ScotlandIS

Scottish Technology Industry Survey

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Scottish Technology Industry Survey

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INTRODUCTION

Each year the Scottish Technology Industry Survey provides a measure of the industry's health and performance during the last year and expected development during the current year.

This survey has been conducted for more than 10 years, providing a valued resource for business leaders, investors and public sector stakeholders, and a great basis for identifying trends.

ScotlandIS would like to thank everyone who took part in this year's Scottish Technology Industry Survey for their invaluable input. We received 205 responses in January and February 2018.

The survey results help ScotlandIS to represent the digital technologies industry better and provide support to members and the wider sector to grow their businesses and thus contribute to Scotland's economic growth. Please read more about our activities in response to the issues raised by survey participants at the end of this report.

Polly Purvis,

Chief Executive,
ScotlandIS

TOP TRENDS

Continued growth and optimism in domestic and international markets

The results of this year's survey show high levels of confidence in Scotland's digital technologies industry with 80% having a very optimistic or optimistic view for 2018 (up from 78% last year). 86% of respondents forecast increased sales over the next 12 months (up from 82%) and the share of businesses expecting sales growth of more than 20% has nearly doubled compared to the 2017 survey.

68% of responding companies reported increased sales during the last 12 months although the level of increase was slightly lower than in 2016. The trend in profit margins performance is largely similar between 2016 and 2017.

Engagement in international markets remains at a high level with 64% of businesses reporting they are already exporting and another 17% planning to do so in the future, in line with last year's results. The top three current export markets remain the same as in previous years, Europe, Rest of the UK (RUK) and North America, but Europe now leads the ranking, having moved slightly ahead of RUK.

80%
ARE OPTIMISTIC ABOUT 2018
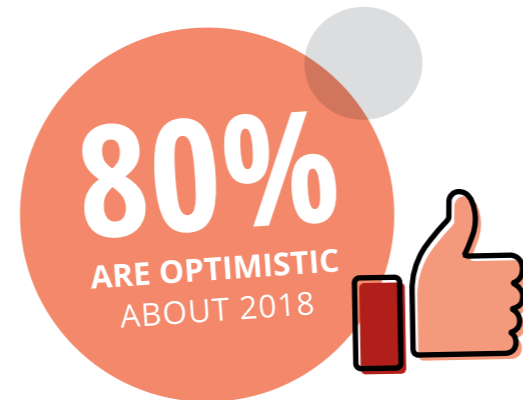
Demand for talent rising

2018 looks set to be another strong year for employment growth, with 80% of respondents forecasting they will increase employee numbers, up from 78% in 2017, and 66% in 2016. None of the responding companies expect to decrease employee numbers this year.

Demand for graduate recruitment remains strong (73% definitely or quite likely to recruit graduates in 2018) and has been consistent over the last five years. Demand for modern apprentices has continued to increase since 2016 with 45% of respondents definitely or quite likely to recruit an MA in 2018, up from 38% in 2017 and 29% in 2016.

Scotland remains the most common location for new staff with 70% of respondents expecting to find the majority of new hires here. The results also show increased confidence in recruiting from Europe and the rest of the world, following a decline in 2017 from previous levels (19% forecast majority of new staff to come from outwith the UK, up from 8% last year).

Skills requirement

The two most important skill sets for this year's respondents are software and web development and commercial and business support skills, with 74% of businesses having some or high requirement for these skills.

In terms of specific coding languages, java, java script and python are most in demand, similar to 2017. Looking beyond software and web development, cloud computing, cyber security and data related skills (data analytics, SQL, R) are also increasingly sought-after.

The most in demand commercial skill set is digital marketing, closely followed by account management and solution selling. Overall, marketing related skills seem to be in higher demand than sales related skills.

86%
EXPECT SALES TO **INCREASE**

80%
HIRING NEW STAFF

64%
EXPORTING
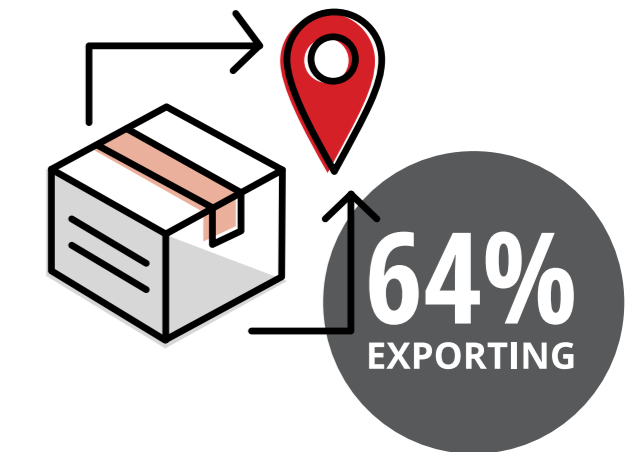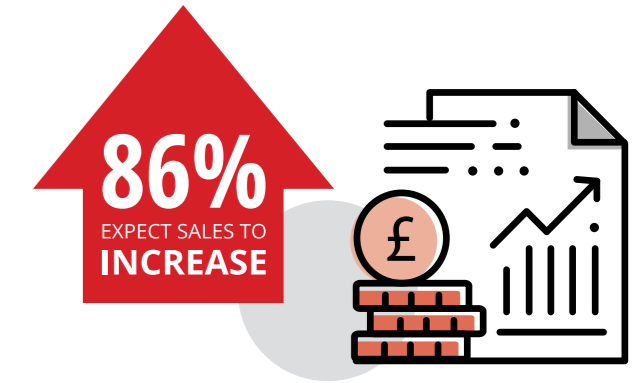
INDUSTRY OVERVIEW

Scotland's digital technologies sector

Scotland's digital technologies sector includes software, IT services and consultancy, telecommunications and digital agencies. In 2017, about 9,400 digital technologies businesses were registered in Scotland which makes up 5.4% of the business base in Scotland and 5% of the UK's digital technologies business base.[1] Approximately 40% of the businesses (3,800) have more than one employee.

According to data from the Office of National Statistics (ONS), 'computer programming and consultancy' is the largest sub-sector, making up 86% of all digital technologies businesses (employing 57% of the tech workforce) followed by 'telecommunications' with 4% of the company base (32% of the workforce).

Between 2010 and 2017, the number of digital technologies businesses in Scotland grew by 60% or approximately 3,500 companies. The 'computer programming and consultancy' sub-sector was the fastest growing sector, up 68% from 2010.

In 2016, the digital technologies sector contributed £5.9bn to the Scottish economy, more than 4% of total GVA. GVA per head generated in the digital technologies industry is c. £78,000, nearly three times the Scottish average of c. £28,000.[2] The sector's GVA is forecast to grow by 38%, over the period to 2024, making it the fastest growing sector in Scotland; more than twice the rate of 17.5% for the economy overall.[3]

8% (or £2.3bn) of Scotland's international sales was generated by digital technologies companies in 2016. 39% of these exports go to EU countries and 61% to the rest of the world. Sales by digital technologies businesses in Scotland to the rest of the UK have a value of £2.2bn. Since 2010, international sales have grown by 7% and sales to RUK by 36%. However, actual export figures for the digital technologies sector will be higher since the majority of sales are in the form of services, which are not comprehensively captured by official trade statistics.[4]

[1] Please see the chapter on methodology at the end of the report for details on the definition of the digital technologies sector and sources of the figures in this industry overview.

[2] Scottish Enterprise: Scottish Economic Facts, October 2017, available at: https://www.scottish-enterprise.com/knowledge-hub/articles/publication/scottish-key-facts.

[3] Digital Scotland, Scotland's Digital Technologies: Summary Report, June 2017, available at: https://www.skillsdevelopmentscotland.co.uk/media/43306/scotlands-digital-technologies-summary-report.pdf ,p.8.

[4] https://publications.parliament.uk/pa/ld201617/ldselect/ldeucom/135/13508.htm#footnote-215 ,p.3.

Headquarters location

The biggest cluster of respondents is located in Edinburgh & Lothians (40%), followed by the Greater Glasgow area (18%), and the Aberdeen and Grampian area (12%). The number of respondents in the Highlands and Islands region has increased from 1% in 2017 to 5% this year.

UK OUTWITH SCOTLAND — 11% / 10% / 10%

EU HEADQUARTERED — 2% / 2% / 2%

US HEADQUARTERED — 4% / 7% / 8%

OTHER — 1% / 2% / 4%

Highlands & Islands — 5% / 1% / 0%

Aberdeen & Grampian — 12% / 7% / 12%

Forth Valley — 3% / 4% / 2%

Fife & Tayside — 5% / 6% / 4%

Glasgow, Lanarkshire, Renfrewshire & Dunbartonshire — 18% / 22% / 22%

Edinburgh & Lothians — 40% / 38% / 34%

Ayrshire — 0% / 1% / 1%

Borders, Dumfries & Galloway — 0% / 1% / 1%

PERCENTAGES FOR 2018
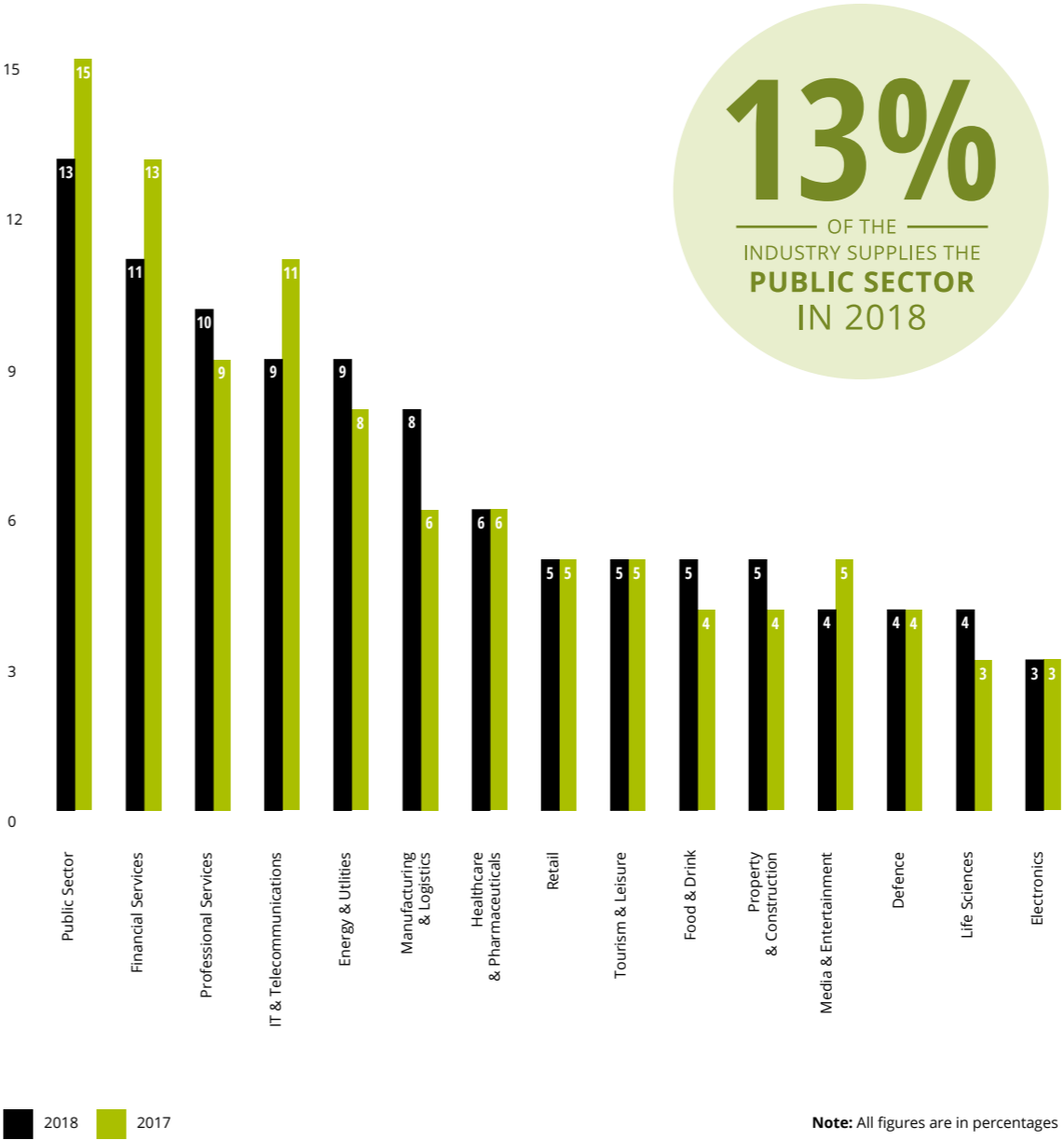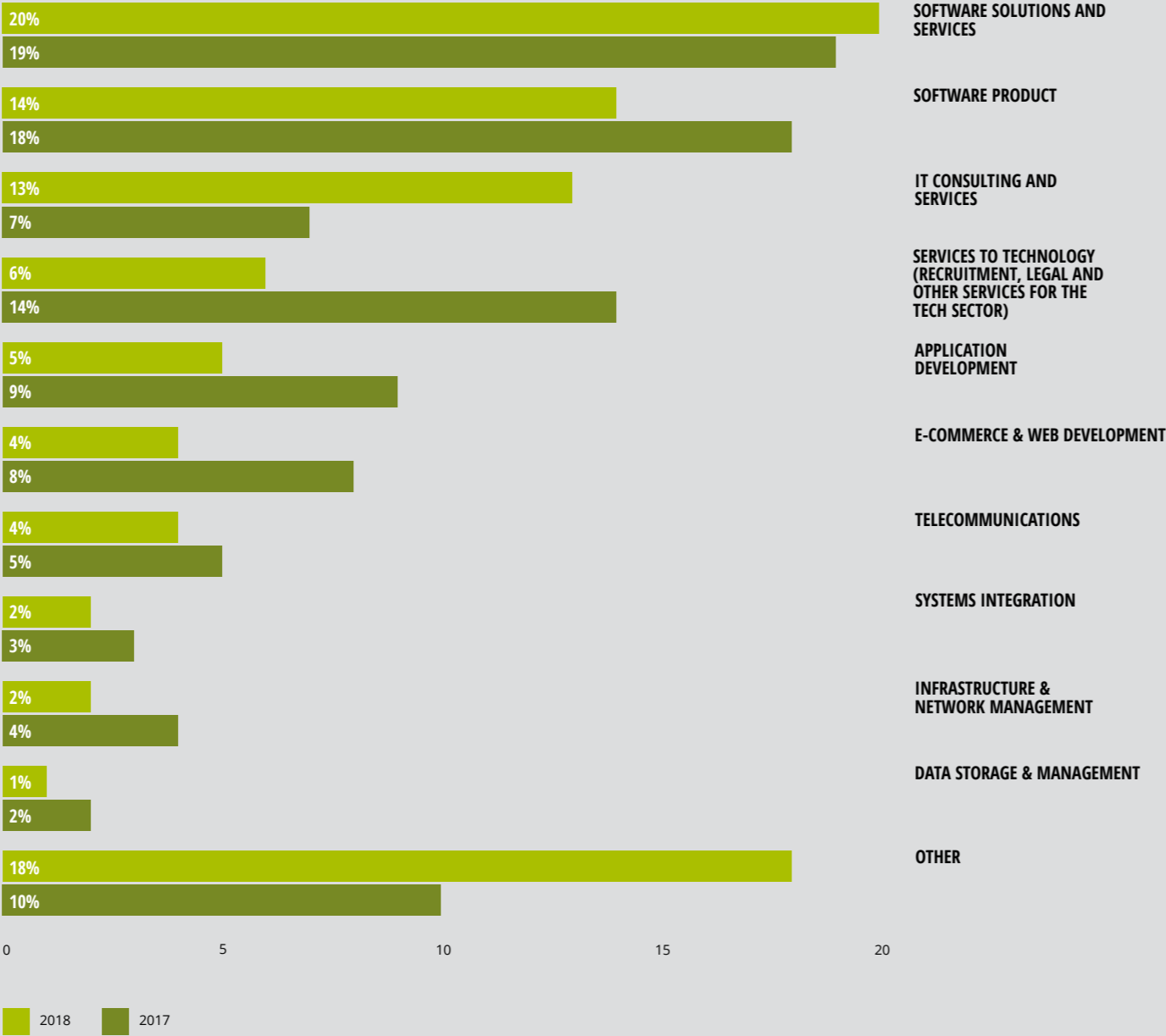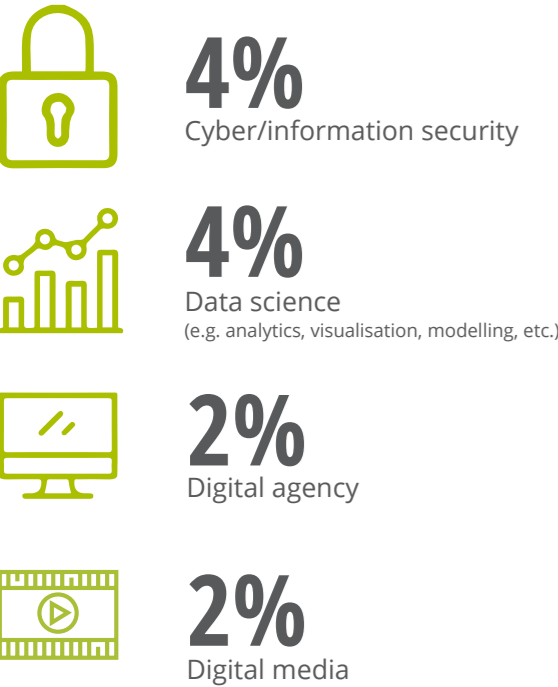PERCENTAGES FOR 2017
PERCENTAGES FOR 2016

Main activity of business

Software solutions and services (20%) and Software Products (14%) continue to be the most significant activities respondents are engaged in.

For this year's survey we introduced several new categories to capture the variety of businesses in our sector better. Therefore, the figures for 2017 and 2018 are not directly comparable.

New categories for 2018 survey

4%
Cyber/information security

4%
Data science
(e.g. analytics, visualisation, modelling, etc.)

2%
Digital agency

2%
Digital media

	SOFTWARE SOLUTIONS AND SERVICES
20%	2018
19%	2017

SOFTWARE SOLUTIONS AND SERVICES
20% / 19%

SOFTWARE PRODUCT
14% / 18%

IT CONSULTING AND SERVICES
13% / 7%

SERVICES TO TECHNOLOGY (RECRUITMENT, LEGAL AND OTHER SERVICES FOR THE TECH SECTOR)
6% / 14%

APPLICATION DEVELOPMENT
5% / 9%

E-COMMERCE & WEB DEVELOPMENT
4% / 8%

TELECOMMUNICATIONS
4% / 5%

SYSTEMS INTEGRATION
2% / 3%

INFRASTRUCTURE & NETWORK MANAGEMENT
2% / 4%

DATA STORAGE & MANAGEMENT
1% / 2%
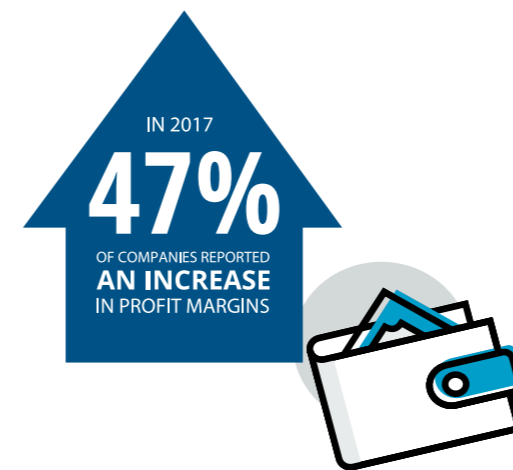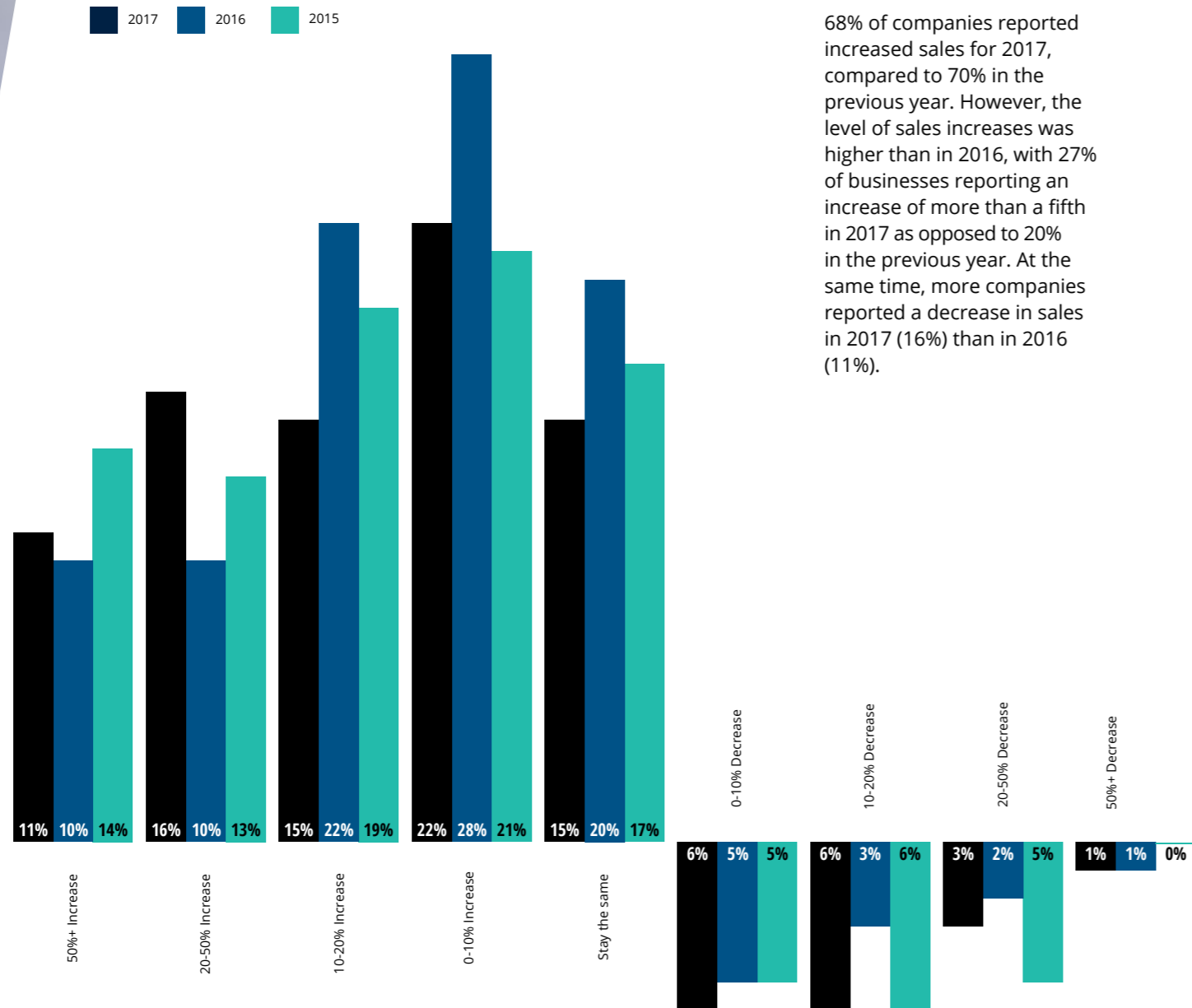
OTHER
18% / 10%

2018   2017

Sectors being supplied

The industry supplies a wide range of sectors - the top three being the public sector (13%), financial services (11%) and professional services (10%). Compared to 2017, more respondents are supplying the manufacturing and logistics sector (up from 6% to 8%), and business with the professional services and energy & utilities sectors has increased slightly. Several sectors have seen small declines in their popularity as end markets e.g. a decline in share of businesses supplying financial services from 13% to 11% and from 15% to 13% for public services.

Asked about expected demand for the next 12 months, 84% of respondents supplying the professional services sector expect an increase, followed by 72% of those supplying the IT and telecommunications, energy and utilities (71%) and manufacturing and logistics (71%) sectors. A decline in demand is anticipated by 13% of media and entertainment and tourism and leisure sector suppliers.

13% OF THE INDUSTRY SUPPLIES THE **PUBLIC SECTOR** IN 2018

2018   2017

Note: All figures are in percentages

Sales levels

68% of companies reported increased sales for 2017, compared to 70% in the previous year. However, the level of sales increases was higher than in 2016, with 27% of businesses reporting an increase of more than a fifth in 2017 as opposed to 20% in the previous year. At the same time, more companies reported a decrease in sales in 2017 (16%) than in 2016 (11%).

Legend: ■ 2017 ■ 2016 ■ 2015

Category	2017	2016	2015
50%+ Increase	11%	10%	14%
20-50% Increase	16%	10%	13%
10-20% Increase	15%	22%	19%
0-10% Increase	22%	28%	21%
Stay the same	15%	20%	17%
0-10% Decrease	6%	5%	5%
10-20% Decrease	6%	3%	6%
20-50% Decrease	3%	2%	5%
50%+ Decrease	1%	1%	0%

IN 2017
47%
OF COMPANIES REPORTED
AN INCREASE
IN PROFIT MARGINS

2017 Sales - Actuals compared to budget at the beginning of 2017

Compared to 2016, more respondents (43%) reported that actual sales were as good as or better than forecast (30% in 2016). For 35% of businesses, actuals were very much in line with their original forecasts, compared to 47% in 2016. A further 22% reported actual results were worse than expected.

Legend:
■ Increased significantly
■ Increased slightly
■ Stayed much the same
■ Decreased slightly
■ Decreased significantly

2017 ring: 5%, 14%, 25%, 29%, 35%, 47%
2016 ring: 17%, 20%, 4%, 5%
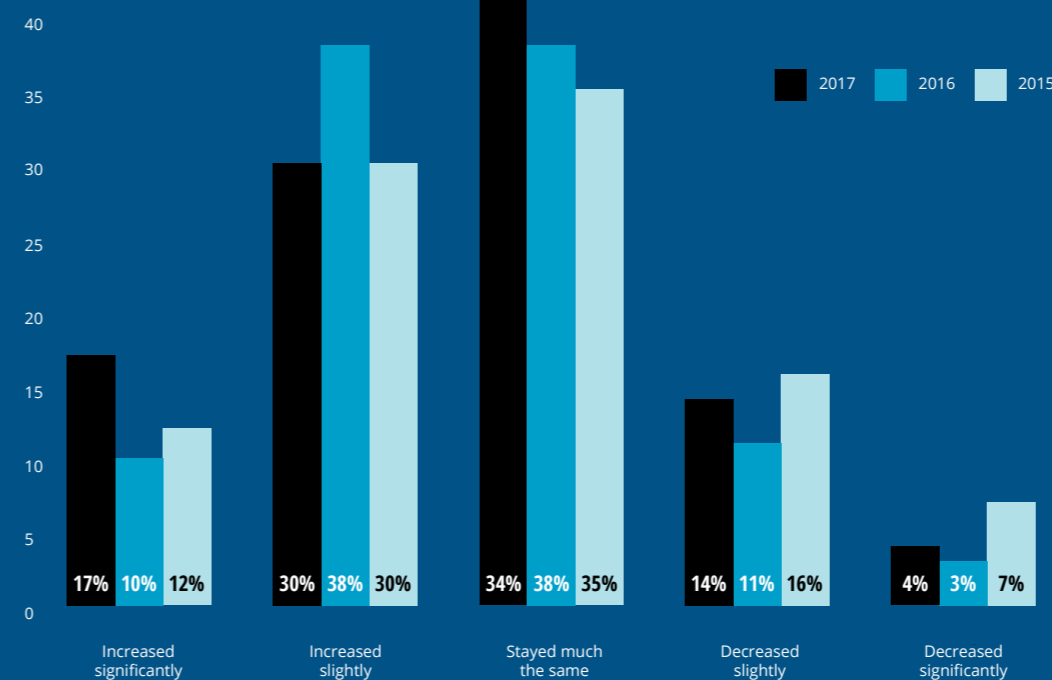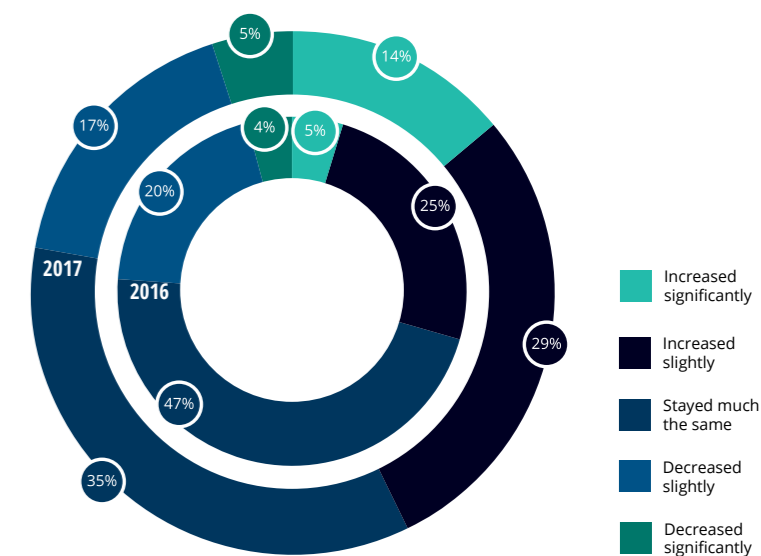
Profit margin performance in 2017 compared to 2016

The trend in profit margins performance is largely similar between 2016 and 2017. 47% of businesses reported an increase in profit margins in 2017 (48% in 2016), with 34% indicating margins staying much the same (38% in 2016). There was a slight increase in the share of respondents experiencing decreasing profit margins.

A significant number of respondents have been able to increase profit margins over the last three years, whilst the share of businesses experiencing significantly decreasing margins has remained at a low level across all three years.

Legend: ■ 2017 ■ 2016 ■ 2015

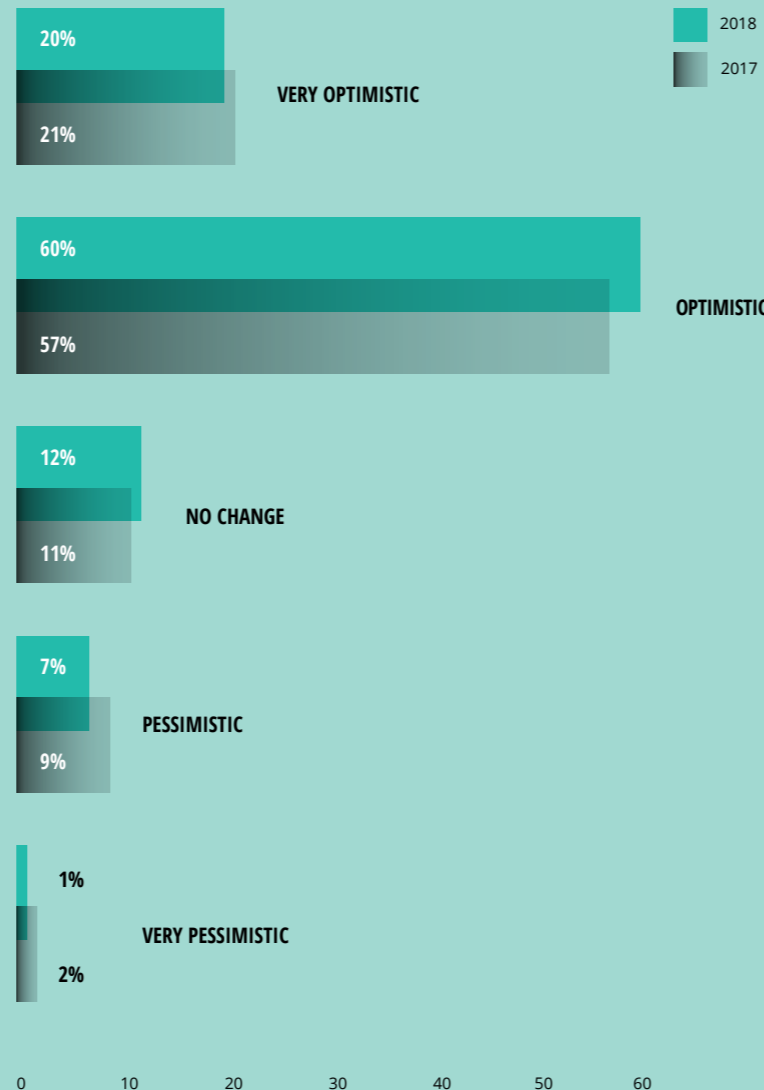| Category	2017	2016	2015
Increased significantly	17%	10%	12%
Increased slightly	30%	38%	30%
Stayed much the same	34%	38%	35%
Decreased slightly	14%	11%	16%
Decreased significantly	4%	3%	7%

OUTLOOK FOR 2018

Optimism has increased since last year with 80% of businesses having a very optimistic or optimistic view for 2018, compared to 78% in 2017. At the same time, the share of respondents having a pessimistic or very pessimistic view for the current year has decreased from 11% to 9%.

About 40% of respondents linked their optimism to the introduction of new products, strong demand for existing products and services or a growing market. 18% highlighted new opportunities created by changes in market dynamics or regulatory environments as reasons for optimism.

In line with last year, the current political situation was mentioned by about 10% of respondents as a reason for pessimism, mostly Brexit but also concerns about the US political situation and a potential second independence referendum in Scotland.

The three key challenges for 2018 are staff recruitment and retention, mentioned by 45% of respondents, followed by sales and winning new business (34%) and the current political situation (17%). These were also the most commonly cited challenges for 2017. However, recruitment and retention increased in importance by 9%. New topics mentioned by this year's respondents are regulations, for example GDPR (6%), and staff training and skills development (4%).

Similar topics are key challenges for the leadership of responding companies, with 23% of respondents citing leadership challenges connected to managing growth and business scaling, followed by 19% mentioning staff recruitment and retention.

2018
2017

	2018	2017
VERY OPTIMISTIC	20%	21%
OPTIMISTIC	60%	57%
NO CHANGE	12%	11%
PESSIMISTIC	7%	9%
VERY PESSIMISTIC	1%	2%

0 10 20 30 40 50 60

3 key challenges for 2018

45%
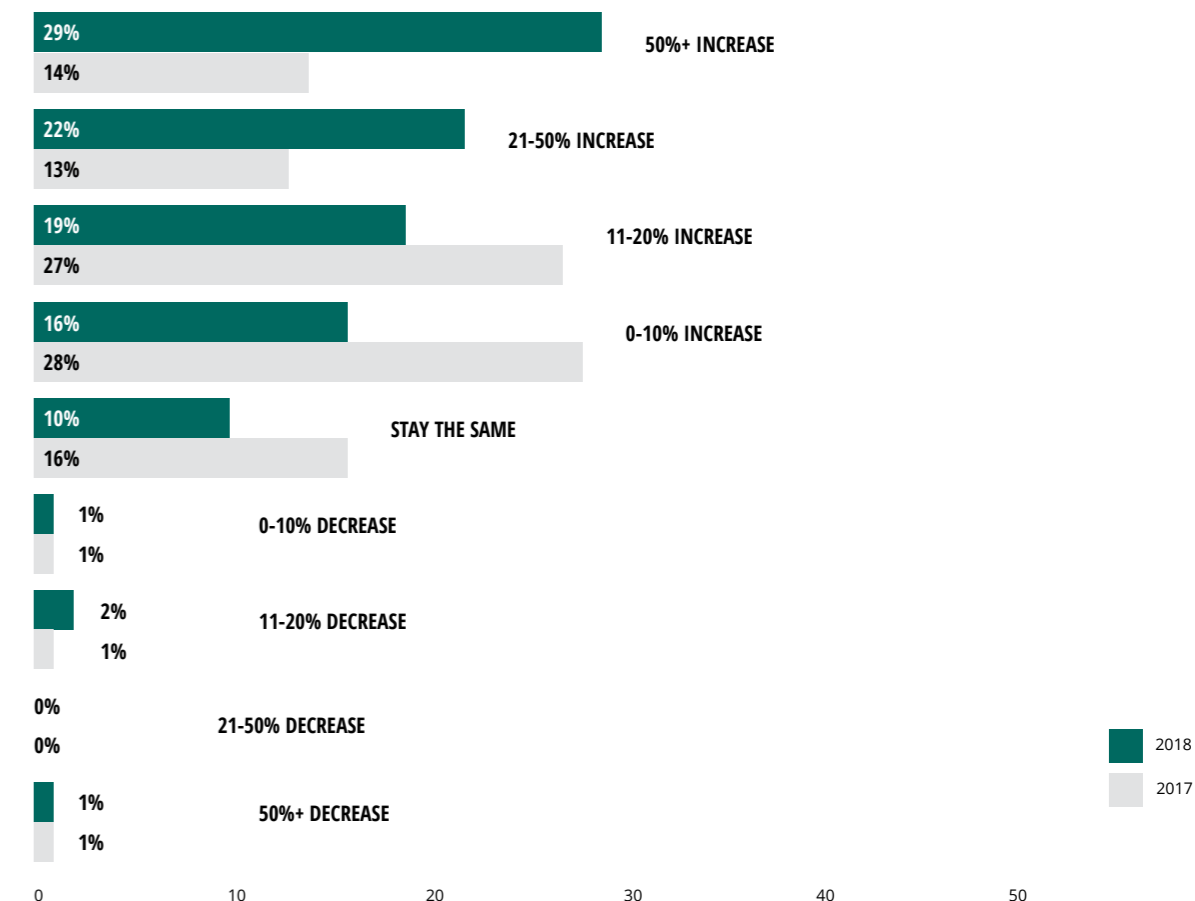STAFF RECRUITMENT AND RETENTION

34%
SALES AND WINNING NEW BUSINESS

17%
THE CURRENT POLITICAL SITUATION

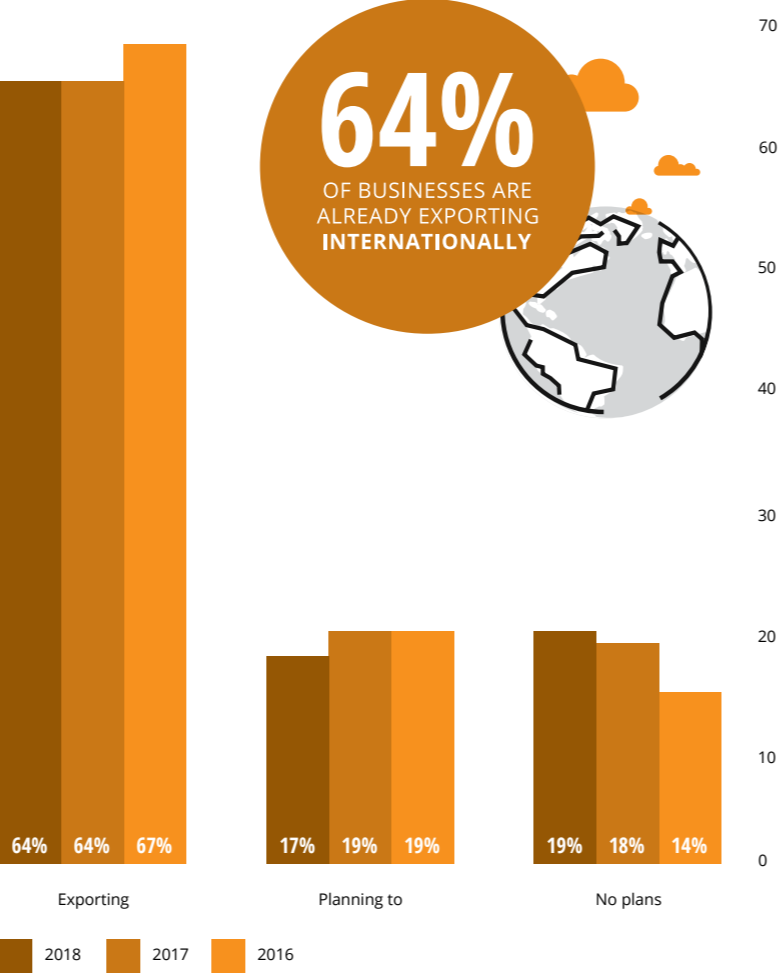## Expected change in sales over the next 12 months

Businesses are even more optimistic than last year about expected sales levels for the next 12 months with 86% of companies predicting an increase and 10% expecting sales to stay the same. The share of respondents expecting sales growth of more than 20% has nearly doubled compared to the 2017 survey.

	2018	2017
50%+ INCREASE	29%	14%
21-50% INCREASE	22%	13%
11-20% INCREASE	19%	27%
0-10% INCREASE	16%	28%
STAY THE SAME	10%	16%
0-10% DECREASE	1%	1%
11-20% DECREASE	2%	1%
21-50% DECREASE	0%	0%
50%+ DECREASE	1%	1%

0 10 20 30 40 50

2018
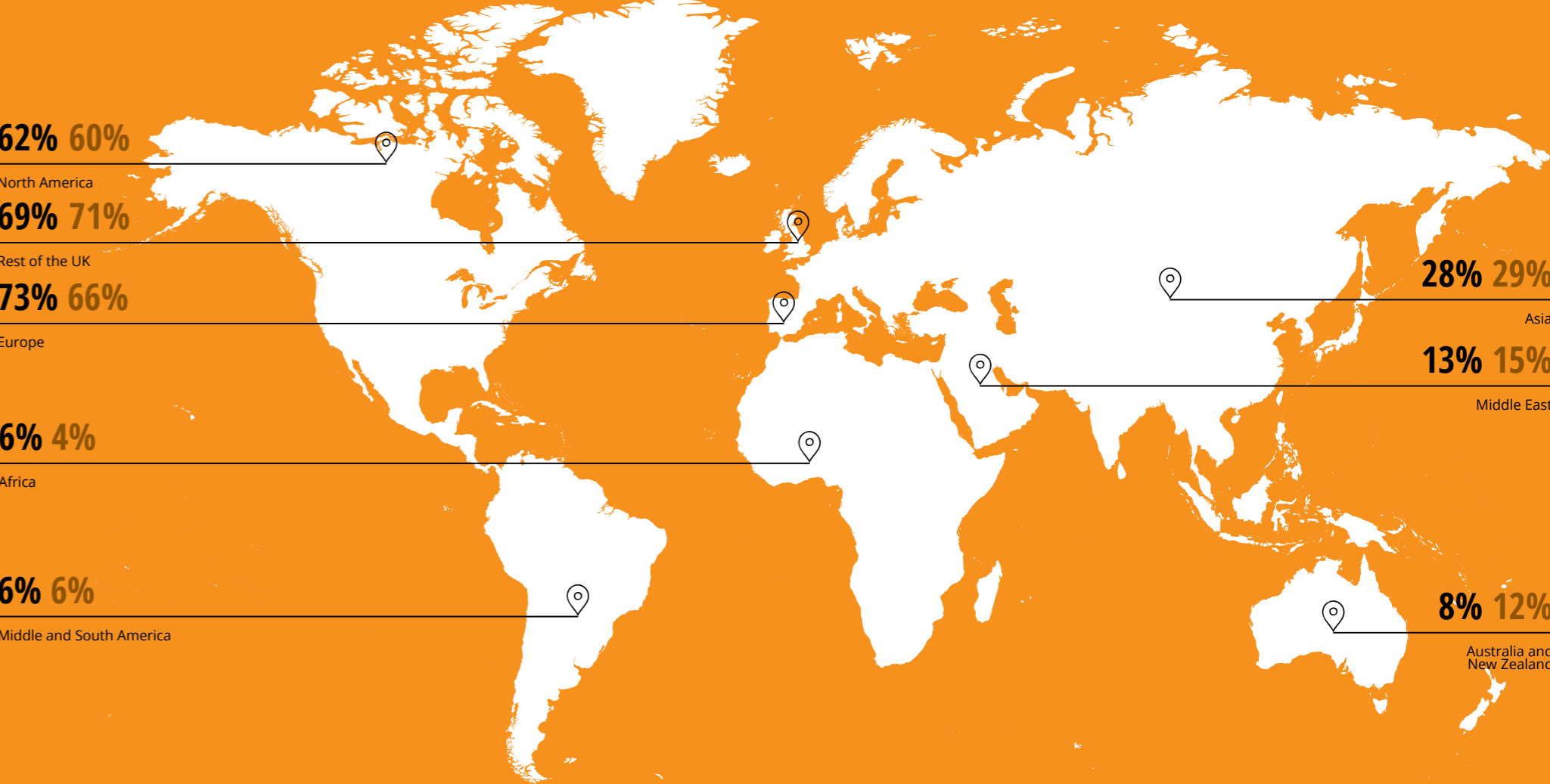**2017**

INTERNATIONAL OPPORTUNITIES

Export levels

Engagement in international markets remains high with 64% of businesses reporting they are already exporting and another 17% planning to do so in the future. These results are nearly identical to those in 2017 and only slightly lower than in 2016.

64%
OF BUSINESSES ARE ALREADY EXPORTING **INTERNATIONALLY**

	Exporting			Planning to			No plans		
2018	64%			17%			19%		
2017	64%			19%			18%		
2016	67%			19%			14%		

■ 2018   ■ 2017   ■ 2016

Export markets

The top three export markets remain the same as in previous years, the Rest of the UK (RUK), Europe and North America, but Europe now leads the ranking, having moved slightly ahead of RUK. Looking forward, these three geographies are also seen as the most attractive markets in 2018.

62% 60%
North America

69% 71%
Rest of the UK

73% 66%
Europe

28% 29%
Asia

13% 15%
Middle East

6% 4%
Africa

6% 6%
Middle and South America

8% 12%
Australia and New Zealand

EMPLOYMENT & SKILLS

Digital technologies employment in Scotland

In 2016 (the latest available ONS data), 63,000 people were employed in digital technologies companies; approximately 60% in technology focused roles and 40% in non-technology roles. The number of people working in digital technologies roles across the whole economy (including in the tech sector) is even higher, at around 90,000 people, representing 4% of the Scottish workforce and growing rapidly (by 10% between 2015 and 2016).

40% of people in digital technologies roles work in the tech industry whereas 60% are employed in other sectors, e.g. financial services and healthcare. This highlights that digital technologies are increasingly essential to all sectors of our economy. The number of people in technology related roles is now growing at a faster rate in non-tech sectors than in the digital technologies industry itself.

Digital technologies roles offer both a wide variety of career opportunities and above average compensation. In 2016, the average annual salary for digital technology jobs was £37,500, 30% higher than the Scottish average of £28,000. Since 2010, digital technologies salaries have increased at a faster rate (15-20%) than salaries across the wider economy (11%).

12,800 digital technologies job opportunities are created every year, partly in response to people retiring from or leaving the industry but also through growing demand for these skills. However, not enough college and university leavers, apprentices and career changers enter the labour market to keep up with this demand. For example, of 4,381 computing science graduates leaving Scottish universities in 2014/15, only 73% moved into employment (another 16% going onto further studies). More positively, the number of digital technologies modern apprentices (MAs) almost doubled between 2013/14 and 2015/16. The overall number is still low (950 MAs) but the trend is upwards.
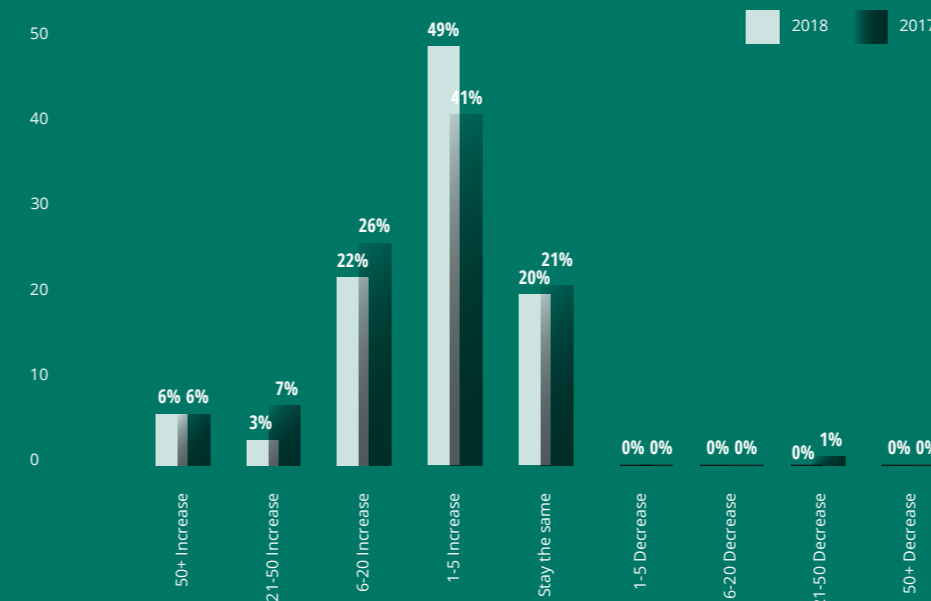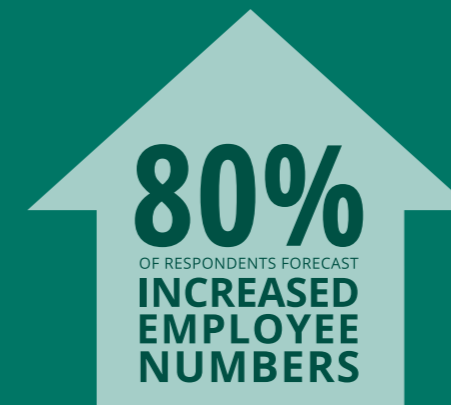
At the same time, the proportion of women in digital focused roles is 18% as opposed to 48% in the workforce as a whole. There is an enormous opportunity to meet many of the industries skills needs by resolving this issue.

ScotlandIS is involved in a variety of initiatives to address the digital technologies skills gap. (Further details can be found in the chapter "ScotlandIS commentary" at the end of this report.)

[5] Please see the chapter on methodology at the end of the report for details on the definition of the digital technologies sector and sources of the figures in this employment overview.

## Change in employee numbers over the next 12 months

2018 looks set to be another strong year for employment growth, with 80% of respondents forecasting they will increase employee numbers, up from 78% in 2017, and 66% in 2016. The balance do not expect to change their staff count and none of the respondents expect to decrease employee numbers this year. At the same time, an increasing number of businesses mention recruitment and staff retention as one of their three key challenges in 2018 (up from about 36% to 45%).

80% OF RESPONDENTS FORECAST **INCREASED EMPLOYEE NUMBERS**

Legend: 2018, 2017

Category	2018	2017
50+ Increase	6%	6%
21-50 Increase	3%	7%
6-20 Increase	22%	26%
1-5 Increase	49%	41%
Stay the same	20%	21%
1-5 Decrease	0%	0%
6-20 Decrease	0%	0%
21-50 Decrease	0%	1%
50+ Decrease	0%	0%

Location of talent

Respondents continue to expect to find the majority of new staff in Scotland but a significant number anticipate hiring either in other parts of the UK, Europe or the rest of the world. There is increased confidence in recruiting from Europe and the rest of the world, following a decline in 2017 from previous levels.

2018 2017 2016

SCOTLAND 70% / 73% 60%

REST OF THE UK 12% / 17% 19%

EUROPE 11% / 5% 9%

REST OF THE WORLD 7% / 4% 12%
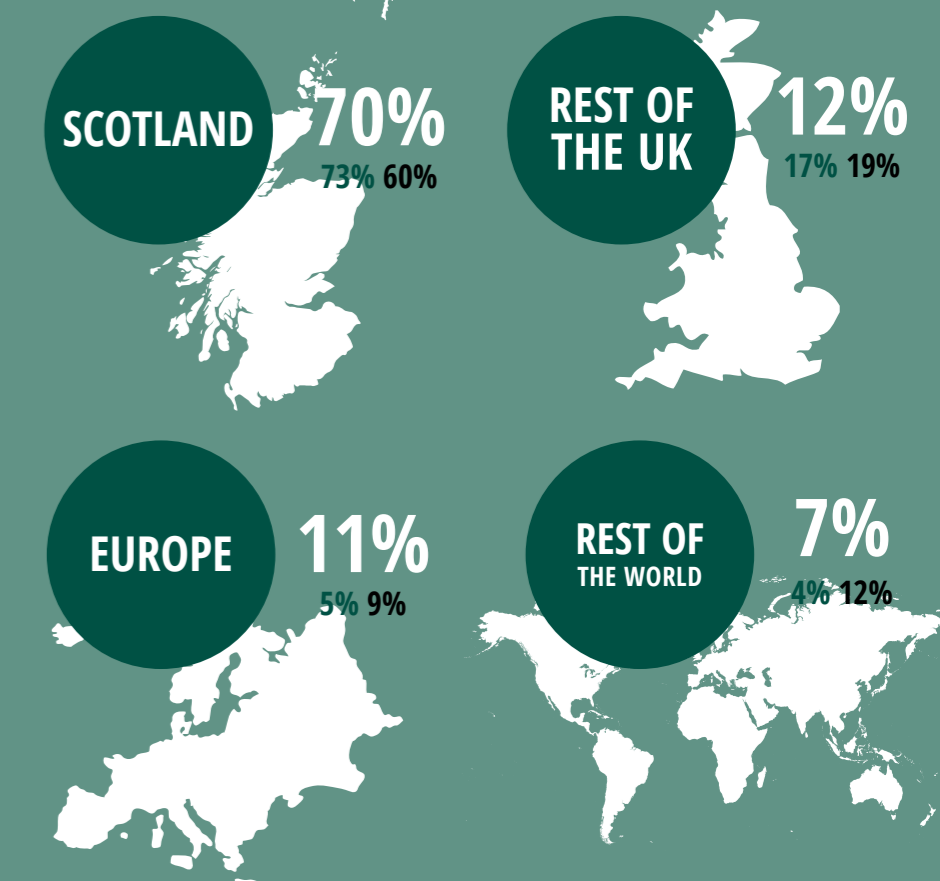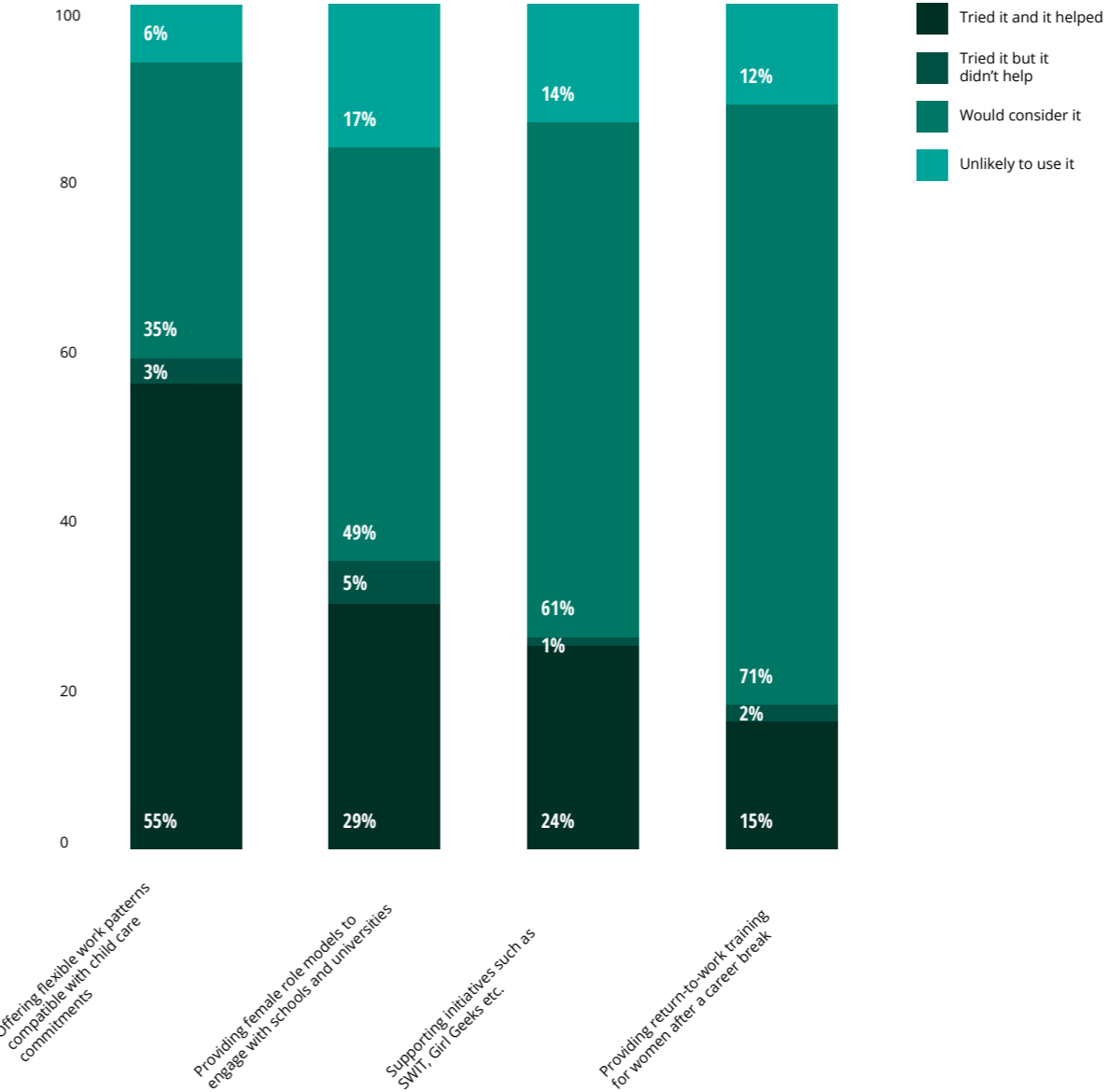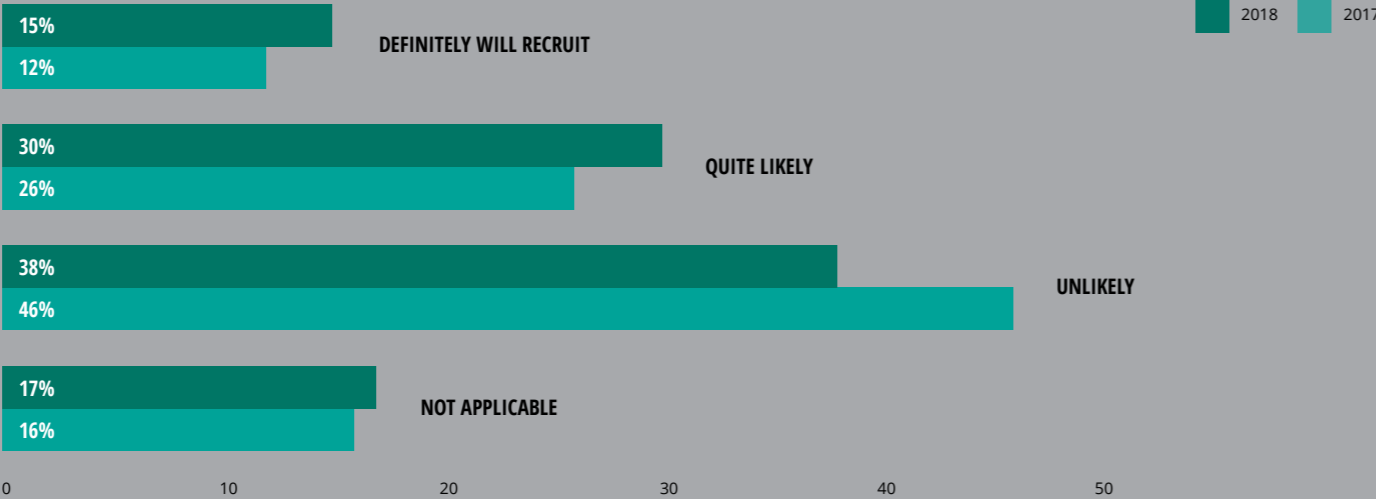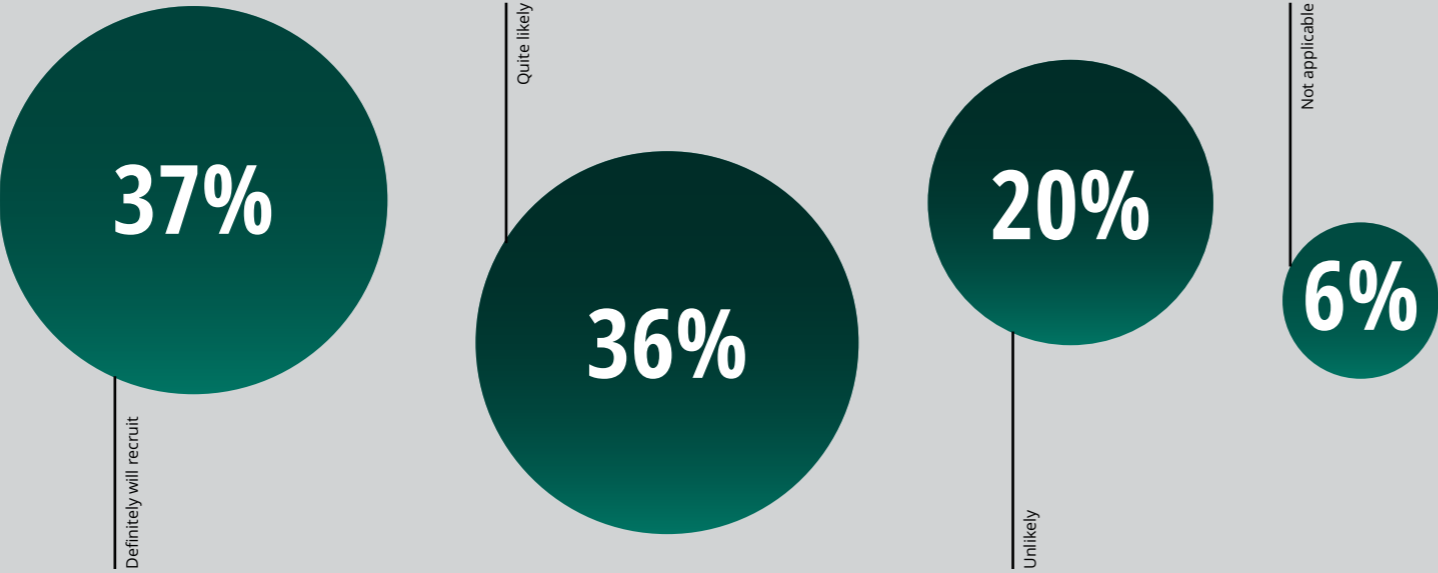
Recruitment of graduates

Demand for graduate recruitment remains strong with 73% of all businesses reporting they are definitely or quite likely to recruit graduates in 2018. This demand has remained stable over the last five years.

Demand for both operatives/experienced staff and graduates remains very strong with 73% of businesses citing a need for each of these categories.

37% Definitely will recruit

36% Quite likely

20% Unlikely

6% Not applicable

Recruitment of Modern Apprentices

The demand for modern apprentices is considerably lower than for graduates but it has continued to increase from 2016. 45% of respondents reported that they are definitely or quite likely to recruit modern apprentices in 2018, compared to 38% in 2017.

■ 2018 ■ 2017

DEFINITELY WILL RECRUIT
15%
12%

QUITE LIKELY
30%
26%

UNLIKELY
38%
46%

NOT APPLICABLE
17%
16%

0   10   20   30   40   50

Tackling the technology gender gap

Given the skills gap in our industry and overall low proportion of women in digital technologies roles, we asked survey participants this year about their use of and experience with measures to attract more female staff.

The most common policy is to offer flexible working patterns that are compatible with child care commitments (to all staff, not only women). 55% have tried this measure and found that it helps and only 6% of respondents are unlikely to try it. Medium-sized and larger businesses are particularly likely to offer flexible working. Around a quarter of responding companies provide female role models for engagement with schools and universities and/or support initiatives like Scotland Women in Technology (SWiT) or Girl Geeks. The least used measure is the provision of return-to-work training for women after a career break (15%) even though 71% of respondents would consider this step.

■ Tried it and it helped
■ Tried it but it didn't help
■ Would consider it
■ Unlikely to use it

Offering flexible work patterns compatible with child care commitments: 6%, 35%, 3%, 55%

Providing female role models to engage with schools and universities: 17%, 49%, 5%, 29%

Supporting initiatives such as SWiT, Girl Geeks etc..: 14%, 61%, 1%, 24%

Providing return-to-work training for women after a career break: 12%, 71%, 2%, 15%

55% OF BUSINESSES OFFER **FLEXIBLE WORKING** AND FOUND IT HELPS ATTRACTING **MORE WOMEN**
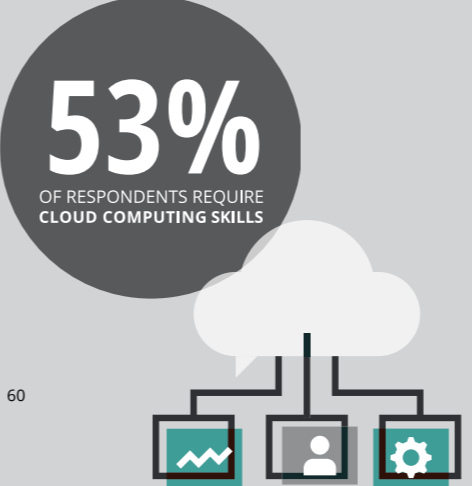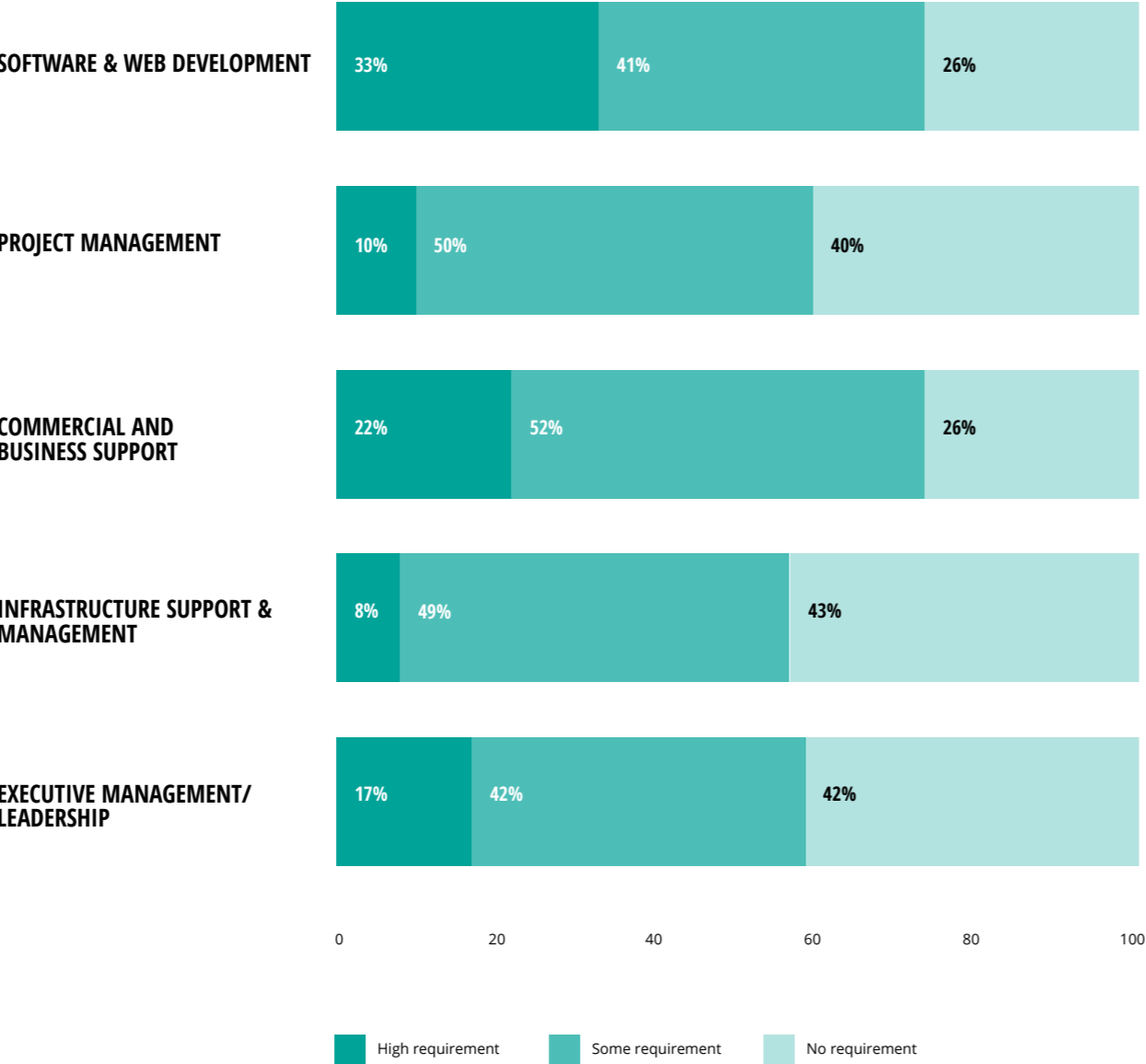
Most in demand skill sets

The two most important skill sets for this year's respondents are software and web development and commercial and business support skills, with 74% of businesses having some or a high requirement for these skills. Compared to 2017, demand for software and web development decreased slightly (-6%) whilst demand for commercial and business support skills increased marginally (+2%).

Demand for project management skills remains at a high level (60%) but it decreased by 6% compared to 2017. There seems to be an increasing need for executive management and leadership skills which have seen an increase of 8% since last year.

Amongst larger companies the greatest demand is for software & web development skills (86%) followed by project management (80%) and infrastructure support & management (68%).

Medium sized businesses report strong demand for software & web development skills (74%) followed by commercial and business support skills (72%) and project management skills (67%).
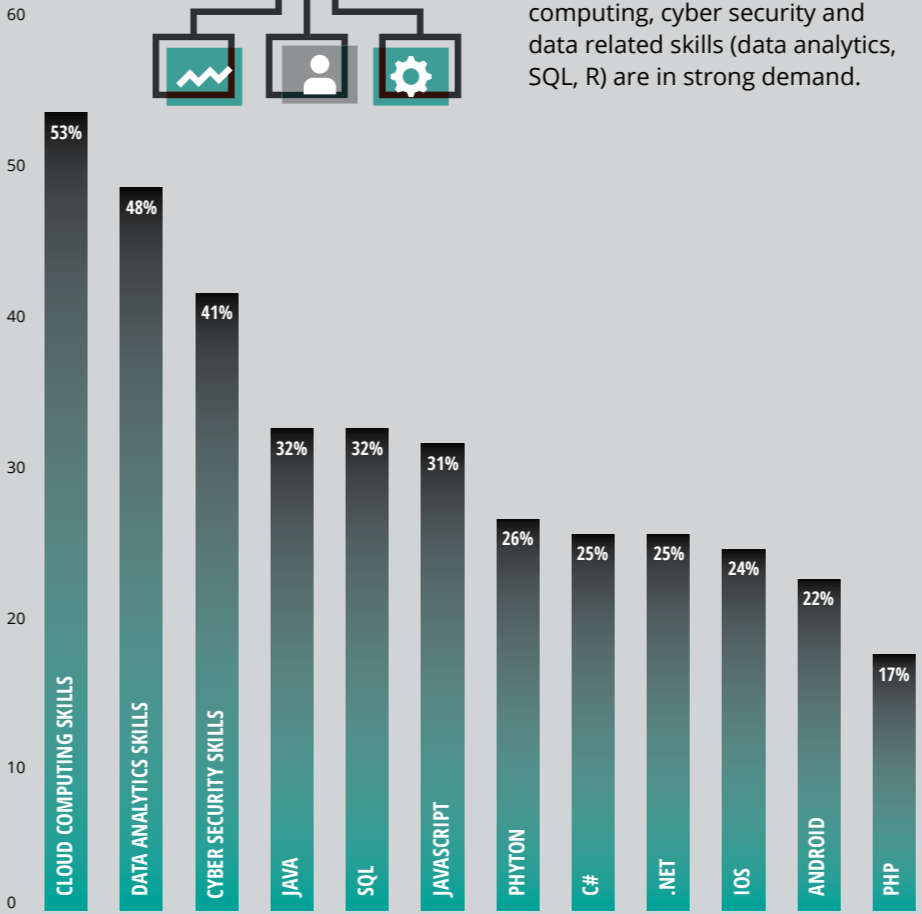
For smaller businesses, commercial and business support (77%) and software and web development (72%) are the most in demand skill sets. Infrastructure support and executive management skills are required by 55% respectively to aid business growth in smaller companies.

SOFTWARE & WEB DEVELOPMENT — 33% | 41% | 26%

PROJECT MANAGEMENT — 10% | 50% | 40%

COMMERCIAL AND BUSINESS SUPPORT — 22% | 52% | 26%

INFRASTRUCTURE SUPPORT & MANAGEMENT — 8% | 49% | 43%

EXECUTIVE MANAGEMENT/ LEADERSHIP — 17% | 42% | 42%

0 20 40 60 80 100

■ High requirement ■ Some requirement ■ No requirement

Technical skills

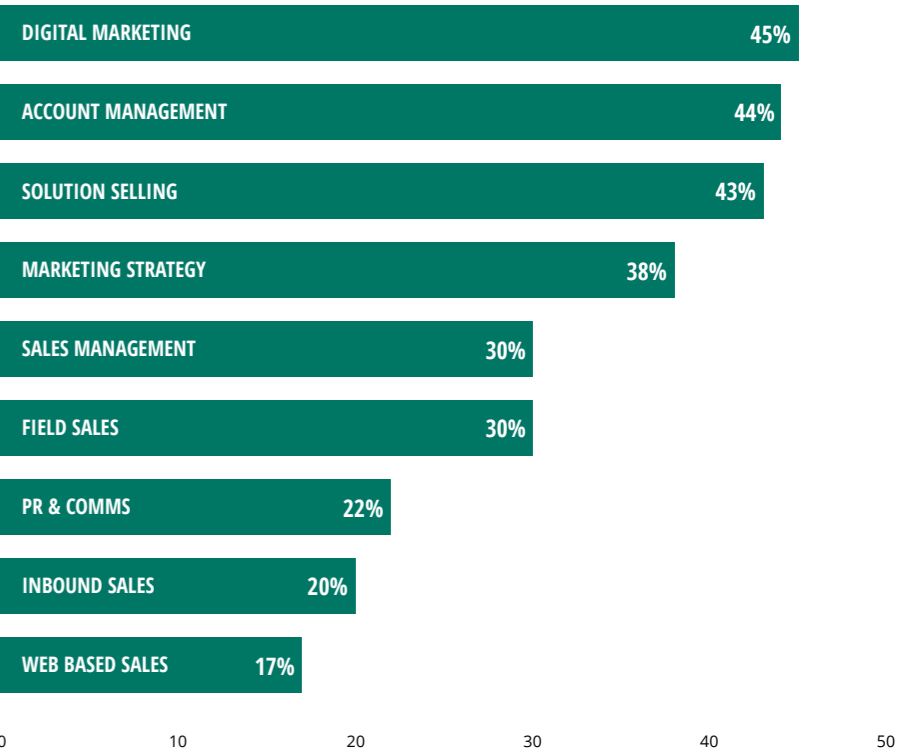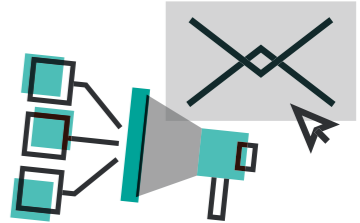**53%** OF RESPONDENTS REQUIRE **CLOUD COMPUTING SKILLS**

Analysis of respondents' technical skills requirements showed a continuing strong demand for software and web development skills, with java, javascript and python being most in demand, similarly to 2017.

Looking beyond software and web development, cloud computing, cyber security and data related skills (data analytics, SQL, R) are in strong demand.

CLOUD COMPUTING SKILLS 53%
DATA ANALYTICS SKILLS 48%
CYBER SECURITY SKILLS 41%
JAVA 32%
SQL 32%
JAVASCRIPT 31%
PHYTON 26%
C# 25%
.NET 25%
IOS 24%
ANDROID 22%
PHP 17%

Commercial skills

Businesses report that the most in demand commercial skill set is digital marketing, closely followed by account management and solution selling. Overall, marketing related skills seem to be in higher demand than sales related skills.

DIGITAL MARKETING 45%
ACCOUNT MANAGEMENT 44%
SOLUTION SELLING 43%
MARKETING STRATEGY 38%
SALES MANAGEMENT 30%
FIELD SALES 30%
PR & COMMS 22%
INBOUND SALES 20%
WEB BASED SALES 17%
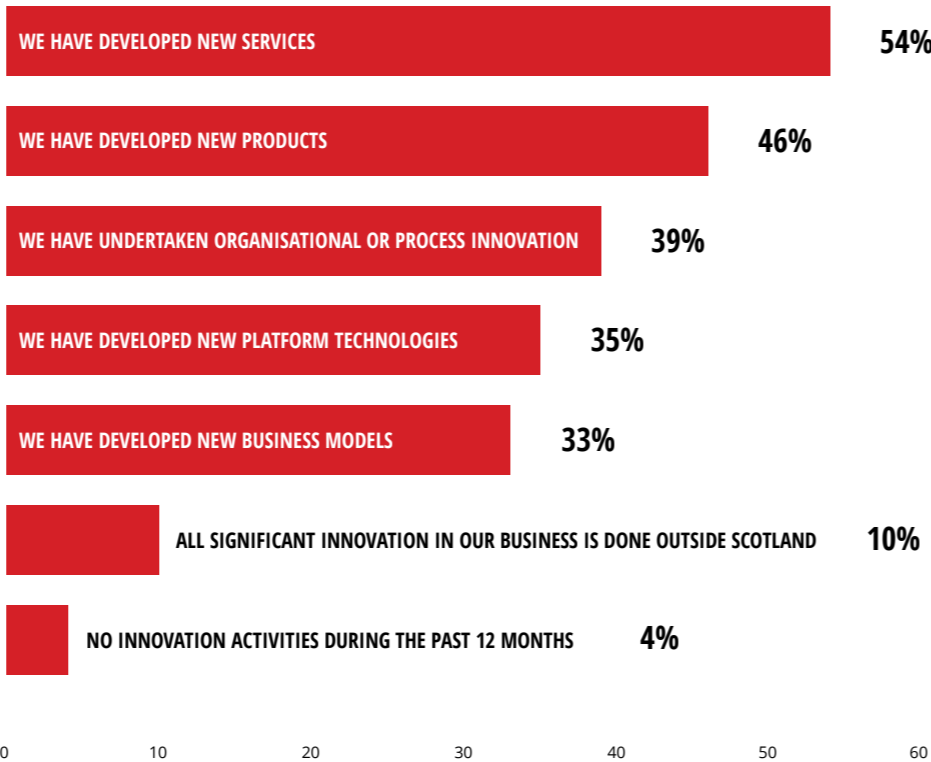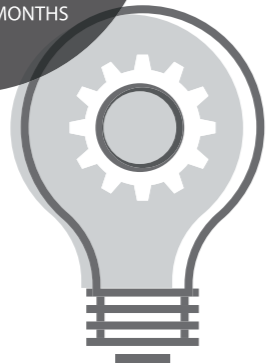
0 10 20 30 40 50

INNOVATION

In this year's survey we asked participants for the first time about their innovation activities and their awareness and use of innovation support mechanisms and partners.

Nearly all respondents, 96%, were engaged in innovation activities in the past 12 months, mostly in Scotland. New services were developed by the largest share of businesses (54%), followed by new products (46%) and organisational and process innovation (39%). 10% of respondents indicated that they undertake all innovation outside Scotland, which mainly includes larger companies. Medium-sized and larger businesses were less likely to have developed new products and services than the survey average but medium-sized companies were more likely to have undertaken organisational or process innovation.
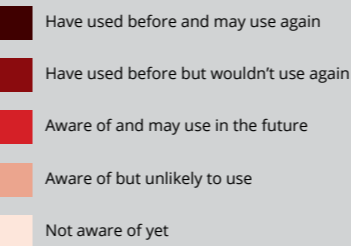
96%
OF RESPONDENTS ENGAGED IN **INNOVATION ACTIVITIES** IN THE PAST 12 MONTHS

WE HAVE DEVELOPED NEW SERVICES	54%
WE HAVE DEVELOPED NEW PRODUCTS	46%
WE HAVE UNDERTAKEN ORGANISATIONAL OR PROCESS INNOVATION	39%
WE HAVE DEVELOPED NEW PLATFORM TECHNOLOGIES	35%
WE HAVE DEVELOPED NEW BUSINESS MODELS	33%
ALL SIGNIFICANT INNOVATION IN OUR BUSINESS IS DONE OUTSIDE SCOTLAND	10%
NO INNOVATION ACTIVITIES DURING THE PAST 12 MONTHS	4%

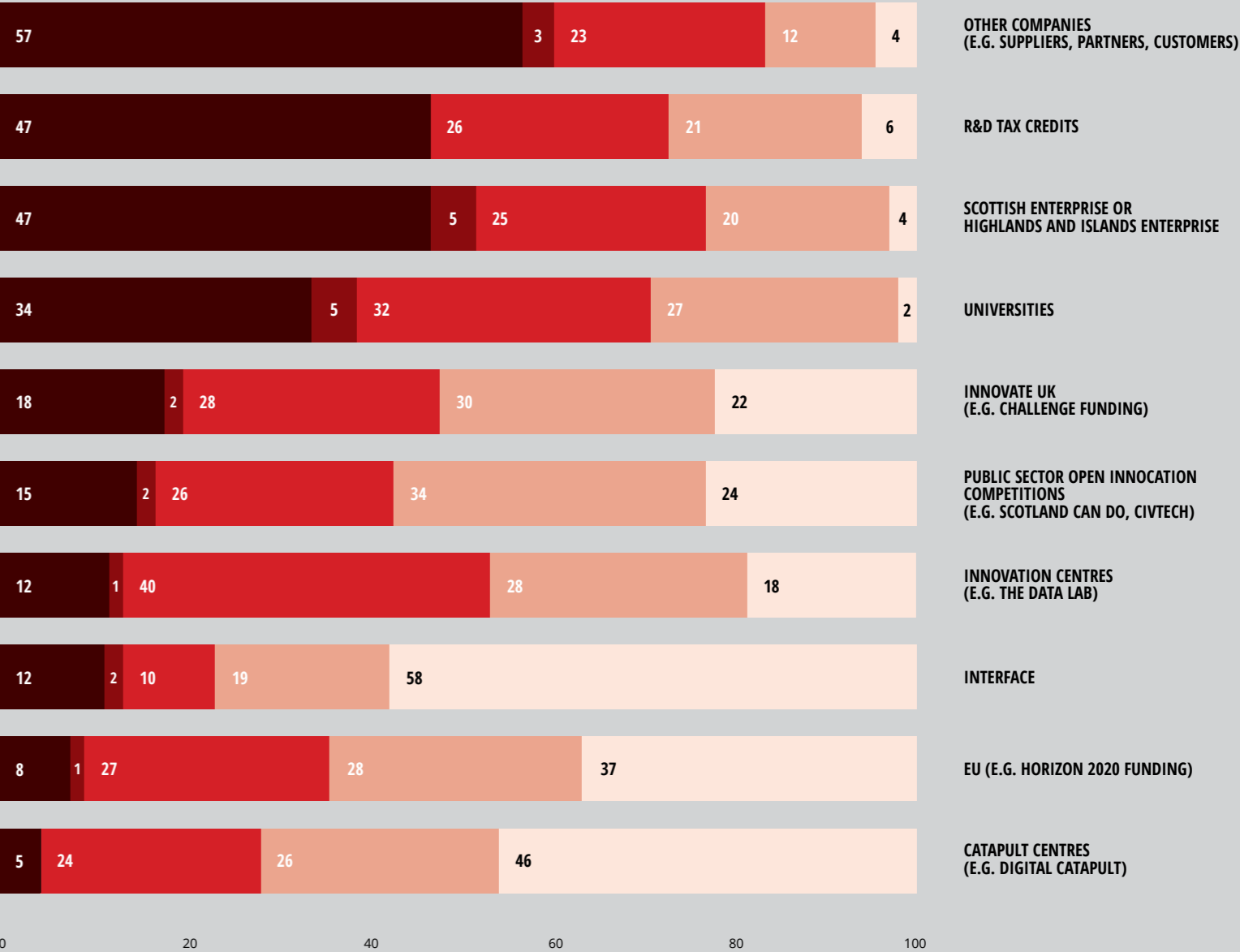0   10   20   30   40   50   60

The most commonly used innovation support is other companies, such as suppliers, partners or customers (used by 60% of respondents), Scotland's enterprise agencies (52%) and R&D tax credits (47%). Together with universities, these organisations and mechanisms are also the best known whereas businesses are less aware of Interface, the Catapult Centres and EU support and funding.

In comments on their experiences with these mechanisms, respondents mention lengthy and costly application processes, limited support for smaller companies and limited understanding of businesses needs and ways of working. The support landscape was also described by several respondents as difficult to navigate with sometimes overlapping responsibilities.

Legend:
- Have used before and may use again
- Have used before but wouldn't use again
- Aware of and may use in the future
- Aware of but unlikely to use
- Not aware of yet

Note: All figures are in percentages

Support mechanism	Used before, may use	Used before, won't	Aware, may use	Aware, unlikely	Not aware
OTHER COMPANIES (E.G. SUPPLIERS, PARTNERS, CUSTOMERS)	57	3	23	12	4
R&D TAX CREDITS	47		26	21	6
SCOTTISH ENTERPRISE OR HIGHLANDS AND ISLANDS ENTERPRISE	47	5	25	20	4
UNIVERSITIES	34	5	32	27	2
INNOVATE UK (E.G. CHALLENGE FUNDING)	18	2	28	30	22
PUBLIC SECTOR OPEN INNOCATION COMPETITIONS (E.G. SCOTLAND CAN DO, CIVTECH)	15	2	26	34	24
INNOVATION CENTRES (E.G. THE DATA LAB)	12	1	40	28	18
INTERFACE	12	2	10	19	58
EU (E.G. HORIZON 2020 FUNDING)	8	1	27	28	37
CATAPULT CENTRES (E.G. DIGITAL CATAPULT)	5		24	26	46

0   20   40   60   80   100
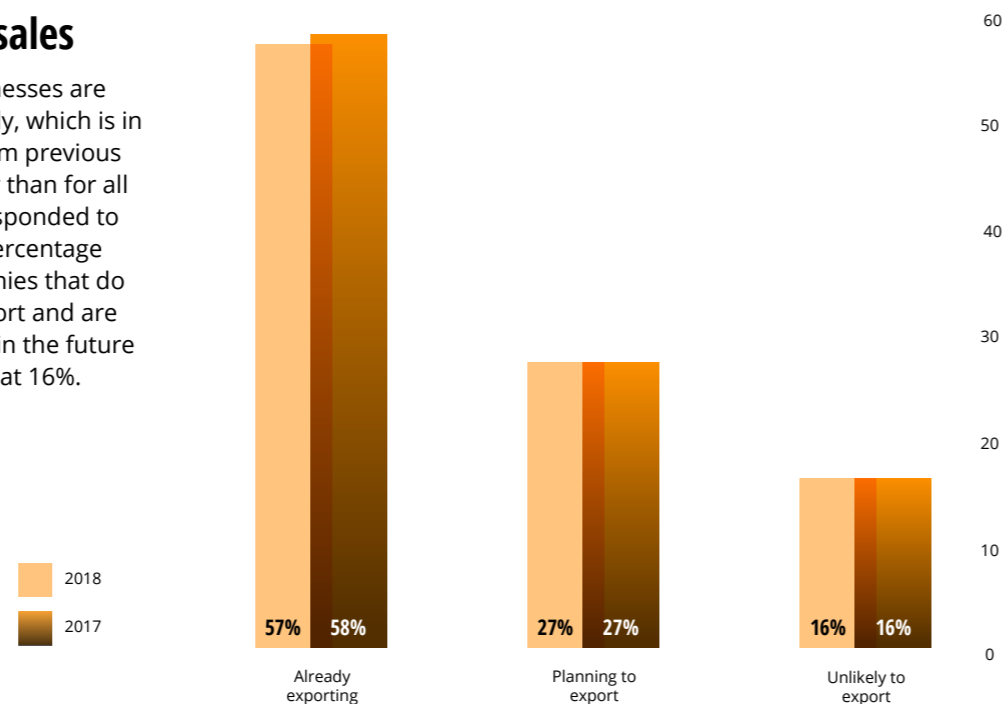
BENCHMARK 1: SMALLER COMPANIES

Reflections on 2017

2017 was a good year for smaller businesses, with 64% reporting an increase in sales (down 2% from 2016) and 49% increasing their profit margins (up by 2% since last year). 83% have an optimistic outlook for 2018 (up from 78% in 2016).

49% INCREASED THEIR PROFIT MARGINS

83% HAVE AN OPTIMISTIC OUTLOOK FOR 2018

64% REPORTED AN INCREASE IN SALES
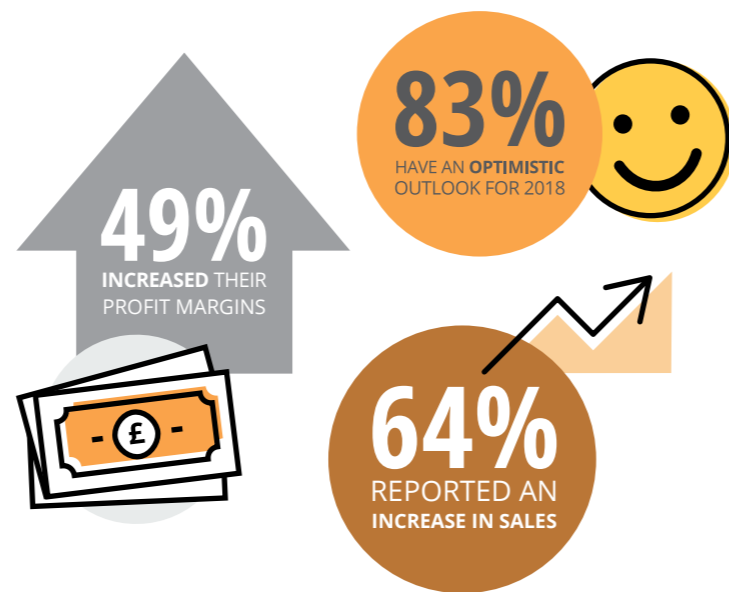
International sales

57% of smaller businesses are selling internationally, which is in line with figures from previous years and 7% lower than for all businesses that responded to the survey. The percentage of smaller companies that do not currently export and are unlikely to do so in the future remained stable at 16%.

2018
2017

	Already exporting	Planning to export	Unlikely to export
2018	57%	27%	16%
2017	58%	27%	16%

People and skills

77% of small businesses expect to increase employee levels, slightly down from 84% in 2017. This is due to an increase in the number of businesses not planning to change staff numbers (up from 16% to 23%). Most of those who are planning to hire, expect to take on up to 5 additional staff. None of the companies who responded expect to reduce headcount in 2018.

66% of respondents are likely to recruit graduates (up from 62% in 2017) and 30% are likely to take on modern apprentices (up from 23%).

Recruit more staff
Stay the same
Decrease in staff

Sales outlook for 2018

87% of smaller businesses expect their sales to increase over the next 12 months, 9% anticipate they will stay the same, while 4% forecast a decrease in sales. Overall, this is a similar outlook to last year. Again, more smaller businesses, 44%, predict sales growth of 21% or more compared to the survey average of 35%.

50%+ Increase
23%

21-50% Increase
21%

11-20% Increase
23%

0-10% Increase
21%

Stay the same
9%

11-20% Decrease
3%

11-20% Decrease
**1%**
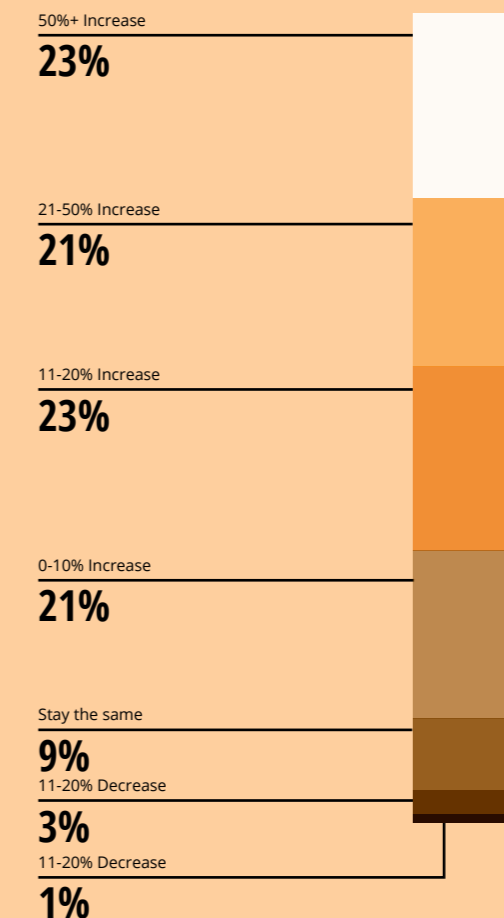
Financial environment

Turnover for 95% of smaller businesses was in the region of £0-£5M. However, there is a marked contrast with the bulk of businesses either in the £0-£250K or £1M-£5M bands. The figures have not changed significantly since last year.

3% £5.1 - £10m

2% £10m+

29% £1.1m - £5m

13% £501k - £1m

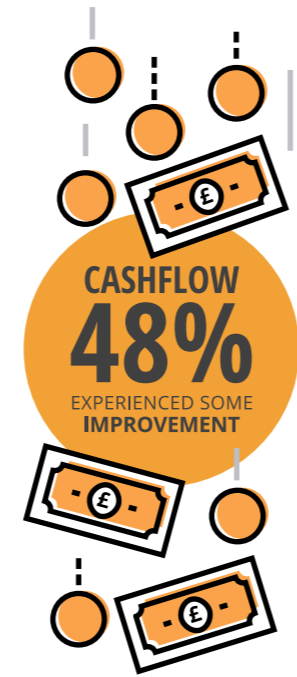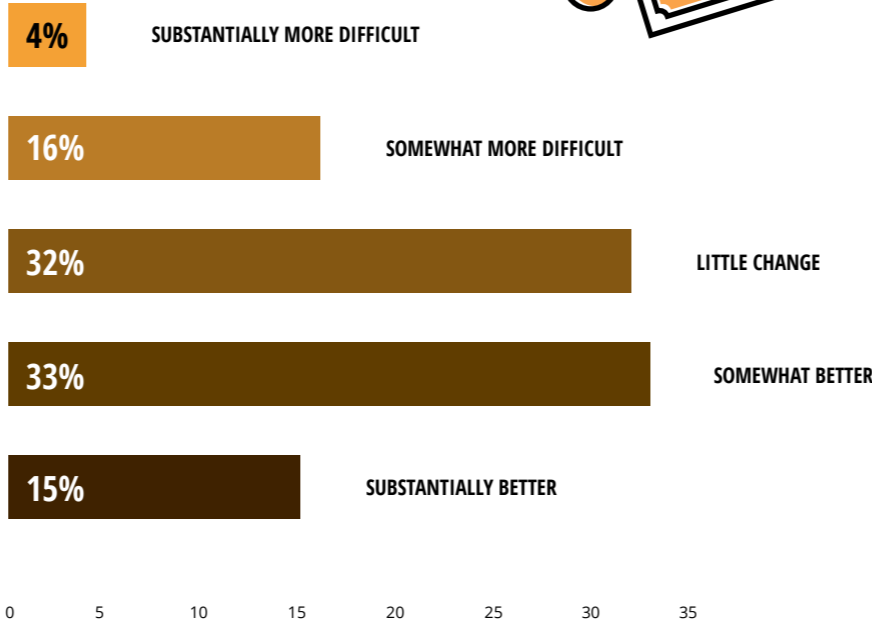**15%** £251k - £500k

38% £0 - £250k
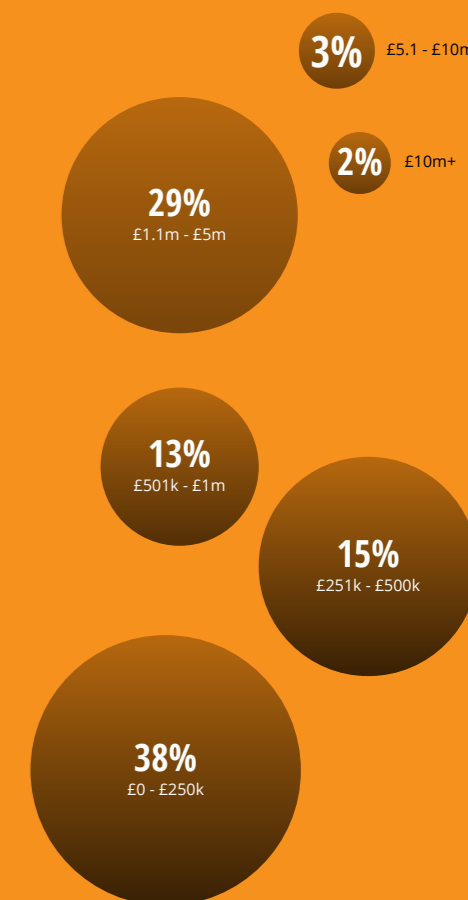
Funding model

Funding for 73% of smaller businesses is generated from founders' capital and retained profits and only 5% rely mainly on venture capital. These figures have remained stable over the last few years.

For the majority of smaller businesses seeking additional finance, e.g. for growth, private investment such as angel or founder capital is the preferred option (56%), followed by grant funding (48%), bank funding (29%) and venture capital (22%).

5% Mainly Venture Capital

12% Other

10% Mix of Business Angel/Bank/Loan funding

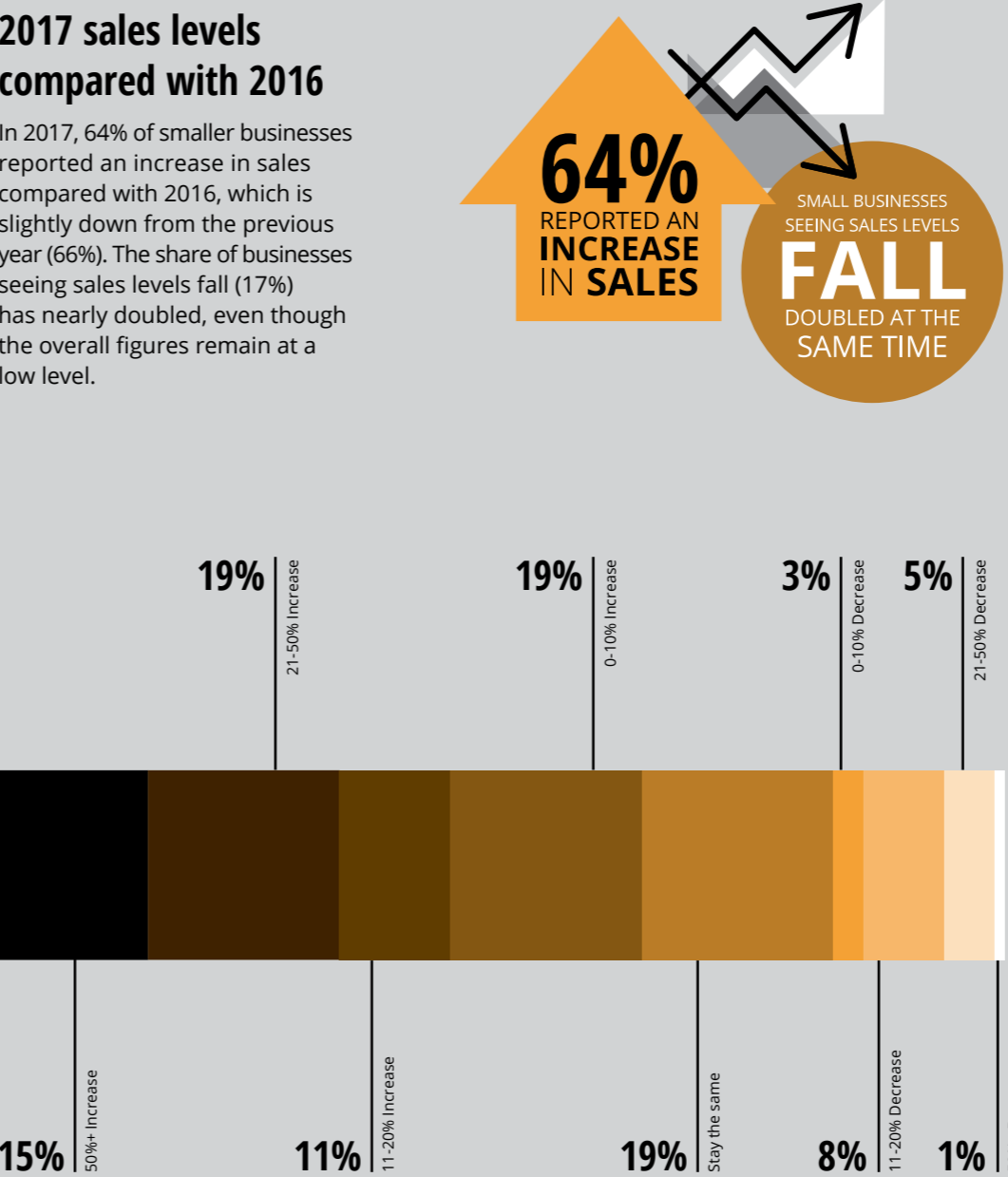73% Founders capital and retained profits
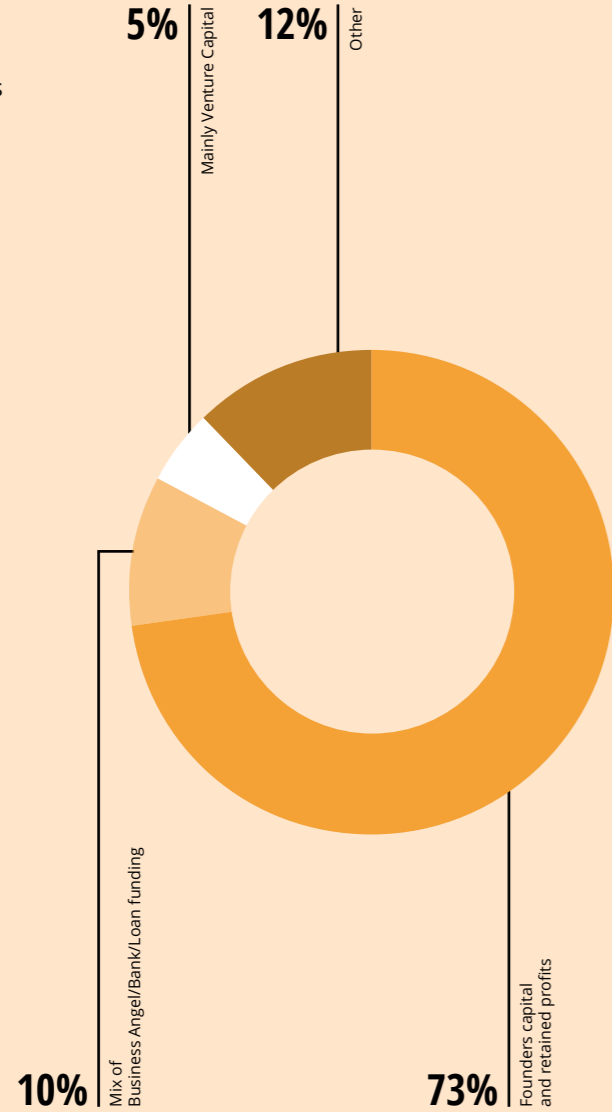
Cashflow compared to last year

Smaller businesses reported little change in their cashflow compared to 2016. 48% experienced some improvement while just 4% reported substantial difficulties. However, the share of companies reporting cashflow to be somewhat more difficult increased from 6% to 16%.

CASHFLOW
48%
EXPERIENCED SOME **IMPROVEMENT**

4% SUBSTANTIALLY MORE DIFFICULT

16% SOMEWHAT MORE DIFFICULT

32% LITTLE CHANGE

33% SOMEWHAT BETTER
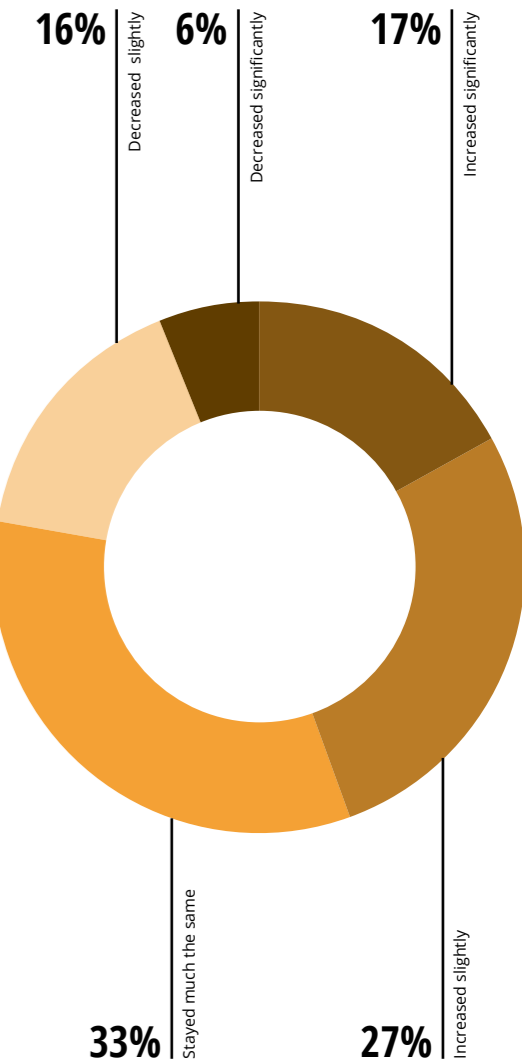
15% SUBSTANTIALLY BETTER

0 5 10 15 20 25 30 35

2017 sales levels compared with 2016

In 2017, 64% of smaller businesses reported an increase in sales compared with 2016, which is slightly down from the previous year (66%). The share of businesses seeing sales levels fall (17%) has nearly doubled, even though the overall figures remain at a low level.

64%
REPORTED AN **INCREASE** IN **SALES**

SMALL BUSINESSES SEEING SALES LEVELS **FALL** DOUBLED AT THE SAME TIME

19% 21-50% Increase

19% 0-10% Increase

3% 0-10% Decrease

5% 21-50% Decrease

15% 50%+ Increase

11% 11-20% Increase

19% Stay the same

8% 11-20% Decrease

1% 50%+ Decrease

Actuals compared to budget

In 2017 actuals compared to budget stayed close to the predicted levels for 33% of smaller companies with increases reported by 44%, 15% higher than in 2016.

16% Decreased slightly

6% Decreased significantly

17% Increased significantly

33% Stayed much the same

27% Increased slightly

BENCHMARK 2:
# MEDIUM-SIZED COMPANIES

Reflections on 2017

2017 has been a good year for medium-sized businesses with 73% reporting an increase in sales and 51% increased profit margins. 84% of this year's respondents are optimistic about 2018.

84% HAVE AN **OPTIMISTIC** OUTLOOK FOR 2018

73% REPORTED AN **INCREASE** IN **SALES**

51% INCREASED THEIR PROFIT MARGINS
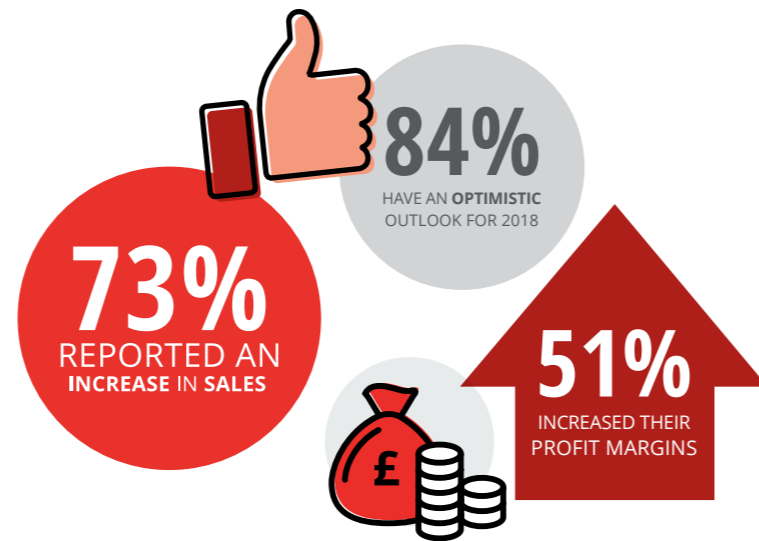
International sales

The share of medium-sized business that are already exporting decreased, from 69% in 2017 to 66%; however slightly more companies are planning to export in the future (11% in 2018, 10% in 2017).

- 2018
- 2017

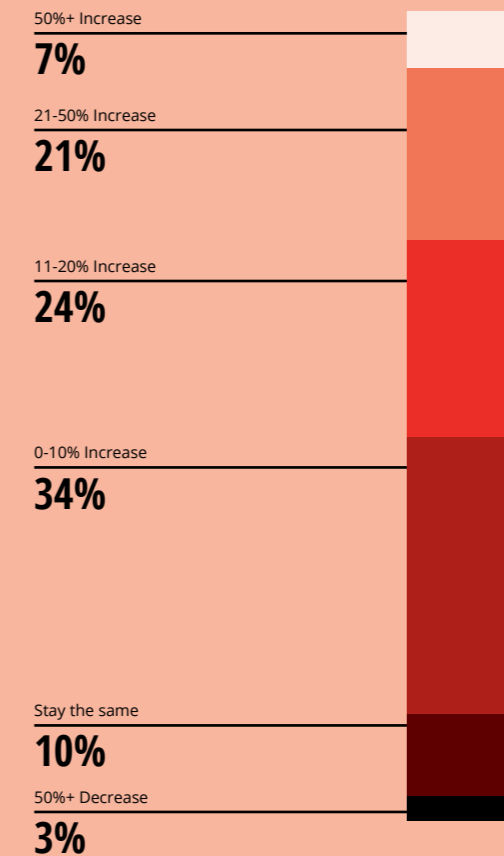|	
Already exporting	66% / 69%
Planning to export	11% / 10%
Unlikely to export	24% / 21%
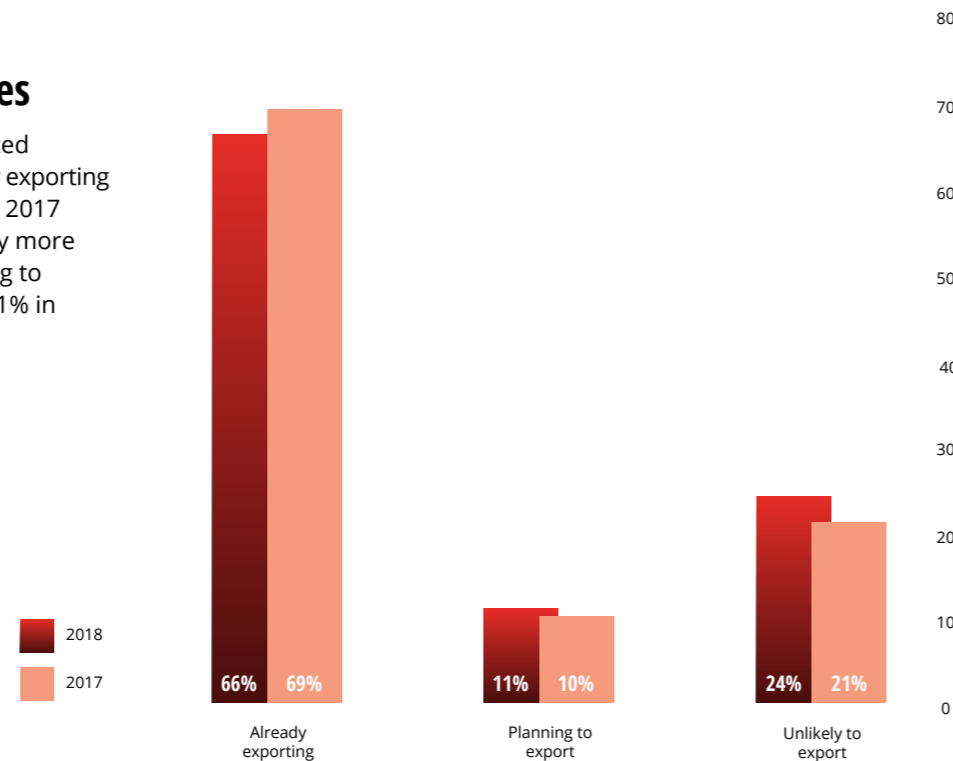
People and skills

93% of medium-sized businesses expect to increase employee levels which is significantly higher than in 2017, when only 79% were expecting headcount increases. Most of this year's respondents, 79%, expect to take on up to 20 additional staff and none of the respondents expect employee levels to decrease.

84% of respondents are likely to recruit graduates, up from 76% in the previous year. 60% are likely to take on modern apprentices, up from 40% in 2017, which is the second significant increase in a row.

- Recruit more staff
- Stay the same
- Decrease in staff

Sales outlook for 2018

86% of medium-sized businesses expect their sales to increase over the next 12 months, this is up from 81% last year and in line with the survey average of 86%. The share of medium-sized companies predicting their sales will stay the same reduced from 15% in 2017 to 10% this year.

50%+ Increase
7%
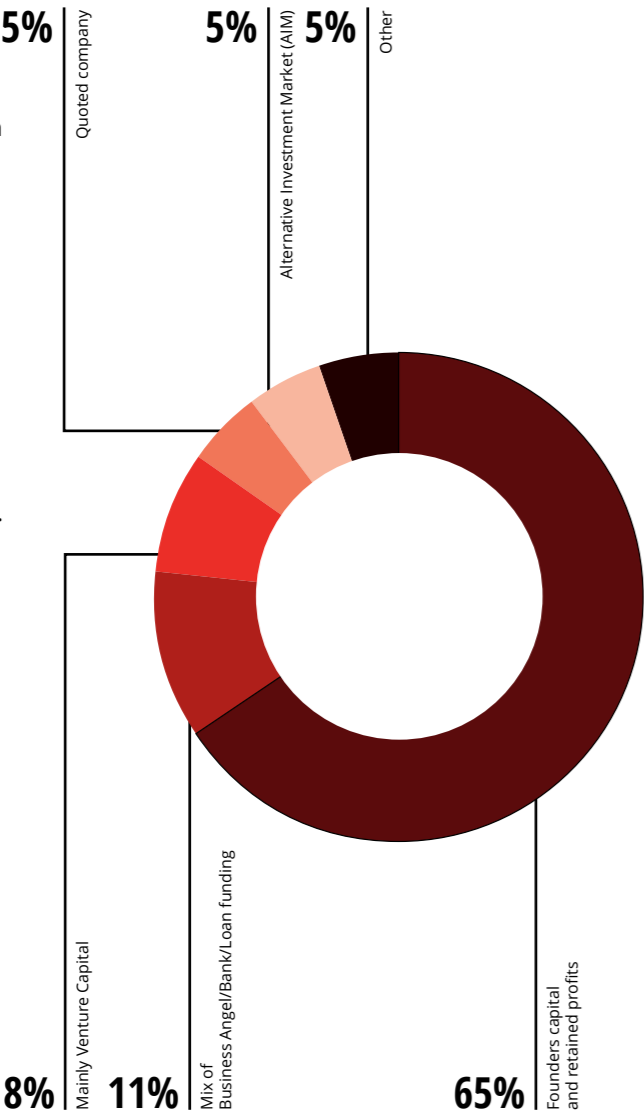
21-50% Increase
21%

11-20% Increase
24%

0-10% Increase
34%

Stay the same
10%

50%+ Decrease
3%

Financial environment

Nearly all medium-sized businesses (97%) have a turnover greater than £1M and 27% have a turnover of more than £20M.

3% £0 - £250k

35% £1.1m - £5m

22% £5.1m - £10m

11% £10.1m - £15m

3% £15.1 - £20m

19% £20.1m - £50m

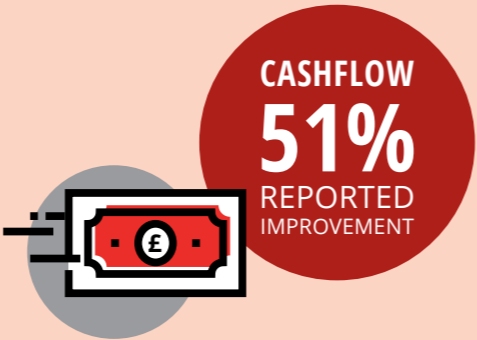**8%** £100m+

Funding model

Funding for medium-sized businesses is largely generated from founders capital and retained profits (65%) followed by a mix of business angel, bank and loan funding at 11%.

——

The majority of medium-sized companies seeking additional finance in 2018 identify bank funding (overdraft and medium term loans) as the preferred option (48%), followed by grant funding (39%) and private investment such as angel or founders capital (26%).

5% Quoted company
5% Alternative Investment Market (AIM)
5% Other

8% Mainly Venture Capital
11% Mix of Business Angel/Bank/Loan funding
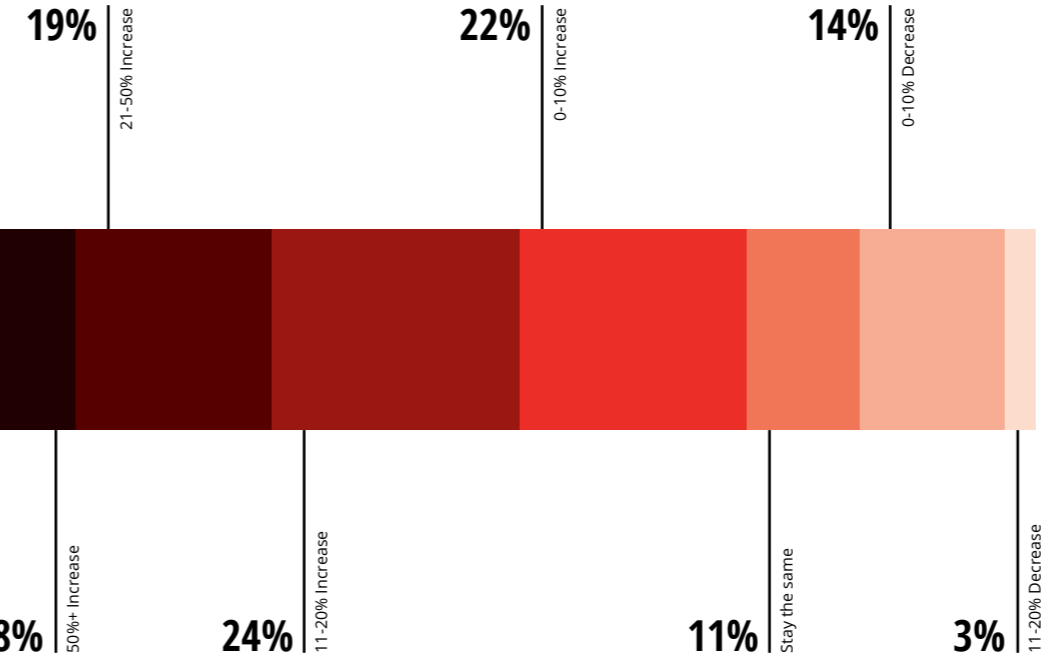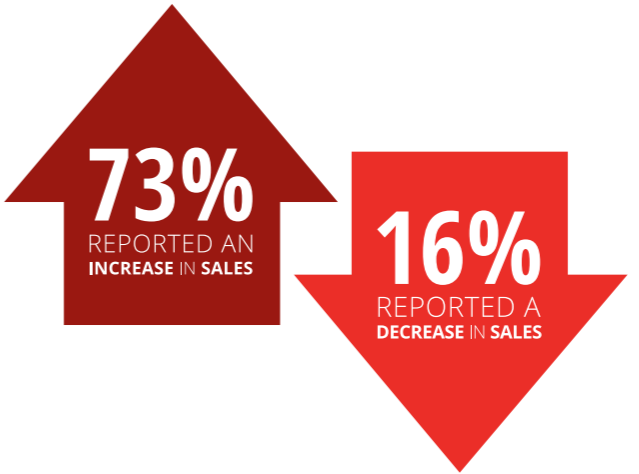**65%** Founders capital and retained profits

Cashflow compared to last year

Medium-sized businesses reported a better cashflow situation compared to 2016. 51% reported improvements (up from 41%) while 13% reported difficulties, down from 19% in 2016.

CASHFLOW 51% REPORTED IMPROVEMENT

5%	SUBSTANTIALLY MORE DIFFICULT
8%	SOMEWHAT MORE DIFFICULT
35%	LITTLE CHANGE
27%	SOMEWHAT BETTER
24%	SUBSTANTIALLY BETTER

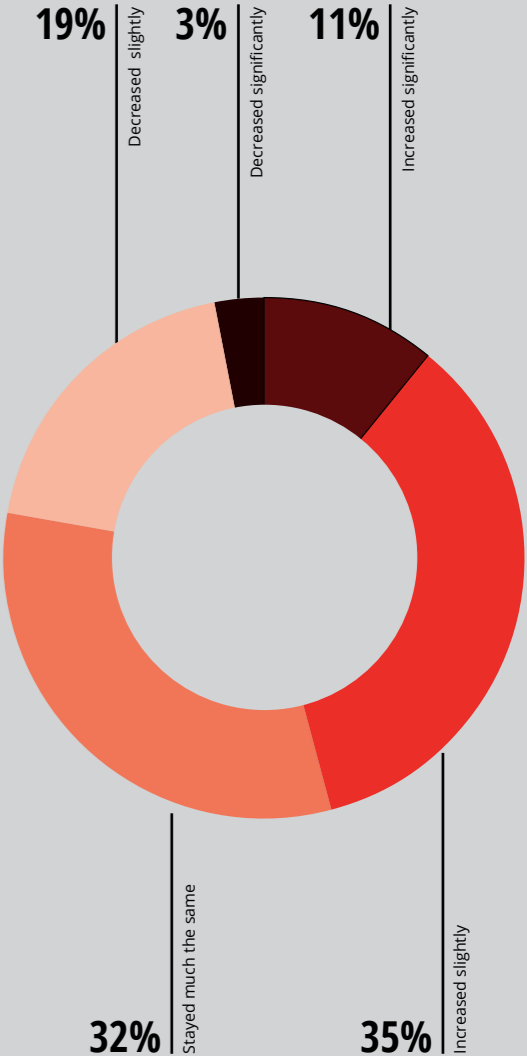0   5   10   15   20   25   30   35

2017 sales levels compared with 2016

In 2017, 73% of medium-sized businesses reported an increase in sales, down from 84% in the previous year. 16% report a decrease in sales, up from 11% in 2016.

73% REPORTED AN INCREASE IN SALES

16% REPORTED A DECREASE IN SALES

19% 21-50% Increase
22% 0-10% Increase
14% 0-10% Decrease

8% 50%+ Increase
24% 11-20% Increase
11% Stay the same
**3%** 11-20% Decrease

Actuals compared to budget

In 2017, actuals compared to budget increased for 46% of medium-sized companies and decreased for 22%. This compares to 2016 when only 29% reported an increase and 32% a decrease.

19% Decreased slightly
3% Decreased significantly
11% Increased significantly

32% Stayed much the same
35% Increased slightly

# BENCHMARK 3:
LARGER COMPANIES

Reflections on 2017

2017 was another good year for larger companies. 78% reported an increase in sales (up from 68%) and 37% reported their actual 2017 performance was better than forecast (up from 32%). 35% increased their profit margins, a similar figure to 2016. 63% have an optimistic outlook for the next twelve months; 11% lower than in the previous year.

78% REPORTED AN **INCREASE IN SALES**

63% HAVE AN OPTIMISTIC OUTLOOK FOR 2018

37% REPORTED ACTUAL 2017 PERFORMANCE WAS **BETTER THAN FORECAST**

35% **INCREASED** THEIR PROFIT MARGINS
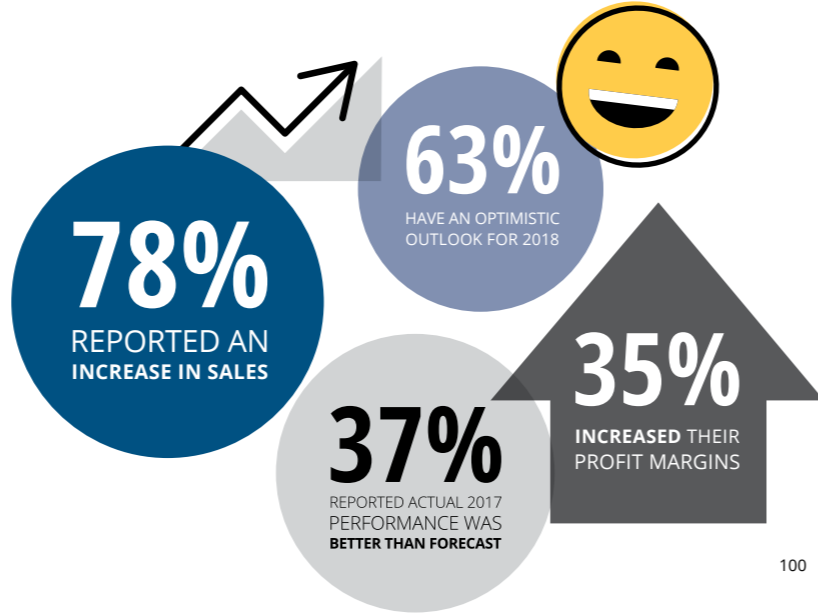
International sales

Most larger business (89%) reported that they are already selling internationally whilst 11% are unlikely to export. This is a significant increase compared to 2017 when 73% of larger businesses exported.

- ■ 2018
- ■ 2017

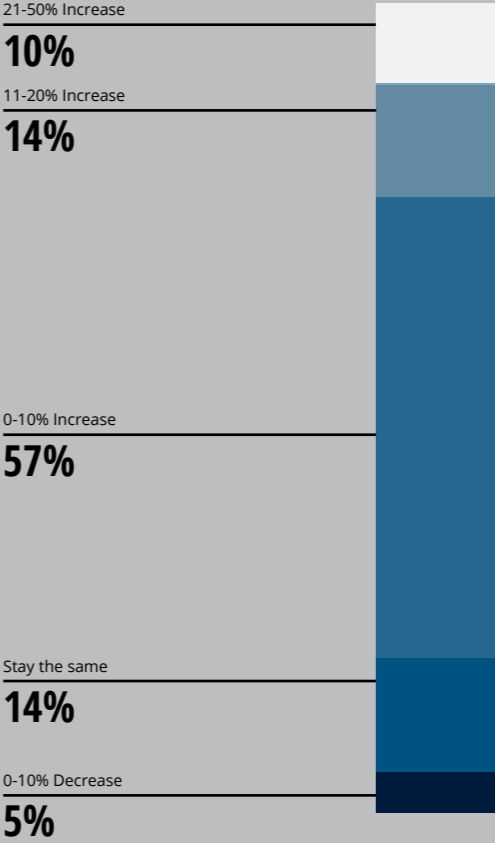|	Already exporting	Planning to export	Unlikely to export
2018	89%		11%
2017	73%	8%	19%
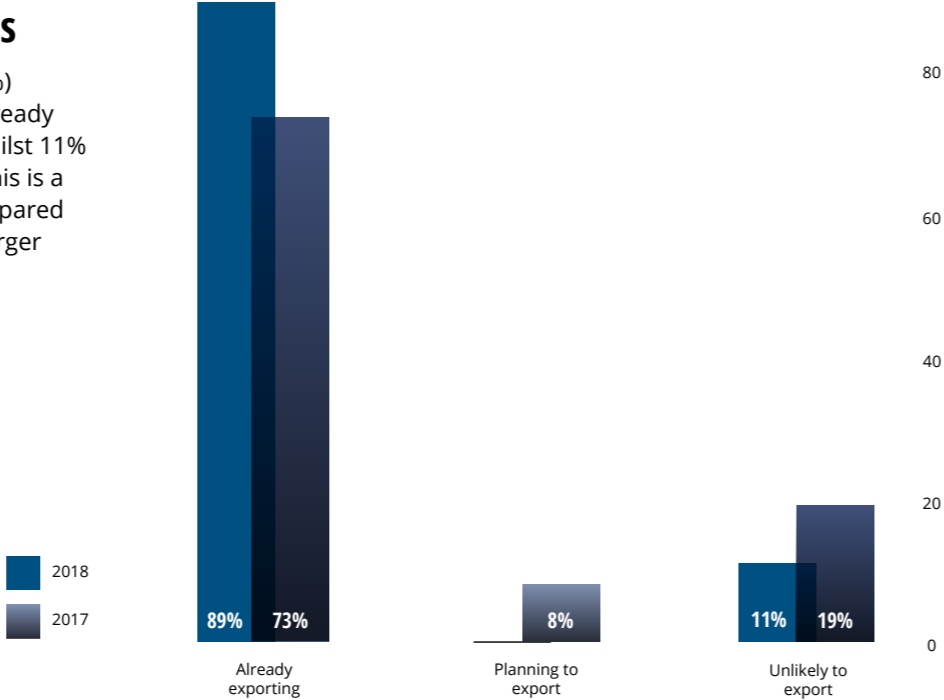
People and skills

With 73% of respondents expecting to increase their employee numbers and none expecting a decrease, the recruitment outlook for larger businesses has again improved. 23% of businesses are planning to take on more than 50 new staff and another 46% expect an increase of up to 20 people.
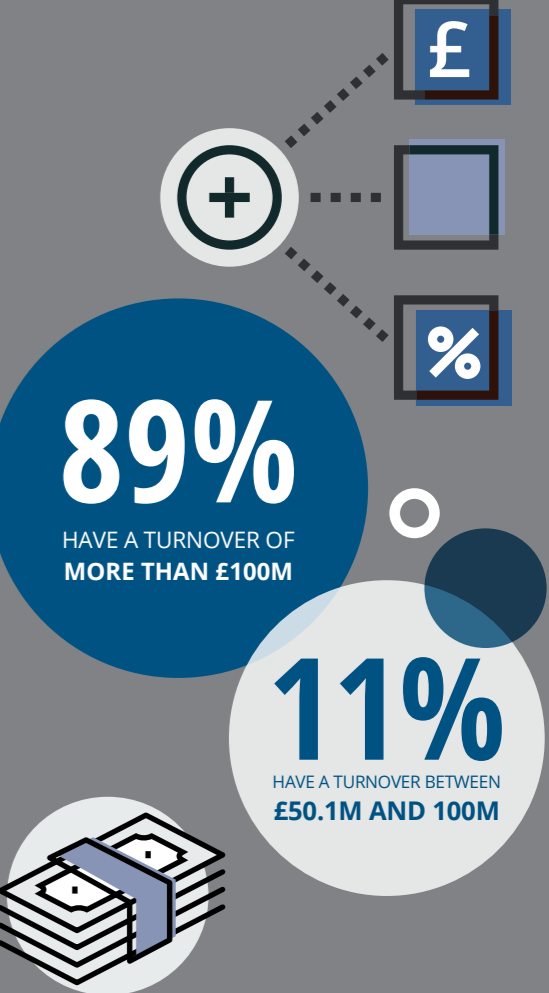
Large businesses are more likely than other businesses to employ modern apprentices with 90% of respondents reporting they are likely to take them on, compared to 78% in 2016 and 50% in 2015. 95% of respondents are likely to recruit graduates.

- ■ Recruit more staff
- ■ Stay the same
- ■ Decrease in staff

Sales outlook for 2018

81% of larger businesses expect their sales to increase over the next 12 months. This is up on last year (73%) and the expected increases are also higher with 24% forecasting more than 10% growth (9% last year).
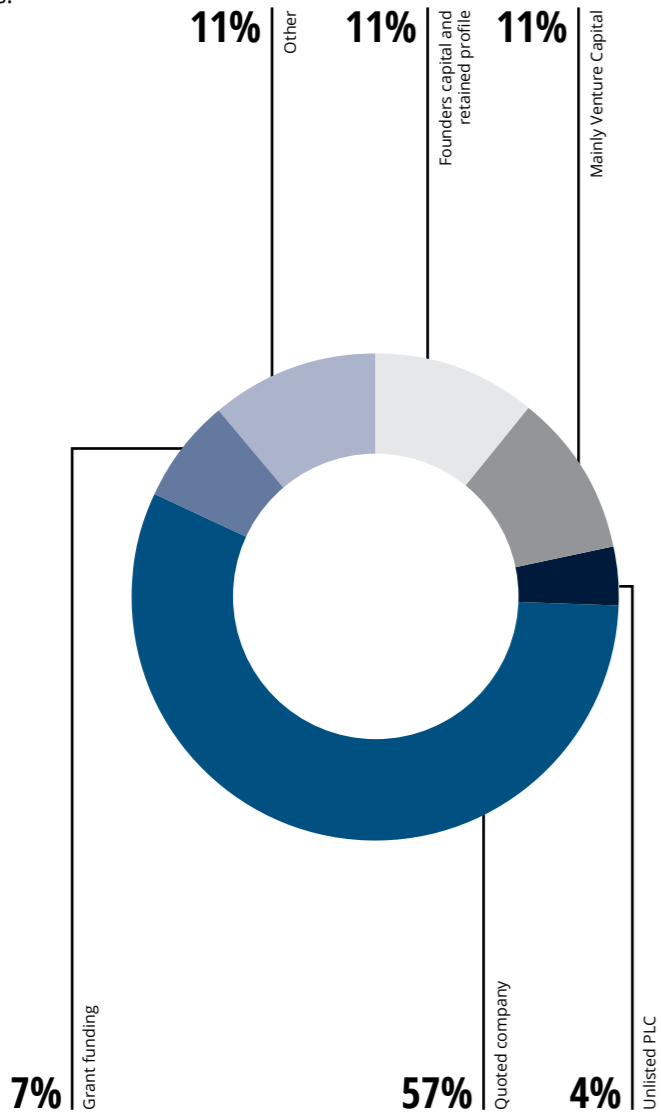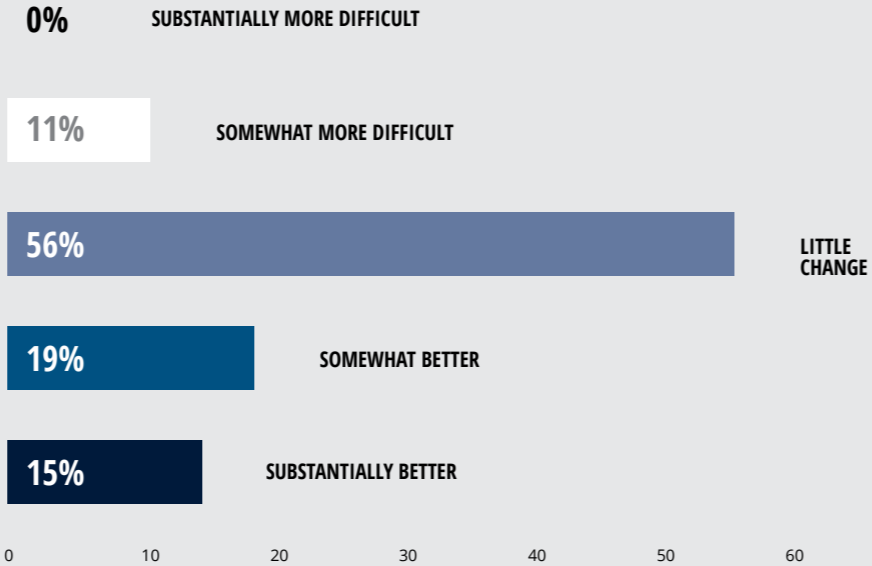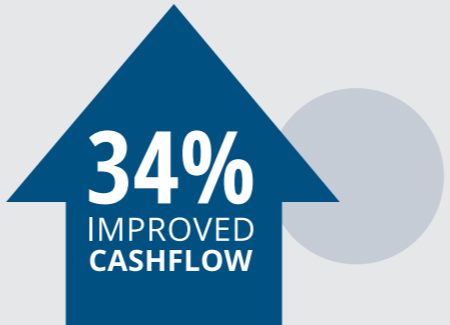
21-50% Increase
10%

11-20% Increase
14%

0-10% Increase
57%

Stay the same
14%

0-10% Decrease
5%

Financial environment

£

%

89% HAVE A TURNOVER OF **MORE THAN £100M**

11% HAVE A TURNOVER BETWEEN **£50.1M AND 100M**

Funding model

Larger businesses (57%) are typically quoted companies.

- 11% Other
- 11% Founders capital and retained profile
- 11% Mainly Venture Capital
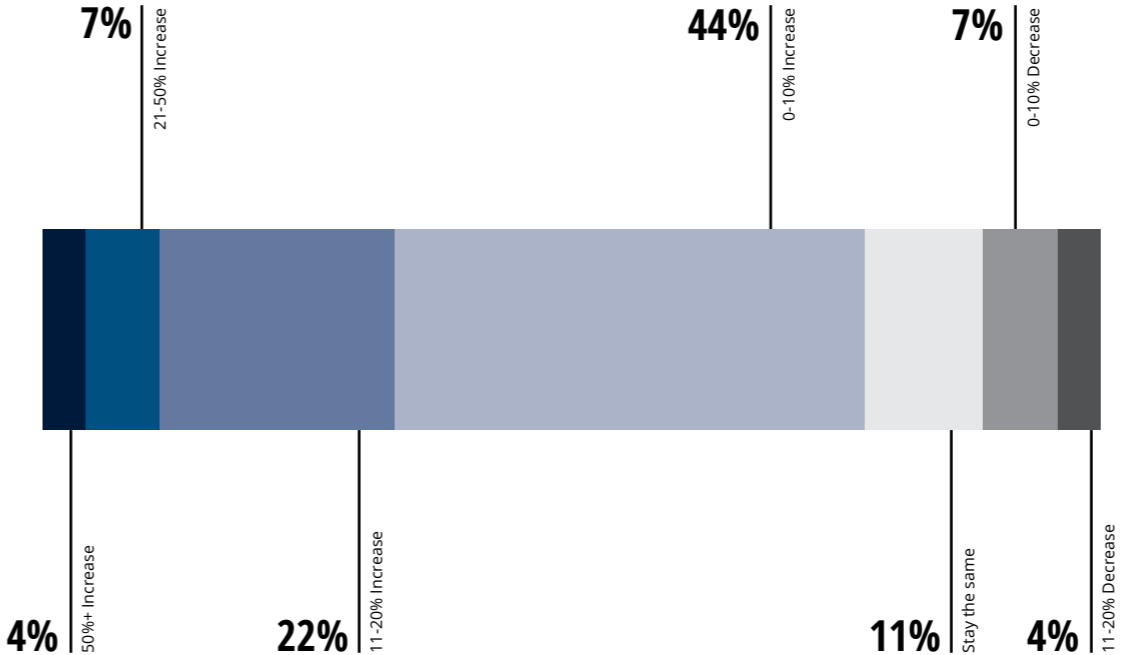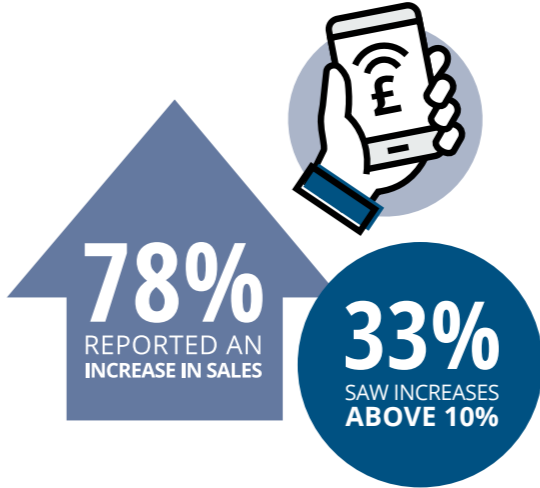- 7% Grant funding
- 57% Quoted company
- 4% Unlisted PLC

Cashflow compared to last year

Like smaller and medium-sized businesses, the cashflow situation for many larger businesses improved compared to last year (34% up from 27%). 11% of respondents experienced some difficulties.

34% IMPROVED **CASHFLOW**

- 0% SUBSTANTIALLY MORE DIFFICULT
- 11% SOMEWHAT MORE DIFFICULT
- 56% LITTLE CHANGE
- 19% SOMEWHAT BETTER
- 15% SUBSTANTIALLY BETTER

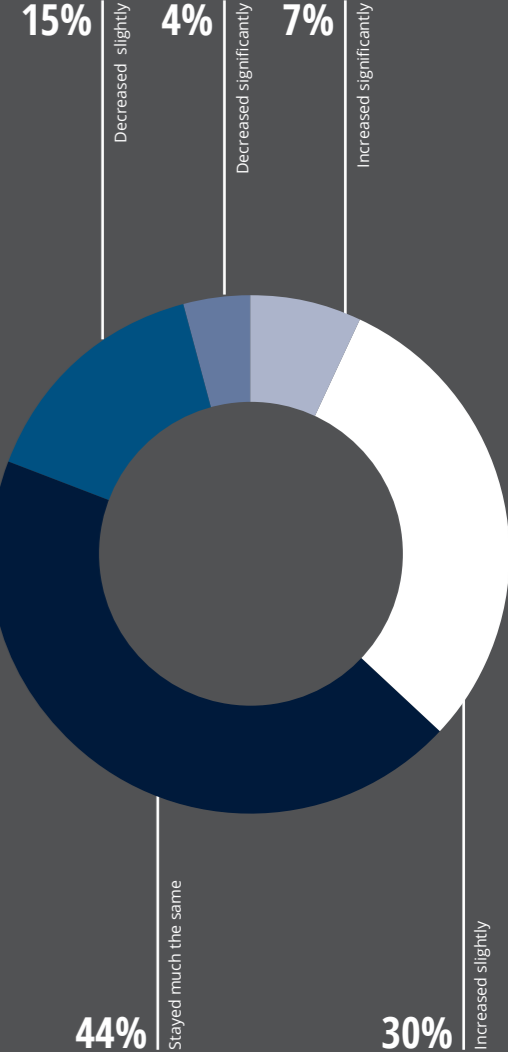0   10   20   30   40   50   60

2017 sales levels compared with 2016

Sales in larger businesses have continued to expand, with 78% reporting an increase from 2016, compared to 68% in the previous year. The detailed figures reveal that the increases were also bigger than last year with 33% of larger companies seeing increases above 10% (up from 12%).

78% REPORTED AN **INCREASE IN SALES**

33% SAW INCREASES **ABOVE 10%**

- 7% 21-50% Increase
- 44% 0-10% Increase
- 7% 0-10% Decrease
- 4% 50%+ Increase
- 22% 11-20% Increase
- 11% Stay the same
- 4% 11-20% Decrease

Actuals compared to budget

In 2017, actuals compared to budget increased for 37% of larger companies, up from 32% in 2016. 44% of respondents reported actuals close to budget, a similar figure to 2016.

- 15% Decreased slightly
- 4% Decreased significantly
- 7% Increased significantly
- 44% Stayed much the same
- 30% Increased slightly

SCOTLANDIS COMMENTARY

We are delighted to see the industry continuing to grow year on year. The 2018 survey results confirm the general sense of optimism and confidence amongst Scotland's digital technologies businesses, reinforcing the anecdotal evidence from our members.

Economic Factors

Business leaders in our industry continue to have concerns about the economic and political environment. These are mainly linked to Brexit and its potential consequences, as well as the political situation in the United States, with some concerns over the possible imposition of new trade barriers. Despite this, the majority of companies report positive results with increased sales, profit margins and exports.

The public sector continues to be one of the most popular end markets for our survey respondents. To support our members in assessing opportunities and taking informed investment decisions in this important market, ScotlandIS recently produced its first market intelligence report on public sector ICT expenditure in Scotland[6]. We are planning to undertake further research on other key end markets.

To ensure that ScotlandIS members and the wider digital technologies sector thrive throughout the Brexit process, we will continue to lobby Scottish and UK Government and raise awareness of our sector's needs and contribution to the economy. Since the EU referendum, we have met with ministers and officials from both governments to discuss the potential impact and opportunities linked to Brexit in terms of immigration and access to skills, access to markets, regulations and EU funding. We have contributed to consultations by the Migration Advisory Committee and Scottish Parliament around the design of a potential new immigration system for EU nationals.

[6] https://www.scotlandis.com/buyreport

Talent

The demand for talent is rising with 80% of survey respondents expecting to take on new staff; for the first time in five years no company in our sample expects to reduce headcount this year. This is a clear indication that our industry continues to thrive and grow but the responses to other questions also show that finding this new talent is increasingly difficult. Staff recruitment and retention is the most common challenge respondents are facing in 2018.

Employers are increasingly diversifying their talent pipeline to respond to these recruitment challenges. The share of employers responding to our survey that are 'definitely' or 'quite likely' to take on modern apprentices in the next 12 months increased from 29% in 2016 to 45% this year. This is encouraging and may be linked to the introduction of more apprenticeship frameworks relevant to our industry, such as information security and the new Graduate Level Apprenticeships.

We have also seen increased efforts to attract and recruit more women into the sector. For the first time, we asked employers what steps they are taking to tackle the technology gender gap and found that many already have action plans in place and are finding these effective. ScotlandIS is supporting a number of initiatives to address this gender gap, such as SmartSTEMs and the Digital Scotland Business Excellence Partnership Gender Workstream. We also encourage our members to become involved, for example by using the best practice guides[7] developed by Equate Scotland for Skills Development Scotland.

Graduates continue to be one of the key sources of talent for digital technologies companies, with 73% of survey respondents planning to take on graduates in 2018. However, we know from our members that the skillsets graduates have do not always correspond to employers' needs. In response to this, ScotlandIS established the Digital Skills Partnership (DSP)[8] in 2017, with the support of the Scottish Funding Council and Skills Development Scotland. DSP brings together colleges, universities and industry to develop and deliver curricula and courses that equip students with the relevant skills to meet current and future demand in the digital technologies industry.

The digital skills gap is a crucial issue for our industry and ScotlandIS has been a driving force behind the creation of the Skills Investment Plan for ICT and Digital Technologies , which includes actions to help companies meet their immediate needs as well as broadening the talent pool for the sector. We continue to be actively involved in the plan's implementation. From operating the e-Placement Scotland programme to the development of CodeClan, Scotland's first code academy, and the Digital Xtra Fund, ScotlandIS works with a variety of partners to increase the supply of skilled people from schools to workplace learning.

EMPLOYERS ARE INCREASINGLY DIVERSIFYING THEIR **TALENT PIPELINE** TO RESPOND TO **RECRUITMENT CHALLENGES**

[7] https://www.ourskillsforce.co.uk/media/2355/tackling-the-technology-gender-gap-together_guide.pdf

[8] https://www.scotlandis.com/resources/dsp/

ABOUT SCOTLANDIS

- ScotlandIS represents Scotland's digital technologies industries, including software, telecommunications, IT and digital agencies.

- ScotlandIS members vary from global companies and internationally recognised exporters to very small start-ups and cover a wide range of skills and markets.

- Scotland's software, IT and communications businesses generate nearly £5.9 billion in GVA annually and more than 90,000 people are working in digital technology roles across the economy.

- ScotlandIS promotes the industry and lobbies government and policy makers on issues of importance to the sector.

- ScotlandIS stimulates networking and partnerships between member organisations, providing a variety of networking events, seminars and workshops.

- ScotlandIS provides practical support to help members trade, for example, by providing access to industry experts and disseminating market intelligence.

- ScotlandIS works in partnership with industry, government and academia to create and retain the skills and infrastructure required to support the digital economy.

FOR MORE INFORMATION ON

ScotlandIS

VISIT

SCOTLANDIS.COM/ABOUT

METHODOLOGY

The Scottish Technology Industry Survey 2018 was conducted between 4 January and 9 February 2018 through an online survey platform. The survey received 205 responses in total, of which 171 have been selected for analysis after discounting duplicates and unusable responses. The respondents include both ScotlandIS members and non-members.

For the overviews on Scotland's digital technologies sector (p.6) and on digital technologies employment (p.16) the following standard industrial classification (SIC) and standard occupational classification (SOC) codes have been used to define digital technologies businesses and jobs:

_____

The following official statistics have been used for the overviews on Scotland's digital technologies sector and on digital technologies employment:

- **Number and size of digital technologies businesses:**
  UK Business counts, compiled from the Inter Departmental Business Register (IDBR), available through the Nomis service provided by the Office for National Statistics.

- **GVA:**
  Scottish Enterprise: Scottish Economic Facts, October 2017, available at: https://www.scottish-enterprise.com/knowledge-hub/articles/publication/scottish-key-facts.

- **Exports:**
  Scottish Government: Export Statistics Scotland, January 2018, available at http://www.gov.scot/Topics/Statistics/Browse/Economy/Exports/ESSPublication/ESSPDF. Based on SIC 2007 divisions 26 and 58-63 as more detailed figures not available.

- **Employment in digital technologies companies:**
  Business Register and Employment Survey, available through the Nomis service provided by the Office for National Statistics.

- **Employment in digital technologies roles, salary information, future skills demand and skills pipeline information:**
  Digital Scotland, Scotland's Digital Technologies: Summary Report, June 2017, available at: https://www.skillsdevelopmentscotland.co.uk/media/43306/scotlands-digital-technologies-summary-report.pdf.

SIC Code	Description
18203	Reproduction of computer media
2611	Manufacture of electronic components
2612	Manufacture of loaded electronic boards
262	Manufacture of computers and peripheral equipment
263	Manufacture of communication equipment
268	Manufacture of magnetic and optical media
2731	Manufacture of fibre optic cables
5821	Manufacture of fibre optic cables
5829	Publishing of computer games
611	Wired telecommunications activities
613	Satellite telecommunications activities
619	Other telecommunications activities
6201	Computer programming activities
6202	Computer consultancy activities
6203	Computer facilities management activities
6209	Other information technology and computer service activities
6311	Data processing, hosting and related activities
6312	Web portals
6399	Other information service activities not elsewhere classified
9511	Repair of computers and peripheral equipment
9512	Repair of communication equipment

SOC Code	Description
1136	Information Technology and Telecommunications Directors
2133	IT Specialist Managers
2134	IT Project and Programme Managers
2135	IT Business Analysts, Architects and Systems Designers
2136	Programmers and Software Development Professionals
2137	Web Design and Development Professionals
2139	Information Technology and Telecommunications Professionals not elsewhere classified
3131	IT Operations Technicians
3132	IT User Support Technicians
5242	Telecommunications Engineers
5245	IT Engineers

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