularly likely to say it had increased their sales, turnover and/or profits (88%) suggesting a direct positive benefit on the bottom line, and 65% improved responsiveness to customers. A fifth had seen reduced costs as a result of their digital technology use.
- High adopters in Other Services were more likely than average to see increased sales, turnover and/or profits (69%), and 43% had increased their responsiveness to customers.

E-Commerce

One way in which businesses can use digital technologies to increase revenue is to sell their products and/or services online, thereby increasing sales opportunities through reaching more potential customers and products being available to purchase outside of the normal business opening hours.

Over half of businesses with a company website made at least some of their sales via the internet. For the majority, this accounted for a small proportion of their sales (around half of those selling online said it was less than 20% of their sales compared to 2% who said all of their sales were online), which demonstrates that these businesses are not abandoning their traditional offline methods, rather that they are using multiple channels both online and offline to make sales. Critically, this shows there is potential for significant growth in selling to overseas markets.

There were some differences by sector in the use of company websites to make sales. Businesses in the Hotels and Restaurants sector with a website were most likely to use it to “sell” online (79%), through taking bookings, reservations and payments, and 20% of businesses with a website in the sector say it has increased their sales, turnover and profits. This could be used to encourage others in the sector to set up a website, and to perhaps start using it for selling goods.

In contrast, businesses in Construction with a website did not tend to use it for sales; the main benefit for businesses in this sector was generating exposure for the company and raising their profile.

Internationalisation

Another way digital technologies can assist businesses in increasing their sales base is by facilitating access to international markets. The survey provides evidence of the potential of digital technologies to help businesses start to sell internationally and help those who are already international to reach new markets. Given the importance of internationalisation to the growth of the economy in the Highlands and Islands, it is important that businesses are aware of the potential available to them.

Overall 17% of businesses in the Highlands and Islands were selling goods and services or licensing their products outside of the UK. This was far higher among those who were high adopters of digital technologies (34%) than those who were low adopters (4%). High adopters were also exporting to more regions than low adopters.

Furthermore, half of those who were selling internationally said the volume of international sales they made through their website had increased in the last 2-3 years suggesting that overall the online international market is growing (39% found the proportion had stayed the same; just 5% had seen a decrease).

Of businesses who sold any goods or services internationally, three-quarters (73%) said that digital technologies had helped with this. This was particularly true for the Hotels and Restaurants sector. To assist with their internationalisation, a third of those with a website had tailored the website for international customers, either through having different language options or product ranges for customers abroad; again the Hotels and Restaurants sector led the way with 45% having done so.

Online Public Services

The Scottish Government recognises the importance of moving interactions between businesses and public services online. Once internet connectivity is established throughout the region, this has the impact of opening up services to all, even those who are not located in easy travelling distance of a council or government office, or even a Post Office where they can obtain and return forms. The equality of access to public services is not only one of economic benefit, but of social good by ensuring the more remote areas have access to the same services and benefits as businesses in more urban/populated areas.

This was demonstrated by the survey data, which showed that businesses in fragile areas were more likely than those in non-fragile areas to have engaged with Scottish public services online. They were more likely to have searched for information, obtained printable forms, filled in and returned forms online and also to have carried out transactions digitally (such as paying tax bills) than those in non-fragile areas. eTendering was the only online function they were no more likely to have undertaken.

The two-thirds of businesses who engage with public services online reported overwhelmingly that this had its benefits – just 8% had seen no benefits at all. Most commonly, they reported that doing so saved them time, made it easier to find information, and importantly that it saved the business money. The increase in efficiency of dealing with the public services gives businesses more time to focus on running the business and making a profit.

Digital Skills

When it comes to digital skills, the main challenge is stimulating the demand for skills. In part this will be achieved through measures to increase the adoption and use of technology, however as technologies become accessible to businesses those without the skills to capitalise on this may find this becomes a barrier.

The survey shows the impact of having digital skills gaps among staff in terms of the extent to which it prevents them from adopting the latest technologies, fully exploiting the technologies available to them and limiting their operations in terms of selling online. As the demand for these technologies increases, these issues will become relevant to more employers.

As demand for and usage of technologies increases one would also expect a growth in the demand for skills relating to cyber security; increased use of ecommerce, cloud computing etc. could leave companies vulnerable unless they have these skills in place (either internally or available via outsourcing).

HIE currently run workshops which provide introductory up to advanced level training, focusing mainly on business and commercial skills (for example designing social media strategies). The study identified that these skills are important to businesses, so further promotion and continuation of these programmes is an important step as the accessibility of technology improves. However, more so than commercial and business skills, specialist technical skills were reported as lacking by 81% of businesses (for example, software skills and web development skills). Finding a way to make training in these areas accessible to staff in all regions will be key to addressing this issue. This could be through working with colleges, universities and training providers to make sure current courses cover the skills employers need and encouraging consultation between the two. It could also involve promoting the provision and take-up of e-learning courses, particularly beneficial to those in more remote areas (particularly once the high-speed broadband rollout reaches them). Or it could be through grants and funding (matched or otherwise) to encourage employers to develop these skills among their staff.

Summary

The levels of adoption and use of digital technologies in the Highlands and Islands is encouraging, as is the progress already made to increasing the availability of technologies through the high speed broadband rollout and the training provision already in place. Comparing the Highlands and Islands to the rest of Scotland shows that whilst the uptake of broadband is unsurprisingly lower, overall the adoption of other technologies is not far behind that seen elsewhere in the country. This suggests that there is a willingness among businesses as a whole to embrace the digital opportunities available to them.

The survey shows, however, that this is not even across the Scottish economy. Policy is not determined by the region of the business, with the ultimate aim for all regions to have an equal opportunity to maximise the benefits of digital technologies. Sector and size are far more commonly the key factor in whether businesses are utilising digital technologies to their full extent. Therefore targeting messaging by such characteristics will help stimulate demand and address the barriers they face.

Appendix A

Table A.1: Interviews completed by sector

		Number of interviews achieved	Number of interviews achieved as % of all interviews	% each sector represents in the population
By Sector	**Sector Description – Includes:**			
Agriculture	Farming, hunting, forestry, logging and other related activities, mining and quarrying, electricity, gas, steam and air conditioning supply, water supply, sewerage and waste management and remediation activities.	207	9%	13%
Manufacturing	Manufacture of food and beverages, textiles, chemicals, pharmaceuticals, metals, electronic equipment, furniture and related activities.	168	8%	5%
Construction	Construction of buildings, civil engineering, demolition and specialist activities such as electrical installation, roofing and scaffold erection.	158	7%	14%
Wholesale/ Retail	Sale, maintenance and repair of motor vehicles, parts and accessories, non-vehicle wholesale and retail trade of all products.	396	18%	17%
Hotels/ Restaurants	Hotels, campsites, youth hostels, holiday centres, short stay accommodation, restaurants, event catering, pubs, bars and related activities.	402	18%	15%
Transport/ Communications	Land, water and air transport, warehousing and support for transportations, postal and courier activities, publishing and productions, telecommunications and information service activities.	136	6%	5%

Business Activities	Financial and insurance activities, including banks, trusts and pensions. Real estate activities, such as buying, selling and renting estate. Professional, scientific and technical activities, such as management consultancy, and administrative and support service activities, such as travel agencies, office administration and business support.	320	15%	15%
Health/ Social Work	Hospitals, medical and dental practices, residential care and social work activities.	145	7%	5%
Other services	Education, arts, entertainment and recreation, such as libraries, museums and amusement activities and other service activities, such as membership organisation activities.	261	12%	10%

Table A.2: Interviews completed by growth sector

By Growth Sector[16]		Number of interviews achieved
Energy	Mining of coal, extraction of natural gas, mining support activities, environmental consulting activities and related activities.	10
Life Sciences	Manufacture of pharmaceutical, medical and dental equipment and supplies, research and experimental development on biotechnology, natural sciences and engineering.	9
Food and Drink	Manufacture of food products and beverages, crop and animal production, fishing and aquaculture.	208
Sustainable Tourism	Hotels and similar accommodation, restaurants and mobile food service, tour operator activities, museum activities, sports facilities and activities, other amusement and recreation activities.	414
Financial and Business Services	Trusts, funds and similar financial entities, accounting, bookkeeping and auditing activities, other financial services. Market research, management consultancy activities, call centres, HR provisions, office administrative and support activities and other business support activities.	118
Creative Industries	Visual art, performing arts, audio visual arts, such as music, photography and film, books and press, heritage, digital industries and cultural education.	116

[16] 'Energy' and 'Life Sciences' growth sectors base sizes are too small to present analysis.

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