

HERTFORDSHIRE BUSINESS PRODUCTIVITY STUDY

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Hertfordshire
Local Enterprise Partnership

PERFECTLY PLACED FOR BUSINESS

University of
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**Hertfordshire
Growth Hub**

Local support and advice for Hertfordshire businesses

Executive summary

Hertfordshire Business Productivity Survey (HBPS) Study

The UK government's focus over the last couple of decades has been on improving UK growth and productivity (Department of Business Innovation and Skills 2016). In their latest review of the productivity gap they identified the important link between raising productivity whilst simultaneously maintaining high employment and boosting the workforce's earnings power - thus helping raise living standards, providing additional funds for improved public services and overall increasing the 'quality of life' for all UK citizens (Department of Business Energy & Industrial Strategy 2018b).

National research of the SME community revealed nearly 5.5 million enterprises in 2016, this is 99.9% of all enterprises in the UK, with a combined turnover of £1.8 trillion and employing over 60 per cent of the private sector employment (Bone and Haley 2017). Further, this study suggests that those enterprises that are actively innovative are also more likely to export and grow (Love and Roper 2013b). This same body of research suggests that these enterprises also recognize the importance of investing in skills, R&D and general capital assets.

Effective supply-side and demand-side policies by the regional eco-system, in our case Hertfordshire, help support these SME's innovation and export growth aspirations. What is less-known at the regional level is the particular eco-system characteristics that most influence these SME's future innovation activities, and their future increased turnover/growth and improved productivity. Hence, the importance of more research investigating this linkage, particularly at the regional level (e.g. Hertfordshire). At the same time large enterprises, though making up just 0.1% of the total business population, contribute over 48 per cent of UK turnover, and employ over 40 per cent of the total UK workforce (CBI 2019a). The future growth of the regional economy depends on all business sectors and sizes, and during all phases of business development (start-ups to mature enterprises).

Encouragingly, the OECD research on comparing countries' enterprise start-ups between 2007 - 2015 found the UK ahead of France, USA, Germany and other G7 countries, with nearly a 30% change, over this period, in enterprises start-ups (OECD 2016). Core to this national eco-system landscape for business start-ups and growth is the importance of sharing best practice of our top productive enterprises with those 'long-tail' underperforming enterprises. Hence the focus on looking at the regional eco-system surrounding Hertfordshire's business community, and the role that anchor institutions like Hertfordshire Growth Hub, Hertfordshire Local Enterprise Partner and the University of Hertfordshire play in supporting all aspects of the business community's development/growth.

This research utilizes the latest regional and national business and labour research to inform choice, practice and policy of Hertfordshire's policymakers. The aim is to initiate debate within the regional business community and key stakeholders regarding the important driving factors that most influence positive outcomes for future skills, innovation, productivity and enterprise growth.

Local Enterprise Partnerships are a private sector-led partnership between businesses and local public sector bodies (anchor institutions) (National Audit Office 2019). Hertfordshire Local Enterprise Partnership is a key player in both steering and supporting innovation in the key sectors driving the long-term goals of economic growth, increasing productivity and fuller employment. Hertfordshire LEP has already developed strategies and activities to target the micro- and small firms (M&SFs) that hold the potential to more rapidly grow and improve productivity in the region.

Ultimately, the UK and Hertfordshire need to remain competitive by both boosting overall productivity and fuller employment. To do so in this diverse and fast-paced economy we must have access to people, skills and knowledge (Professor Sir William Wakeham 2016).

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Section A - Introduction

The UH Market Research Services is a contract research unit housed in the Hertfordshire Business School undertaking contract research on behalf of public and private sector organisations. UH MRS's research is both innovative and insightful, and focused on informing our clients on the driving factors influencing skills, productivity and growth in their sector and across this region.

The University of Hertfordshire plays an important role alongside other anchor institutions in supporting micro- to large-enterprises at both the regional, national and international levels. It is through this, and working with the likes of Hertfordshire Local Enterprise Partnerships, Hertfordshire Growth Hub, and other bodies, that we can play our part in building a successful local business community and regional economy (UK Commission for Employment and Skills (UKCES) 2015).

Two pieces of research have been conducted on behalf of the Hertfordshire LEP in recent years. The first is the Hertfordshire Economic Outlook 2018, which contains valuable information on the overall economic growth and productivity of Hertfordshire's business community. This report makes reference to various sections of this report, it recommended that the reader refer to this report for more detailed analysis of Hertfordshire's economic position (Hertfordshire LEP 2018a). The second report, 'Brexit & Hertfordshire: understanding the risks and potential impacts 2018', is a more detailed dive into the impact of Brexit on the Hertfordshire business community (My Local Economy 2018), and again should be consulted for detailed information of the potential effect of Brexit on various business sectors and business sizes.

This Hertfordshire Business Productivity Survey (HBPS) was commissioned by the Hertfordshire Local Enterprise Partnership, Hertfordshire Growth Hub and the University of Hertfordshire and focuses on understanding those driving factors that most impact on Hertfordshire businesses skills, productivity and growth, from the perspective of the businesses. This report narrows its focus to seven sectors in Hertfordshire: manufacturing & advanced engineering; life sciences & pharmaceuticals; professional, financial & technical services; information, communications & technology services; construction & the built environment; arts, entertainment & recreation services; high-end logistics and retail. Investigating the perceived impact on productivity, growth and turnover of:

- leadership & management and workforce performance;
- innovation activity;
- Information advice and support from outside agencies;
- Other business constraints;
- future business plans.

The report structure provides a more detailed and focused presentation of the research findings in the five key areas noted above and follows this with the broader analysis of the research findings. The report concludes with some summary comments and recommendations.

A.1. What is Productivity

In this study, and the reporting of the findings in the three following sections, we have constantly referenced the term productivity, or labour productivity, so it is best to have some definition of it.

Productivity can be defined as the: ‘total output produced per unit (normal labour hours). Therefore improved productivity means greater efficiency in the production process i.e. more output (e.g. goods or services) can be produced with the given inputs (e.g. labour capital, resources)’ (BEIS 2018). For Hertfordshire the productivity rate was £31.70 Gross Value Added (GVA) per hour worked, exceeding the national average of £30.60 (Department for Education 2017).

Productivity is critical to enterprises, and ultimately leads to increased profits and potentially higher wages for the workforce. The Office for National Statistics (ONS) most recent study into the long-tail productivity gap suggests two very obvious reasons for the UK’s productivity performance, the relatively high business start-up rates compared to other G7 countries, and the nature of the business goods vs services delivered. Service sectors because of their higher labour-intensity, and goods manufacturers because of their higher capital-intensity and labour-saving devices/processes (BEIS 2018). When the UK Government first targeted the issues of the UK’s productivity gap with the rest of the G7, their productivity plan focused on three key themes:

- **Skills**
- **Innovation**
- **Infrastructure**

These three themes repeat themselves as having the most impact on regional/national productivity of our UK economy (House of Commons 2017).

Lastly, our HBPS study focuses on those areas that have previously been identified as contributors to higher productive enterprises (BEIS 2018), namely:

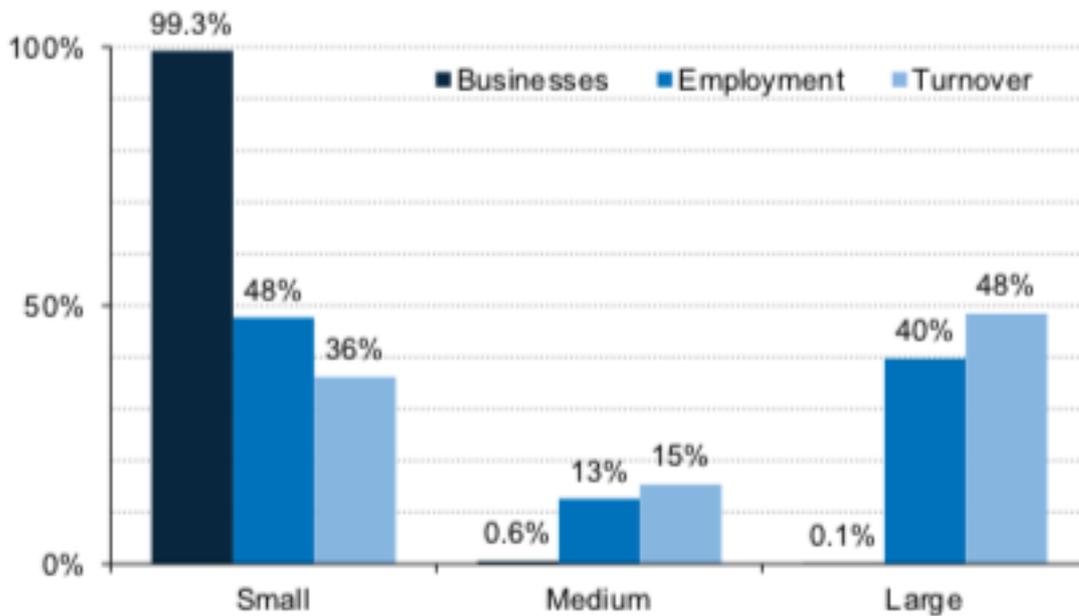
- Adopting new technology and innovation of their new goods/services/processes to take full advantage of this;
- Showing behaviours commensurate with growth, exporting and strategic-decision-making
- Have relevantly skilled workforce and managers;
- Utilizes a wide range of information, advice and support;
- Having a clear vision and up-to-date business plans;

A.2. Sector overview

Nationally, as of 2018, there were 5.7 million private sector enterprises, this amounts to more than 2.2 million more enterprises (63 per cent) than in 2000 (Department of Business Energy & Industrial Strategy 2018a). The UK economy is still heavily dependence on the service industries, with over 4.1 million businesses, employing 79 per cent of the UK workforce and contributing 74 per cent of the UK’s turnover.

The SME sector contributes significantly to both the UK’s turnover and employment, see figure A.2.1 below:

FIGURE A.2.1 CONTRIBUTION OF THE DIFFERENT SIZED ENTERPRISES AT THE START OF 2018 (SOURCE: ONS 2018)



Regionally there are 61,765 enterprises in the Hertfordshire Local Enterprise Partnership area, breaking down into micro-enterprises (56,115), small-enterprises (4,540), medium-enterprise (865), and large enterprises (245) (NOMIS 2017). The Hertfordshire Economic Outlook report of 2018, makes more references to the overall picture of enterprise, innovation and the broader industries (Hertfordshire LEP 2018a).

The overall level of labour productivity in Hertfordshire was estimated to be £32.80 GVA per hour worked (Hertfordshire LEP 2018b). More information on the following can be obtained from the Hertfordshire Skills and Labour Market Review Report 2018, available from the Hertfordshire LEP website (Hertfordshire LEP 2018b), and includes the following:

- The Overall economic context
- Demand for labour and skills
- Supply of labour and skills
- Education and training

A.2.1 Manufacturing and advanced engineering (M&AE)

The overall engineering sector generated over 25 per cent of the UK's total GDP in 2015 (£420.5 billion) (EngineeringUK 2016, Engineering UK 2018, IPPR North 2017). In 2016 46.5 per cent of the engineering sector's turnover came from the manufacturing area. In 2018 the manufacturing sector alone had 290,000 businesses employing over 10% of the UK workforce, and contributing over 14% of the UK turnover (House of Commons 2018a). The engineering sector considerably contributes towards the future growth of high skilled jobs in the UK, with a few special mentions (Engineering UK 2018):

- 157,000 new jobs in big data by 2020;

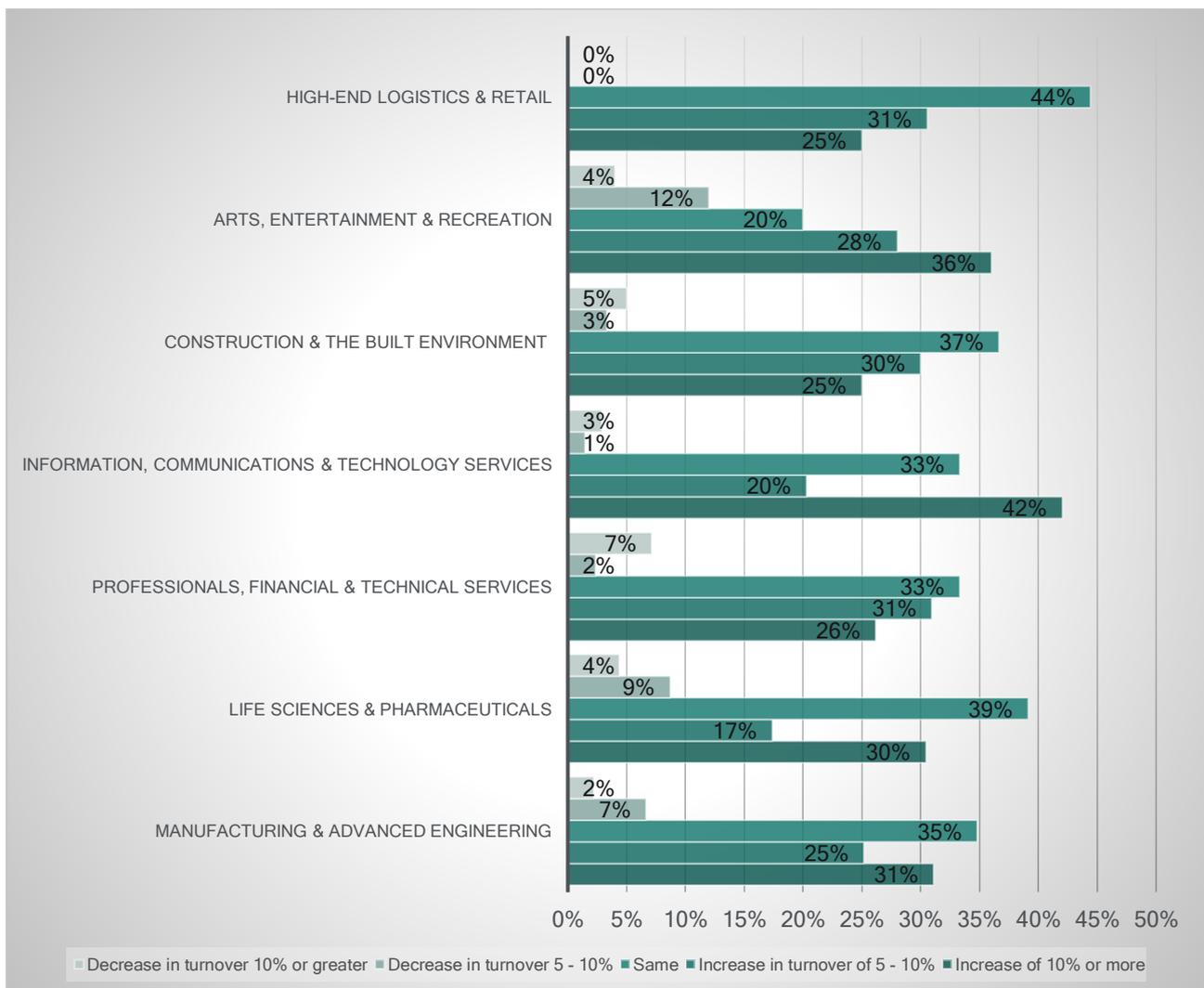
- 7,200 engineering and technical jobs in the high-speed rail sector by 2020;
- 61% of engineering enterprises were not confident in filling their high-skilled job vacancies;
- 203,000 people with level 3+ engineering skills will be needed every year through to 2024 to just meet the demand.

Like many other sectors dependent on the skills dimension, they suffer from related challenges around:

- Utilizing technology and innovation;
- Increasing investment in R&D and general innovation activities;
- Addressing the underlying business constraints around compliance, legislation and red-tape;
- Capitalising on export opportunities;
- Developing business strategies.

In Hertfordshire the M&AE sector has 2,675 business units (NOMIS 2019), employing 37,000 employees representing 5.9% of all Hertfordshire employee jobs (NOMIS 2017). Across the micro- to small-enterprise manufacturing and advanced engineering over 56per cent of enterprises are expecting to experience more than 5 per cent growth in the next year, see figure A.2.1.1 below:

FIGURE A.2.1.1 HERTFORDSHIRE MICRO- AND SMALL-ENTERPRISE GROWTH ACROSS SECTORS



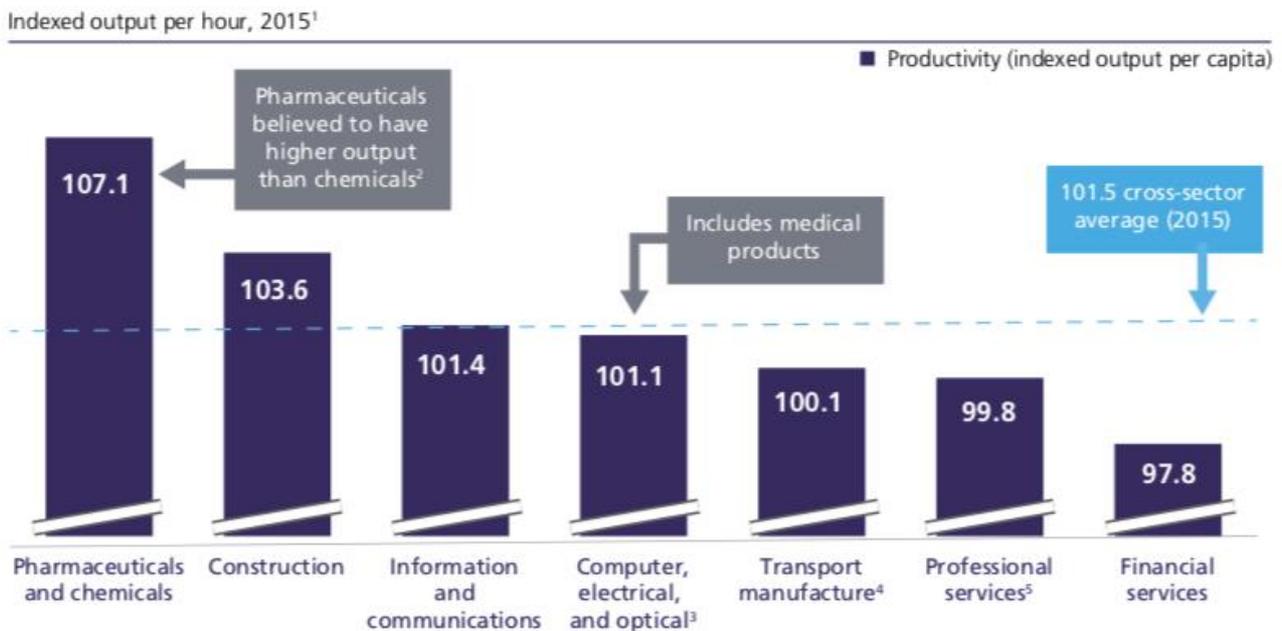
Over 54% of Hertfordshire manufacturing enterprises have exhibited growth over the past year, see figure A.1.1. above.

Manufacturing across the UK is facing challenging times with the announcement of the cancellation of the Nissan X-Trail at Sunderland, the closure of the Honda plant at Swindon and Dyson's choice to manufacture its new electric vehicles in Singapore (Department of Business Energy & Industrial Strategy 2019). There is still much uncertainty about real post-Brexit impact.

A.2.2 Life sciences and the pharmaceuticals (LS&P)

The LS&P sector generates in excess of £64 billion of UK turnover and employs over 233,000 scientists and other professional staff (Office for the Strategic Coordination of Health Research 2018). The UK government is committed to increasing the investment in R&D to 2.4 per cent of GDP across all sector by 2027, public investment in R&D will increase from £9.5 billion in 2016/17 to £12.5 billion in 2020/21 (HM Government 2017). With this commitment to investing in R&D is the acknowledgement that it should support innovative treatments and drugs that will better deliver care for our NHS patients, and provide a strong export income too (Office for the Strategic Coordination of Health Research 2018). In 2016 the Office of National Statistics released data showing that the life sciences & chemical sector had the highest productivity rate in the UK, see below:

FIGURE A.2.2.1 UK PRODUCTIVITY BY SECTOR



¹ Index of 100 represents 2013 UK average (i.e., comparator is UK output per hour averaged across all industries in 2013)

² The Economist intelligence Unit (2015)

³ Includes medical devices

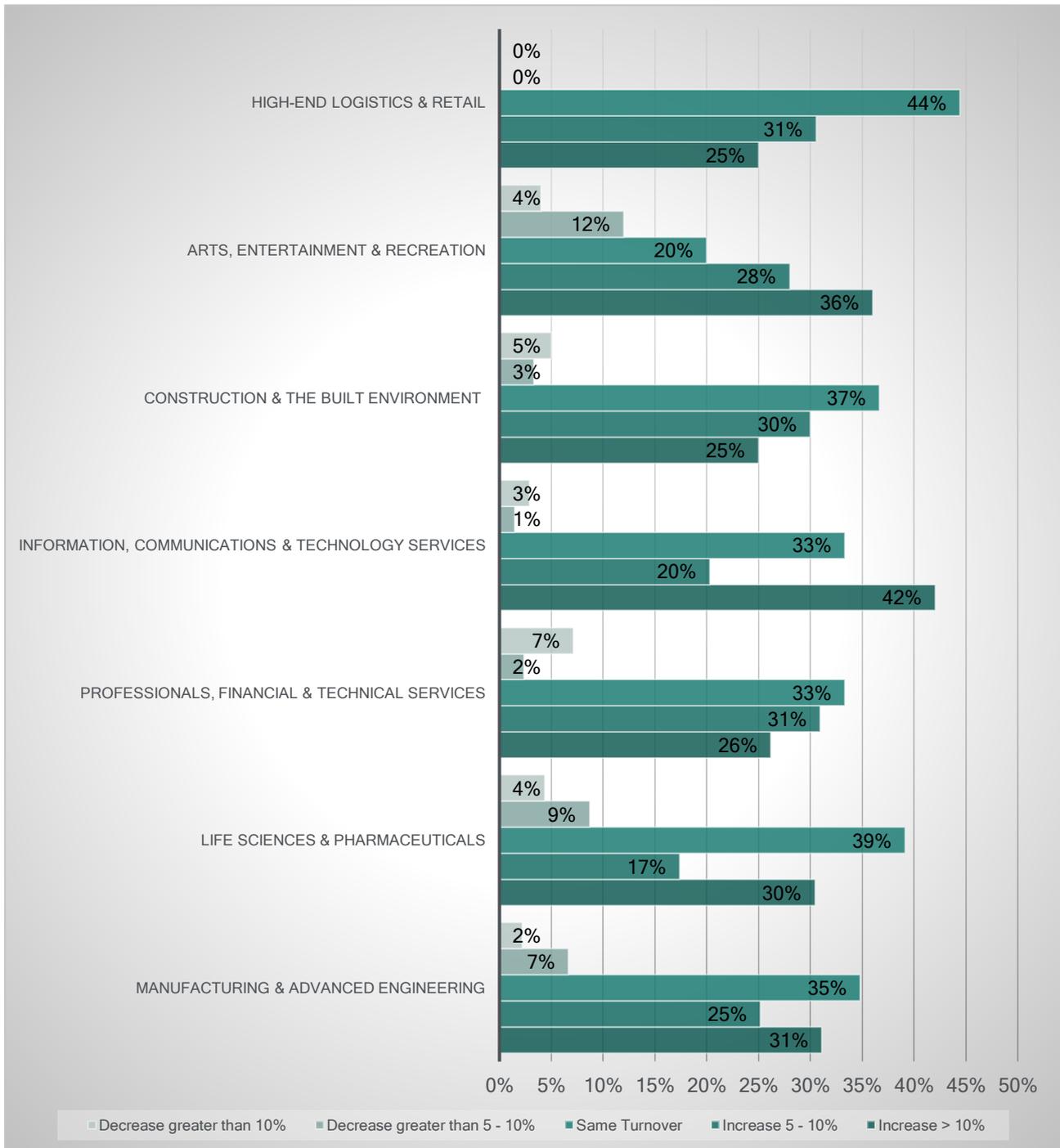
⁴ Includes automobiles and other transport equipment

⁵ Includes scientific R&D

Source: ONS (2016)

The latest employment records, NOMIS 2017, show that in Hertfordshire the human health and social work sector employed 59,000 employees and this represented 9.3 per cent of the total employment. The life sciences and the pharmaceutical sector shows overall good growth, and forecasts strong growth (47 per cent) in the next year, see figure A.2.2.1 below:

FIGURE A.2.2.1 HERTFORDSHIRE LIFE SCIENCES AND THE PHARMACEUTICAL SECTORS' NEXT YEAR GROWTH



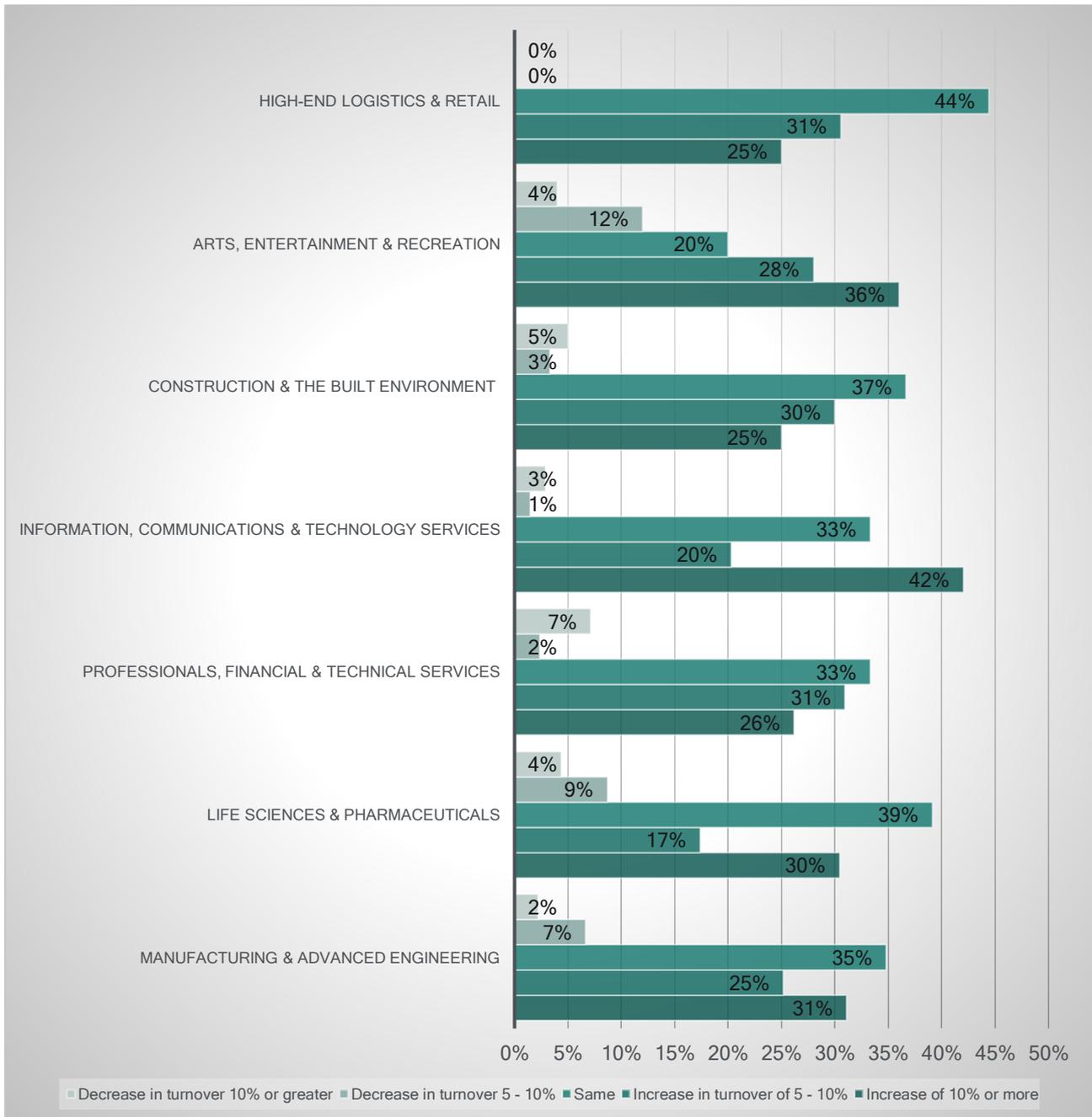
A.2.3 Professional, financial and technical services (PFT)

The PFT services sector has a particular widespread base of strength, with every area showing at least a 13 per cent growth over the last decade (Office for National Statistics 2019b). Some exemptions to this are activities of head offices and management consultants showing growth of the decade of 48 per cent or more. Part of the spectacular growth can be accounted for the 54 per cent increase in the number of enterprises started and grown. This sector overall is an important enabler to the rest of the business community, in that it provides key business, legal, financial and insurance

services. These day-to-day functions are critical in ensuring that the local business community is both operational and fit for the future (IPPR North 2017).

The latest employment records, NOMIS 2017, show that in Hertfordshire the professional/scientific and technical services sector + financial & insurance services sector employed 89,000 employees and this represented 14.1 per cent of the total employment. The sector is dominated by micro- and small-enterprises and as such is constantly being influenced by the marketplace, competition and economic factors relating to their client sectors, see figure A.2.3.1 below:

FIGURE A.2.3.1 HERTFORDSHIRE PROFESSIONAL, FINANCIAL AND TECHNICAL SERVICES SECTORS' NEXT YEAR GROWTH



Professional, financial and technical services sector shows a certain conservatism in their predictions of growth rates, 57 per cent suggesting they will grow by 5 per cent or more in the next year.

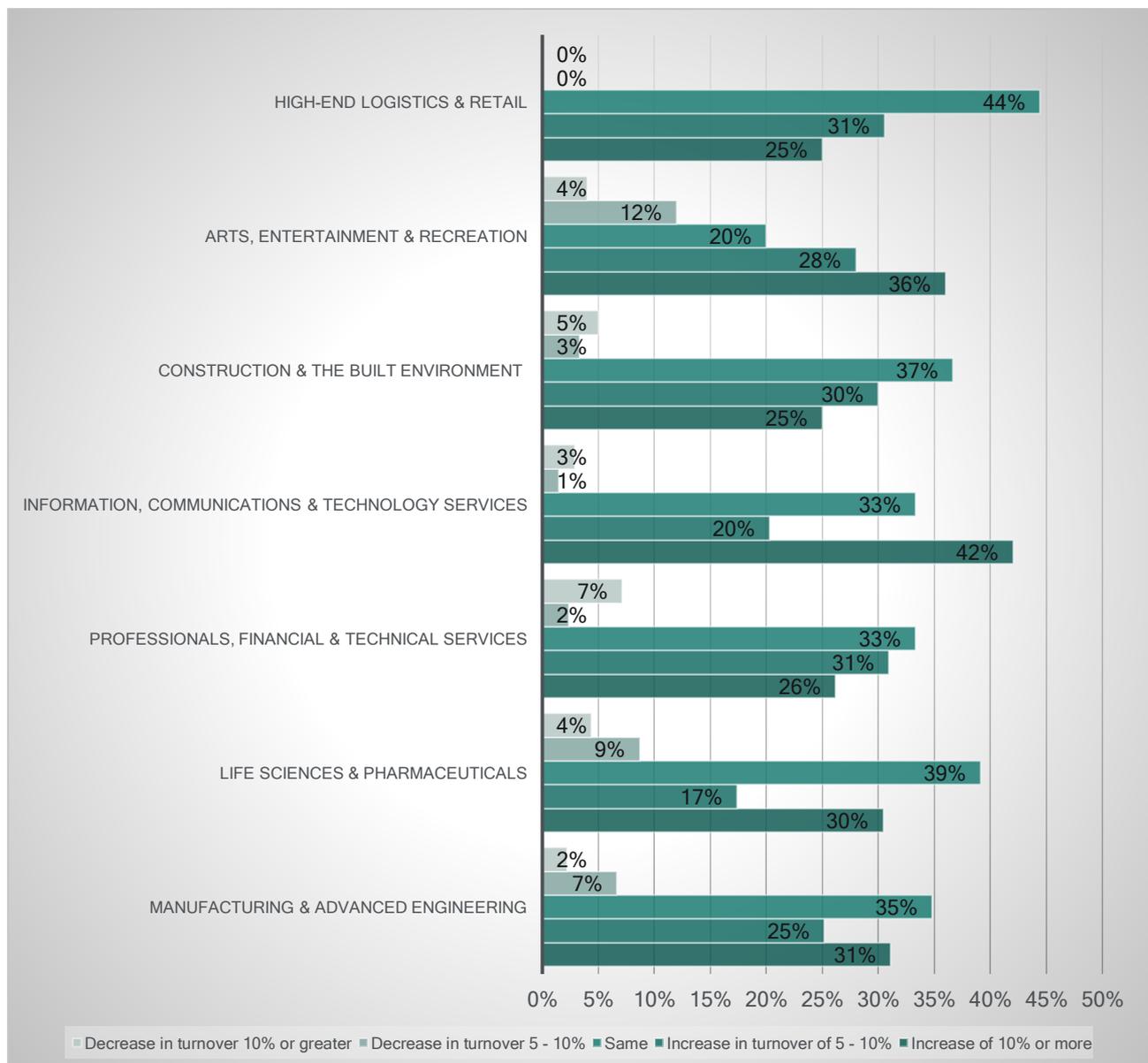
A.2.4 Information, computing and technology services (ICT)

The UK ranks as the 3rd global tech startup eco-system behind both Silicon Valley and New York (Tech Nation UK 2019). An audit by Tech Nation and Streetbees in 2018 revealed some interesting challenges for the eco-system to address, and therefore promote more tech startups:

- Limited infrastructure (Suffolk, parts of Essex)
- Cost of living (Oxfordshire, Cambridgeshire)
- Bad transport links (many rural areas)
- Access to talent (London, Hertfordshire)
- Access to funding (Southampton area)

The latest employment records, NOMIS 2017, show that in Hertfordshire the information/Communications sector employed 30,000 employees and this represented 4.7 per cent of the total employment. 62 per cent of ICT enterprises expect to grow by more than 5 per cent, see figure A.2.4.1 below:

FIGURE A.2.4.1 HERTFORDSHIRE INFORMATION, COMPUTING AND TECHNOLOGY SERVICES SECTORS' NEXT YEAR GROWTH



A.2.5 Construction and the built environment

The UK construction industry make a substantial contribution to the UK economy of £320 billion, and employs over 3.1 million people, nearly 9 per cent of the UK's workforce (Strategy 2019, Department of Business Energy & Industrial Strategy 2019). It has long been realized that the sector suffers from unpredictable work, poor sustainability of capital and workforce investment, and a general lack of intra- and inter-sector collaboration (Department of Business Energy & Industrial Strategy 2019). As a consequence, their productivity is 21 per cent below the average UK productivity level.

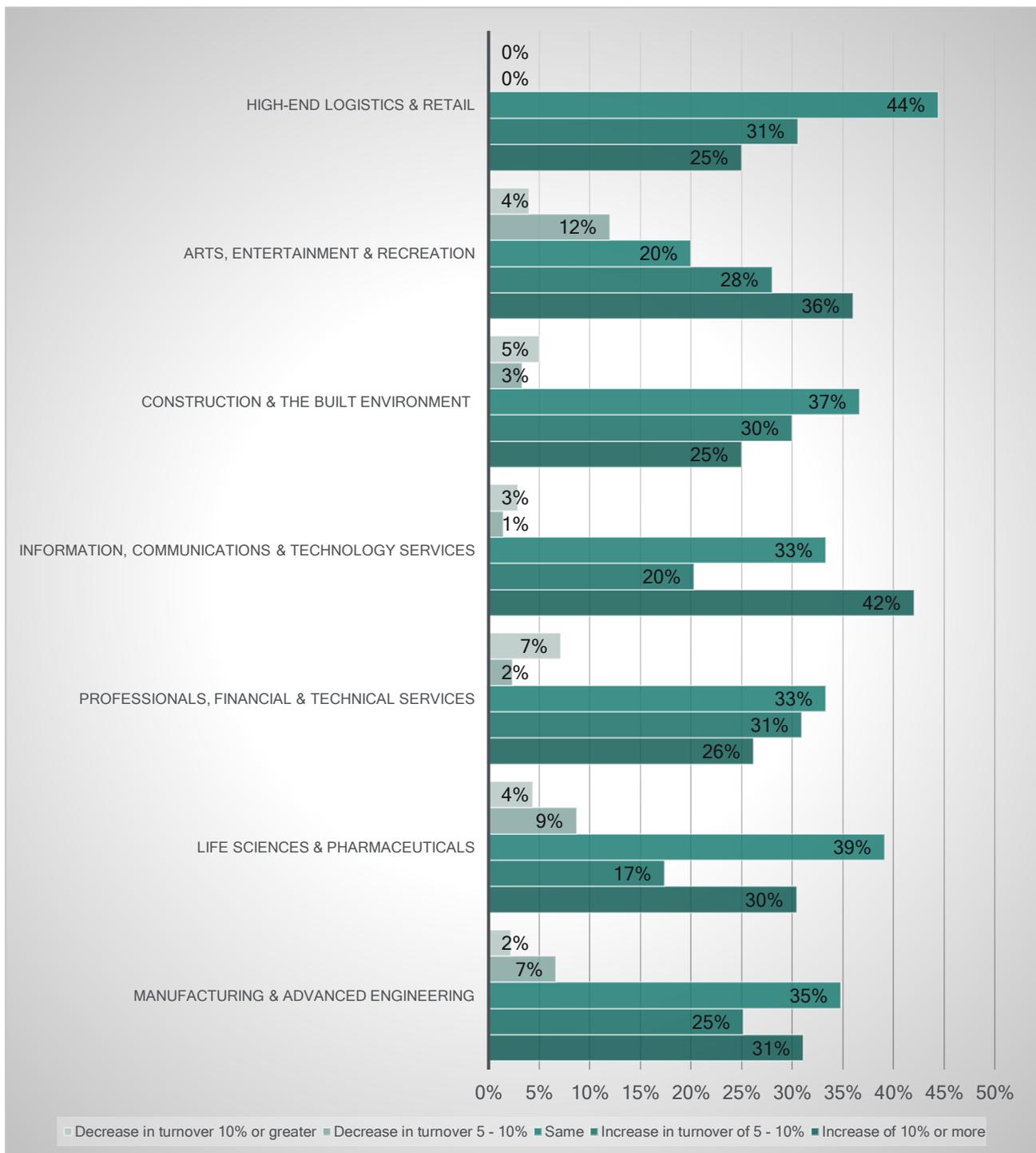
In the latest ONS data for April 2019, the construction output showed a continued modest growth in the sector, see figure A.2.5.1 below (Statistics 2019):

FIGURE A.2.5.1 CONSTRUCTION OUTPUT SINCE APRIL 2014



The latest employment records, NOMIS 2017, show that in Hertfordshire the construction sector employed 38,000 employees and this represented 6 per cent of the total employment. Regionally, the construction and the built environment sector shows steady growth, see figure A.2.5.2 below:

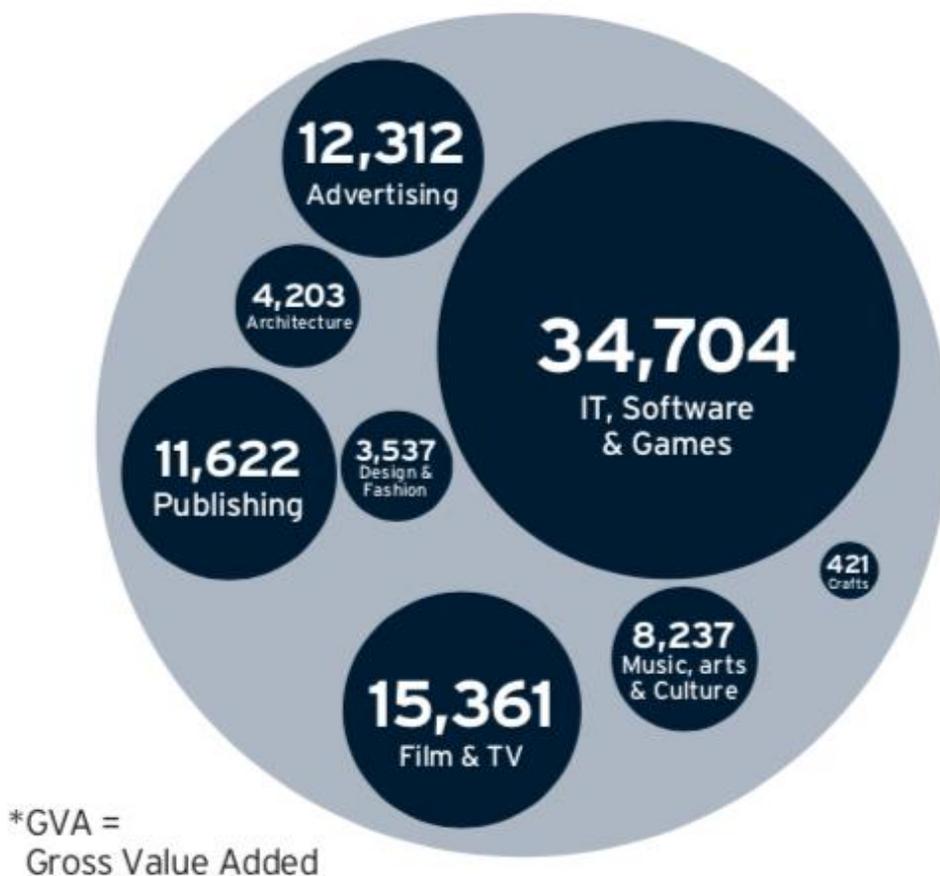
FIGURE A.2.5.2 HERTFORDSHIRE CONSTRUCTION AND THE BUILT ENVIRONMENT SECTORS' NEXT YEAR GROWTH



A.2.6 Arts, entertainment and recreation (AER)

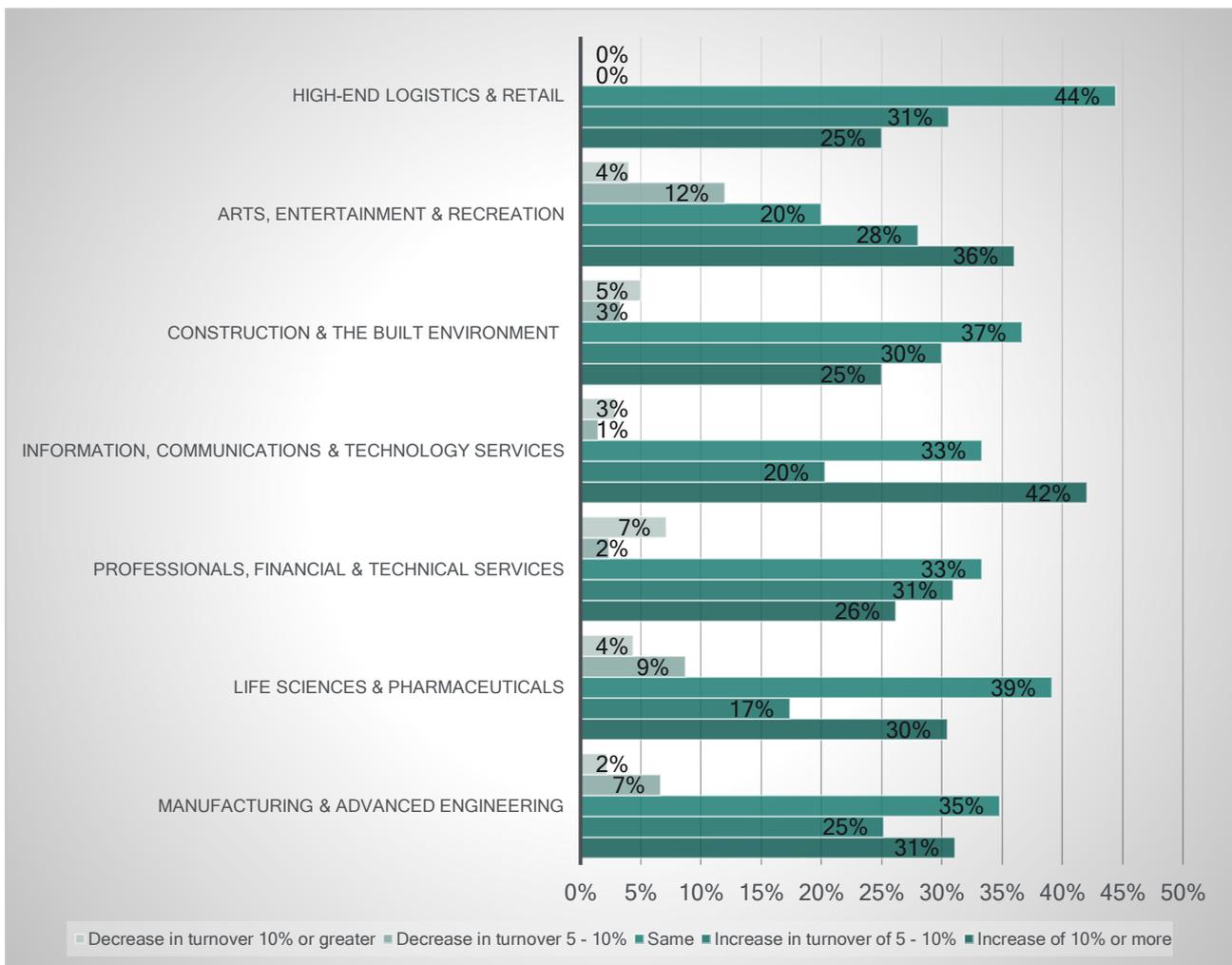
The UK's creative industries is a very broad cluster of film, music, fashion & design, arts, architecture, publishing, advertising and video games/crafts (HM Government 2018b). The creative industries delivers £92 billion to the UK's Gross Value Added (GVA), and over 2 million jobs. It is predicted that with the current UK government sector deal this sector alone will grow by 50% by 2023 worth over £150 billion and create 600,000 new jobs. The overall contributions from these different industries is impressive, see figure A.1.6.1 below:

FIGURE A.2.6.1 ART, ENTERTAINMENT AND RECREATION SECTOR OVERVIEW



The latest employment records, NOMIS 2017, show that in Hertfordshire the arts/entertainment and recreation sector employed 16,000 employees and this represented 2.5 per cent of the total employment. The Arts, entertainment and recreation sector shows above business growth rates for the next year, see figure A.2.6.1 below:

FIGURE A.2.6.2 HERTFORDSHIRE ARTS, ENTERTAINMENT AND RECREATION SERVICES SECTORS' NEXT YEAR GROWTH



A.2.7 High-end logistics and retail (HL&R)

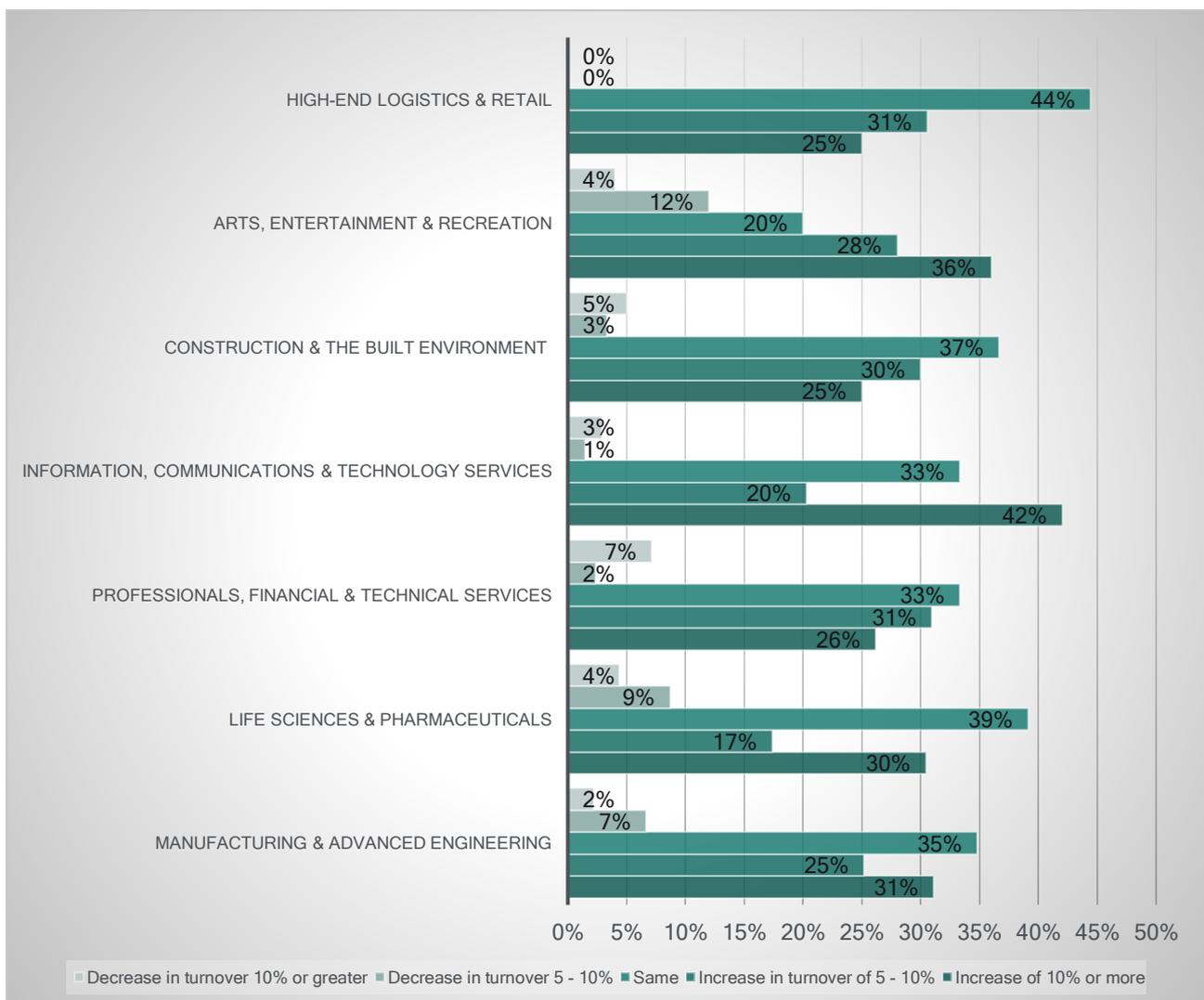
In the UK, HL&R sector employs 2.8 million people, over 70 per cent of this workforce are in small to medium-sized enterprises. This sector suffers similar to the arts, entertainment and recreation sector above in that the vast majority have a dominant local customer base and represent over 95 per cent of the least productive (long-tailed low productivity) enterprises in the UK (Department of Business Energy & Industrial Strategy 2019). The challenges for these enterprises in improving productivity are limited, for the smaller enterprises the options are reduce staff, and/or pay differentials. For the larger enterprises then the investment in technology, supply chain efficiencies and workforce training can improve productivity. For retailers like John Lewis Partnership the focus on technology/innovation in both digitalization and automation of their supply chain is delivering value, and they perceive this as a major 'structural shift' in the sector (Department of Business Energy & Industrial Strategy 2019). Interestingly, the retail sector productivity has grown three times faster than the national average, but it still remains below the UK average.

The latest employment records, NOMIS 2017, show that in Hertfordshire the wholesale and retail sector employed 119,000 employees and this represented 18.8 per cent of the total employment. The Hertfordshire Economic Outlook Report 2018 makes detailed reporting on the following areas, not deeply covered in this report (Hertfordshire LEP 2018a):

- Hertfordshire jobs and employment
- Hertfordshire employee earnings
- Participation in employment
- Types of jobs and skills
- Overall Hertfordshire workforce
- Qualifications
- School qualifications
- Unemployment

At the national level, both in the UK government and in other national research institutions, more research is being commissioned to help better understand both, the value generated, and the challenges to micro- and small-enterprises (CABS 2017). Regionally, the micro- and small-enterprises in this sector show a steady prediction regarding growth and sustainability, see figure A.2.7.1 below:

FIGURE A.2.7.1 HERTFORDSHIRE HIGH-END LOGISTICS AND RETAILING SECTORS' NEXT YEAR GROWTH



A.3. Leading and managing technology and innovation

In 1999 Peter Drucker issued the challenge to businesses to 'Innovate or Die' (Drucker 1999), in 2019 the challenge comes from the CBI-Oracle partnership to large enterprises, 'It's do or die. Digital transformation is the process of using digital technologies to radically re-organise their business so it can deliver a seamless and efficient customer experiences (CBI 2019a). Over the last decade more than 40% of the previous FTSE 100 businesses are no longer here, conclusion is that they were not able to adapt to changes.

There are two issues that are paramount in the area of technology & innovation, the first is that around digital transformation. The second is around businesses' motivation and skills around adopting these new technologies, being new to the world and/or new to the sector. Research on enterprises' challenges in making this digital transformation provide value lessons to both large and small enterprises alike (CBI 2019a), most of these focus on:

- **Legacy systems** built up over the years can be both an asset and a serious constraint for change. These multiple inter-connected processes/systems are embedded into the daily operations. To change these is both difficult and time-consuming;
- **Faster competition** - large enterprises are competing against new startups, in London alone last year there were 4,752 new tech startups (City A.M. 2019). The UK is ranked number one for 'unicorn' startup enterprises valued at more than \$1 billion, with over 13 unicorns with a combined value of \$23 billion, making up more than 37% of all unicorn companies across Europe;
- This **digital transformation** comes with a higher risk of cyber-attacks. The businesses' higher profile assures them of particular targeting by cyber criminals, looking at companies with large amounts of data, the proper measures need to be taken.

FIGURE A.3.1 THE IMPORTANT FACTORS CONTRIBUTING TO DIGITAL TRANSFORMATION

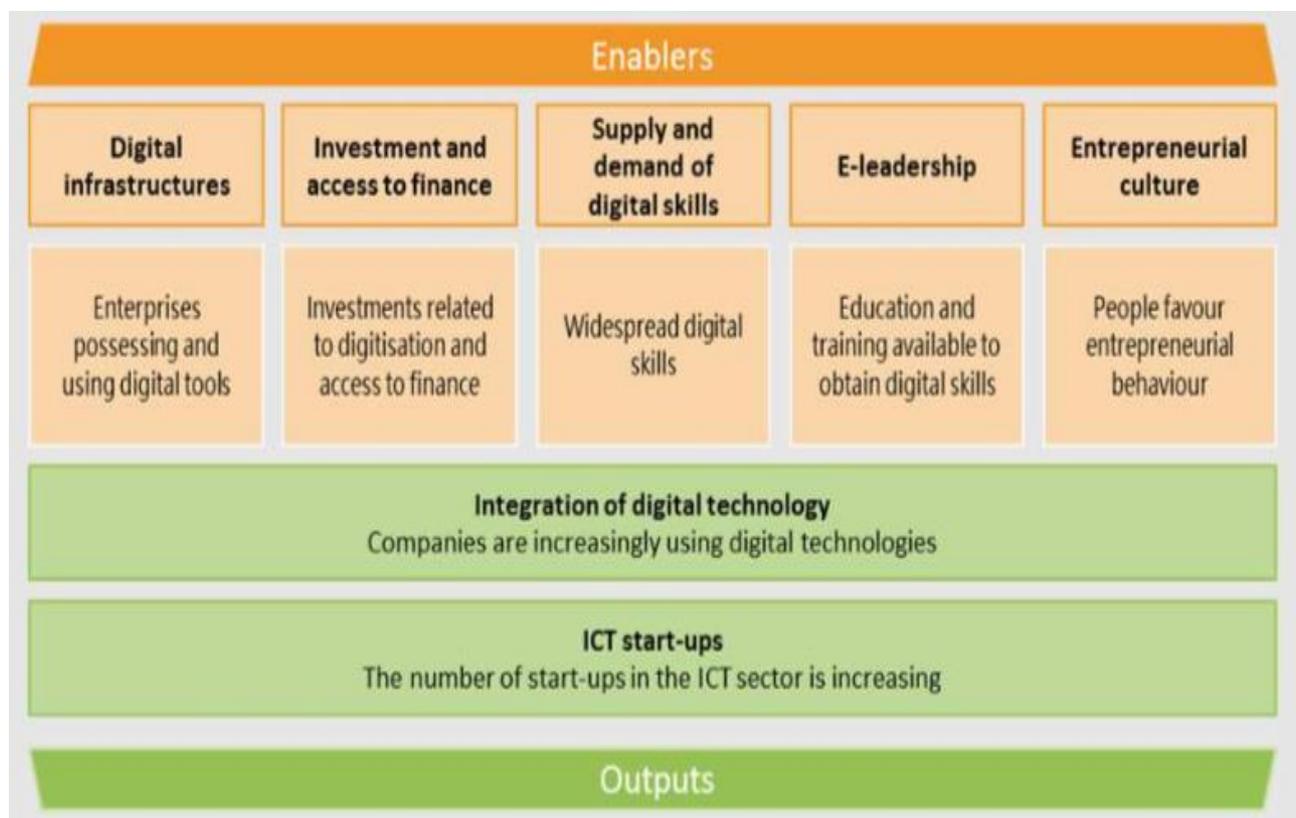


Figure A.3.1. above shows some of the challenges facing enterprises in engaging in this Digital Transformation evolution (European Commission 2018). What we see is the important links between the objective to engage in digital transformation and the subsequent investment needed, the ability to develop the digital skills of the workforce, providing appropriate leadership and management to transform, and an effective entrepreneurial culture.

Technology provides a leading impetus in both driving the competitiveness and productivity of UK manufacturing and advanced engineering, and also helping to drive goods/service innovation (Foresight 2013). **Primary or underpinning technologies** will unlock the ability of enterprises to find new ways of enhancing their goods/service deliverables, and in improving processes (ibis). **Secondary or contingent technologies**, such as the internet, the internet of things, robotics, cloud computing, and many other digital areas will make use of these primary technologies to facilitate customization and delivery of more innovative goods/services (European Commission 2018). During the period 2014-16 over 50 per cent of UK enterprises were innovation active, a slight decline on the previous period 2012-2014 (Department for Business Energy & Industrial Strategy 2018b). Suggesting that enterprises are keen to adapt and use these technologies to innovate their goods/service offerings.

In the area of R&D, the UK government is committed to raise investment in R&D to 2.4 per cent of GDP by 2027, there are some economists who consider this to be too timid (Isabelle Roland 2018). In this HBPS study over 45 per cent of enterprises invest 4 per cent or more of their turnover in research and development activities.

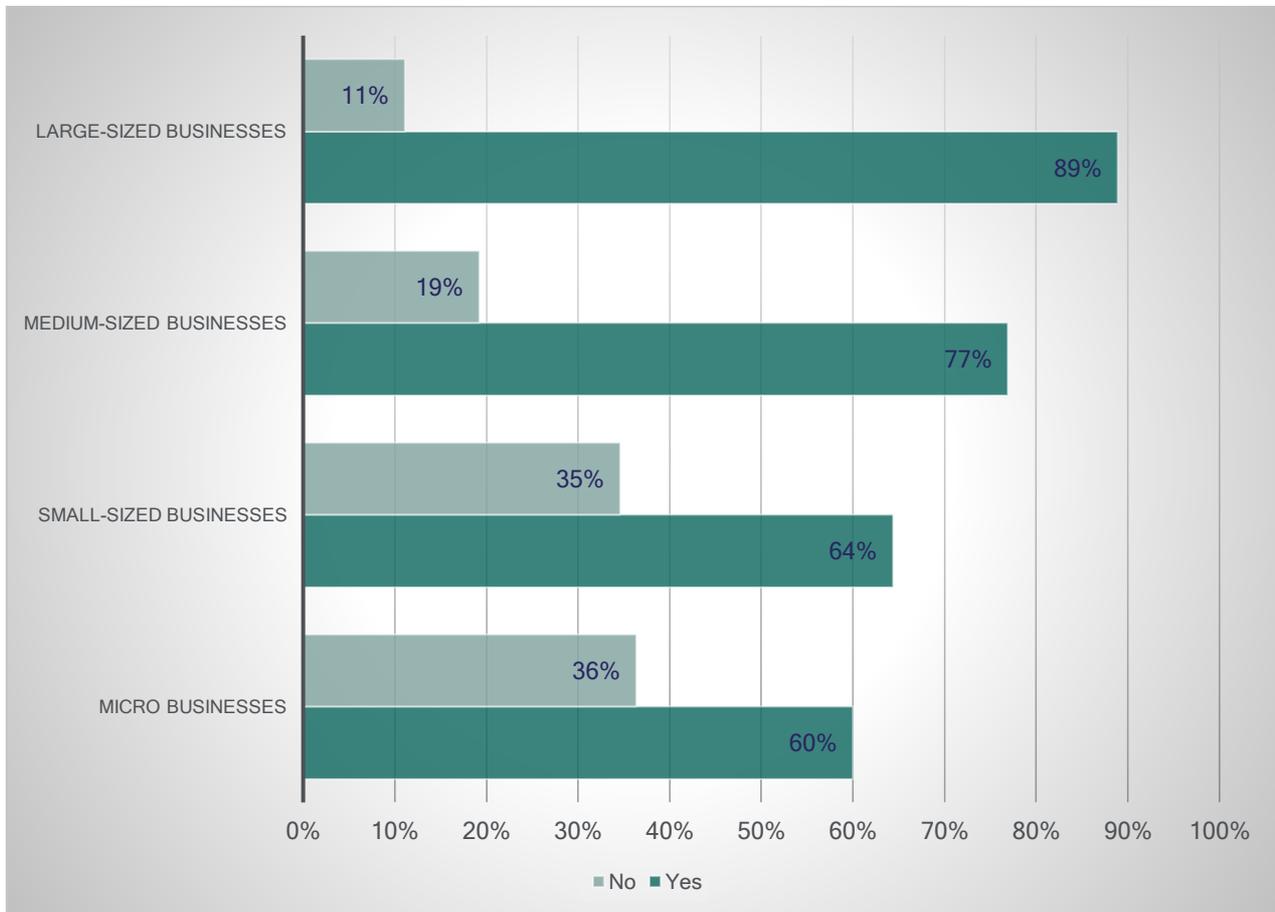
Nationally, UK enterprises are primarily focusing on the following areas (Department for Business Energy & Industrial Strategy 2018b):

- Process innovation (25 per cent);
- Changes in market concepts and strategies (30 per cent);
- Introduction of new to the market goods (36 per cent);
- Introduction of new methods to organize work (38 per cent);
- Introduction of new business practices (51 per cent);

In the SME sector, two predominant factors influence their investment and engagement in technology and innovation, internal and external enablers. Unlike large enterprises the evidence for heavy investment in research and design, intellectual property management, workforce diversity and employee engagement is naturally weaker. However, SME's openness to engaging with external partners shows a strong positive link to both innovation activity, and overall export performance (Love and Roper 2013a).

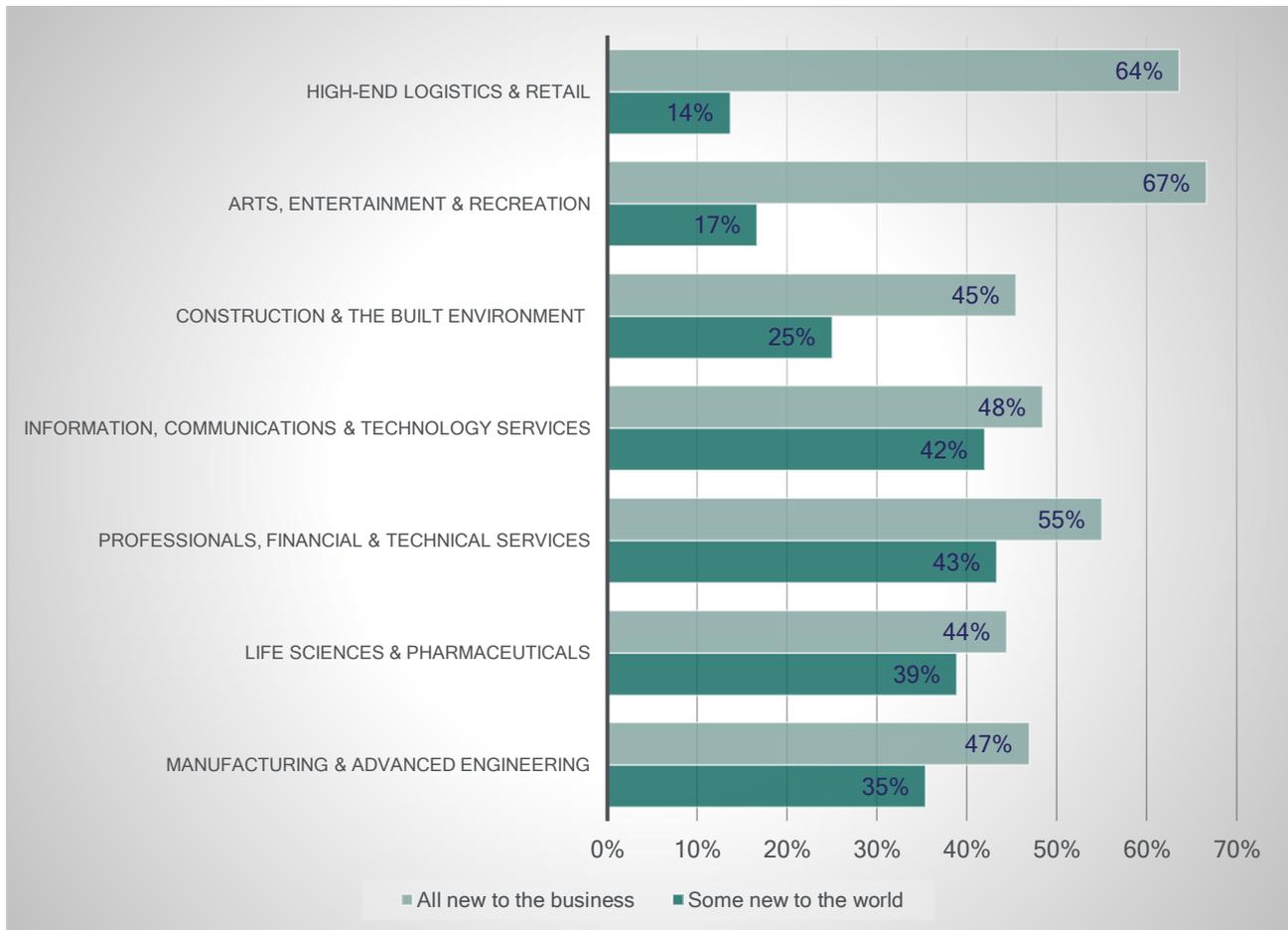
The HBPS study shows that over 89% of large enterprises through to 60% of micro-enterprises have introduced new goods, services or processes in the last three years, see figure A.3.1 below. This compares favorably with the national picture where over 63 per cent of large enterprises, and 49 per cent of SMEs had launched goods in the last three years (Department for Business Energy & Industrial Strategy 2018b).

FIGURE A.3.1 INTRODUCED NEW GOODS, SERVICES OR PROCESSES IN THE LAST THREE YEARS



The above shows the importance that Hertfordshire enterprises place on delivering new goods, services and processes to help maintain their competitiveness, sustainability, future growth, increased productivity and turnover. Clearly some sectors see the need to create, develop and deliver goods/services that are new to the world, being driven by the latest primary and secondary technologies, see figure A.3.2 below. Nationally, the proportion of SME's that have introduced new or significantly improved goods, services or processes have dropped over the last five years, more so for the micro- and small-enterprises (Department for Business Energy & Industrial Strategy 2018a). Suggesting that these small enterprises are struggling to resource these developments, either because of lack of relevantly skilled staff and/or the leaders/managers skills in directing and guiding this activity. Those sectors that are struggling (construction and the built environment; Information, communications and technology services; life sciences and the pharmaceuticals, manufacturing and advanced engineering) the most are also witnessing an increased 'unfilled higher skilled vacancies' challenge, more on this in section A.5.

FIGURE A.3.2 HERTFORDSHIRE ENTERPRISES' GOODS/SERVICE INNOVATION, NEW TO BUSINESS AND/OR NEW TO WORLD



Sectors that are highly dependent on primary and secondary technologies to maintain competitiveness and/or grow and improve productivity (information communications & technology services, life sciences & pharmaceuticals, professionals financial and technical services, and manufacturing & advanced engineering) are also the biggest employers of graduates with STEM skills, and important link for future capability of these sectors. In the latest BEIS innovation survey 2017 manufacturing and construction were more innovatively active than high-end logistics and retail, and many of the other service industries (Department for Business Energy & Industrial Strategy 2018b). This innovation activity can be both technology and non-technology driven.

Nationally, enterprises that invest in technology and innovation show strong positive links with their overall sales performance, export ability and productivity (Love and Roper 2013a). Research carried out by the CBI suggests that those enterprises that embrace technology and innovation are proven to be effective at adopting best practices from other sectors, where ever they are, and use this to lift their overall competitiveness and productivity(CBI 2017). Interestingly, the technology (25 per cent) versus non-technology driven innovations (42 per cent) supports the trend towards service innovations, 'new business practices' and 'methods of organizing work', over product and process innovations (Department for Business Energy & Industrial Strategy 2018b). Showing that most enterprises prefer the lower risk pathways to enhancing competitive advantage and improving productivity.

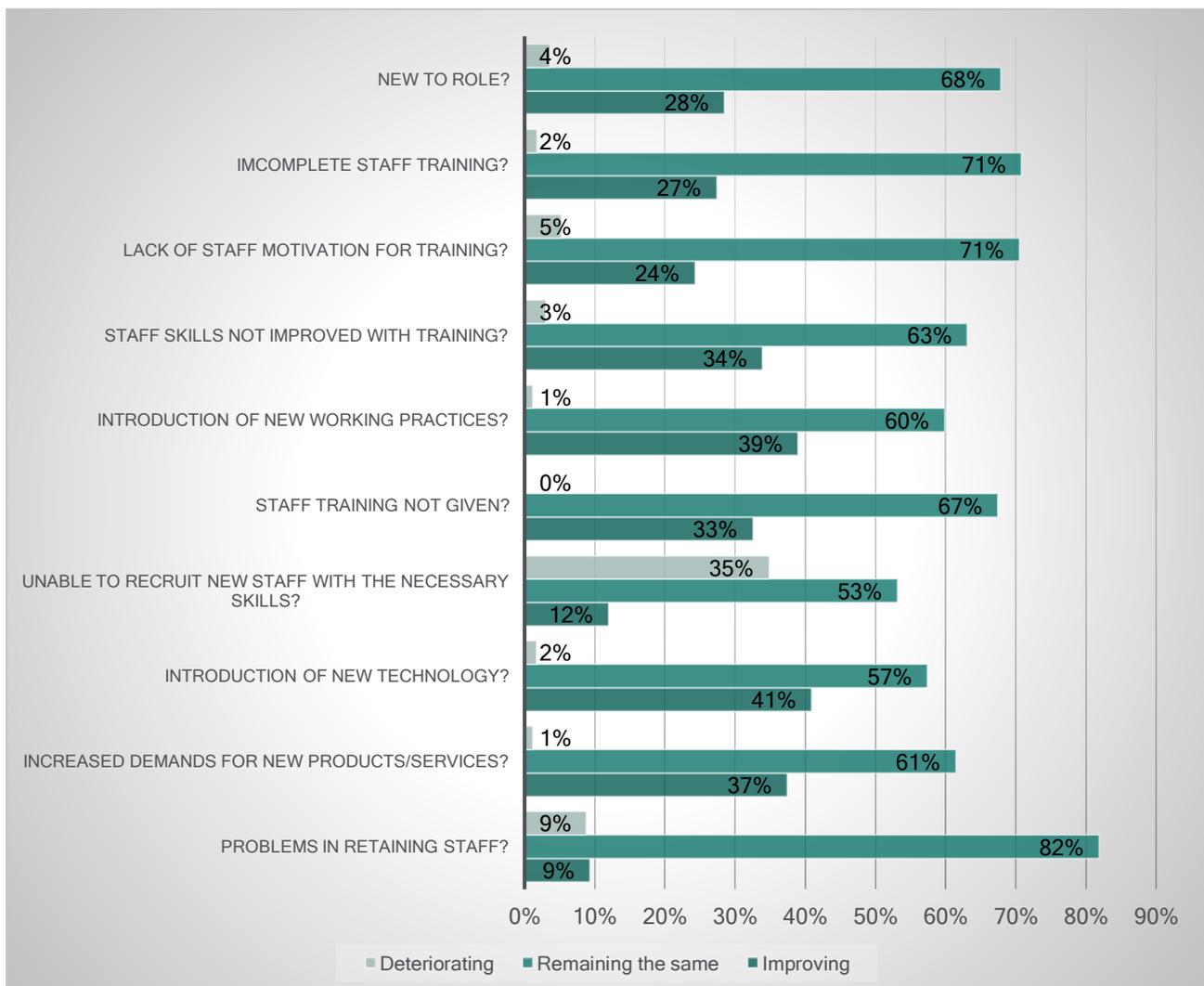
This leads nicely into the next section, as technology and customer demands change, so enterprises need to enhance their workforces' skills to become more timely in their creative and innovative (CBI 2018).

A.4. Skills gaps in Hertfordshire employer's workforce and management

The UK government's industrial strategy highlights the importance of upskilling the UK workforce by "ensuring that everyone can improve their skills throughout their lives, increasing their earning power and opportunities for better jobs" (HM Government 2018a).

CBI/Pearson in its annual education and skills survey of nearly 28,000 employers in 2018, suggest that employers are still worried about the gap between supply and demand of skilled people (CBI 2018). The 'Employer Skills Survey 2017' noted that 13 per cent of UK employers suggested that their workforce lacked full proficiency in their current role (Department of Education 2018a). Interestingly, enterprises' report continued support for training and staff development, but the survey records a drop in the overall uptake of apprenticeships, and a downturn in employers' engagement with local schools/colleges (CBI 2018). In 2017, the influential 'Employer Skills Survey 2017' suggested that over 20% of UK employers have unfilled vacancies, an increase year on year over the last five years (Department of Education 2018a). Linking into the previous section, A.3, the UK as a whole faces a digital skills crisis, where up to 12.6 million of the adult population lack even the basic digital skills (House of Commons 2016-17). It is estimated that this digital skills gap is costing the UK economy over £63 billion in lost additional productivity.

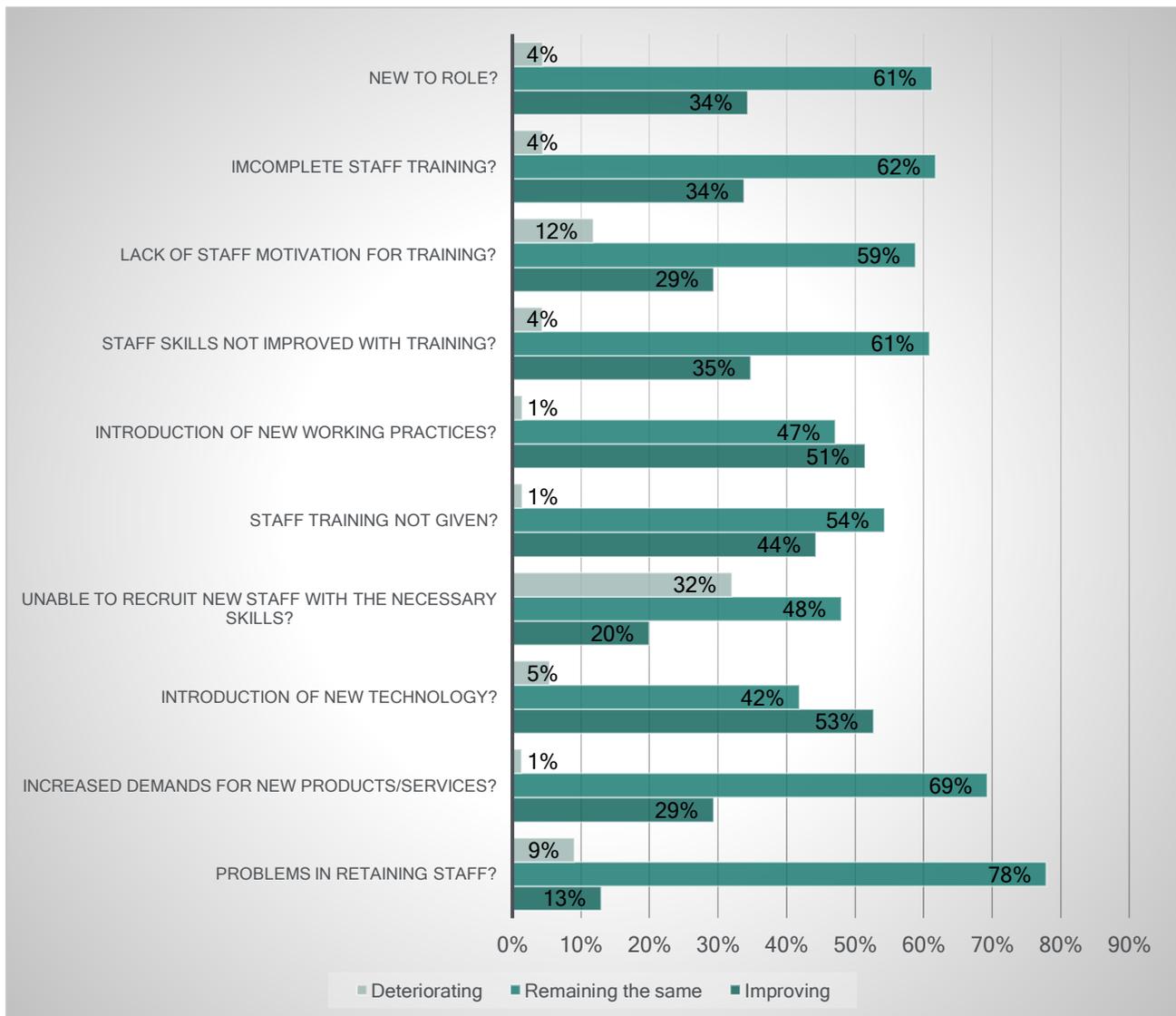
FIGURE A.4.1 HERTFORDSHIRE SMALL-ENTERPRISES' WORKFORCE SKILLS GAPS



In addition broader STEM skills shortages are still a major concern for all sectors, from manufacturing to the arts (HM Government 2018a). Both the shortage of STEM graduates, and school and college leavers, is a growing concern when jobs in science, research, engineering and technology are expected to rise at double the rate of other occupations. This gap between supply and demand is particularly worrying in sectors that are key to future UK economic growth and improved productivity.

In Hertfordshire the difficulties in recruiting appropriately skilled staff are more acute in the small (35 per cent) and medium-sized (32 per cent) enterprises, see figure A.4.1 and A.4.2 see below:

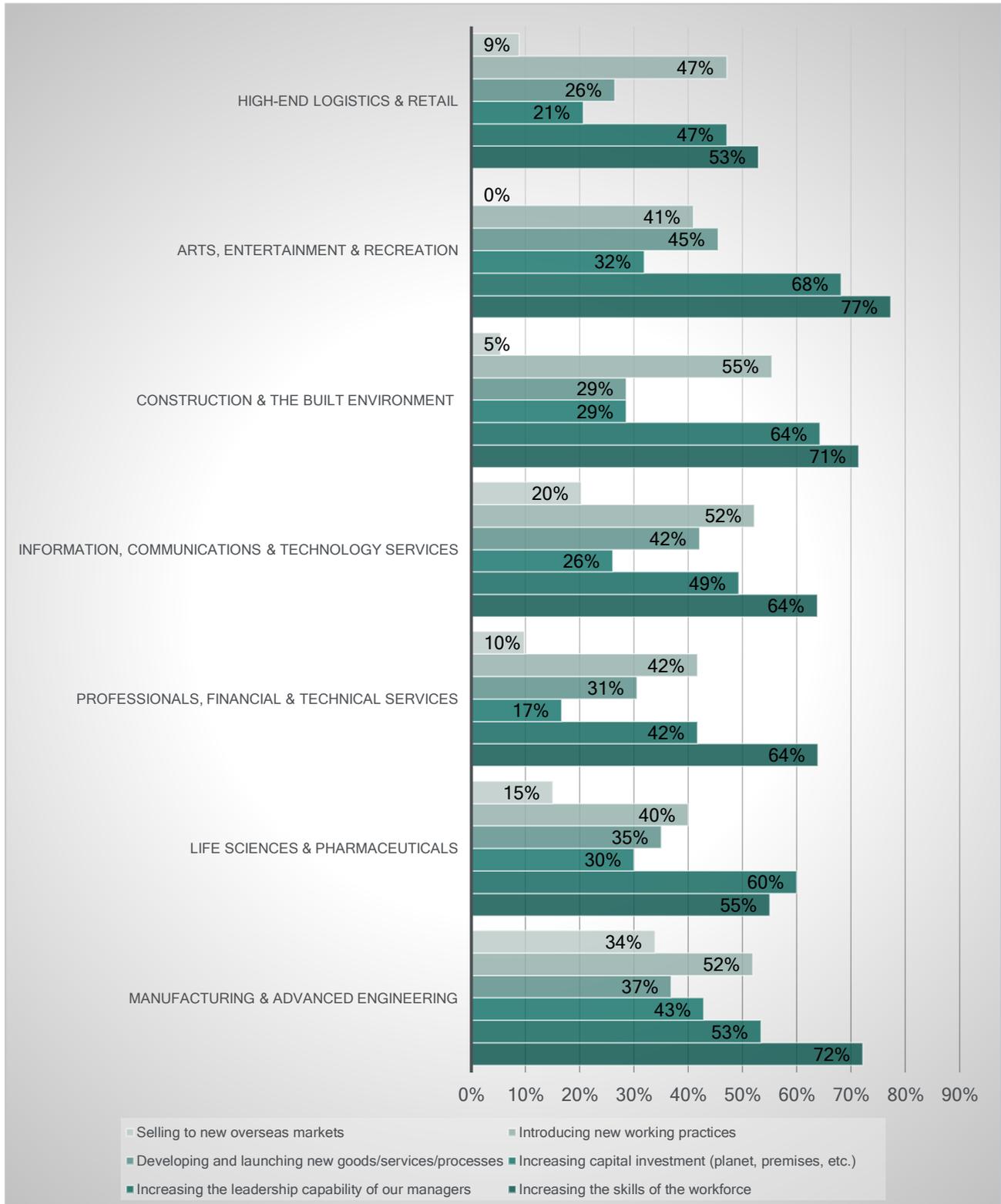
FIGURE A.4.2 HERTFORDSHIRE MEDIUM-ENTERPRISES' WORKFORCE SKILLS GAPS



It is also important to highlight the local variances in skills levels across the county. In general Hertfordshire residents are well-qualified against the national level, 42.4 per cent of Hertfordshire residents have NVQ level 4 or above compared to the UK level of 39.3 per cent (NOMIS 2017). Yet for those living in areas such as Stevenage (23.1 per cent of residents have NVQ level 4 or above qualifications) and Broxbourne (19.2 per cent of the population have NVQ level 4 or above qualifications) they are less-qualified compared to other Hertfordshire district areas (Department for Education 2017). This results in more youth unemployment and challenges in the overall high-skilled pipeline into Hertfordshire STEM-skilled enterprises.

Across all sectors in Hertfordshire the focus of enterprises is on increasing the overall skills base of their workforce and management, with the highest priority being in the area of STEM skilled occupations in industries such as life & the pharmaceuticals (55 per cent), construction & the built environment (71 per cent), professionals financial and technical services (64 per cent), and manufacturing & advanced engineering (72 per cent), see figure A.4.4 below:

FIGURE A.4.4 HERTFORDSHIRE ENTERPRISES BUSINESS PLANS FOR THE NEXT THREE YEARS, BY SECTOR



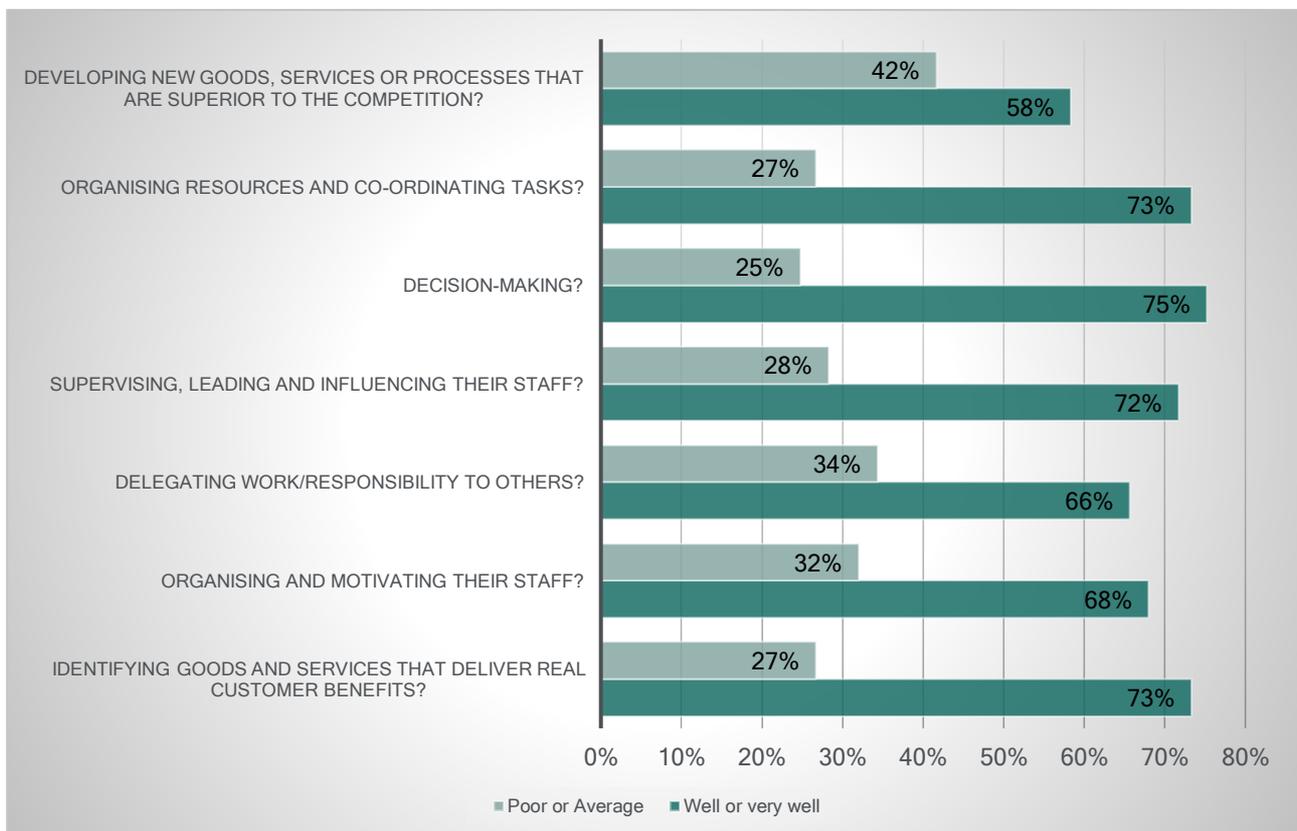
National research supports the significant link between skills gaps and productivity gains (ERC UK 2018b, UKCES 2018). This skills and productivity link is driven by the need for enterprises to integrate into the wider region, national and international value chains and thus both compete effectively and deliver customer value (CBI 2017). To achieve this enterprises need to be able to access a more mobile/highly skilled labour force and improve their external collaborations, see the later section A.7 on information and support.

A.5. Leadership and management

Over the past several decades the UK government, and other learned institutions, have echoed the 'role of good leadership and management in helping us achieve sustainable economic prosperity and growth' (Department for Business Innovation & Skills 2012b, Chartered Association of Business Schools 2018, Department for Business Innovation & Skills 2012a). The UK government can of course do its bit to encourage leadership and management training through initiatives/incentives, and other funding streams that employers can access. However, it's the employer that needs to engage and be the driving force behind improvements in leadership and management, by:

- Critically looking at their current leadership practices - key to good management practices and SME performance are their entrepreneurship and leadership skills (Department for Business Innovation & Skills 2015b);
- Being prepared to make changes, even if that means diverting resources away from other activities.

FIGURE A.5.1 HERTFORDSHIRE ENTERPRISE PERCEPTION OF THEIR LEADERS' AND MANAGERS' PERFORMANCE IN THE LAST YEAR



In the SME sector, over 99.5 per cent of enterprises owner/managers in Hertfordshire prioritise on business strategy over and above updating their leadership and management skills (FSB 2016).

This is closely linked to their own assessment (64 per cent) of leadership and management in holding back both growth and improvement in productivity.

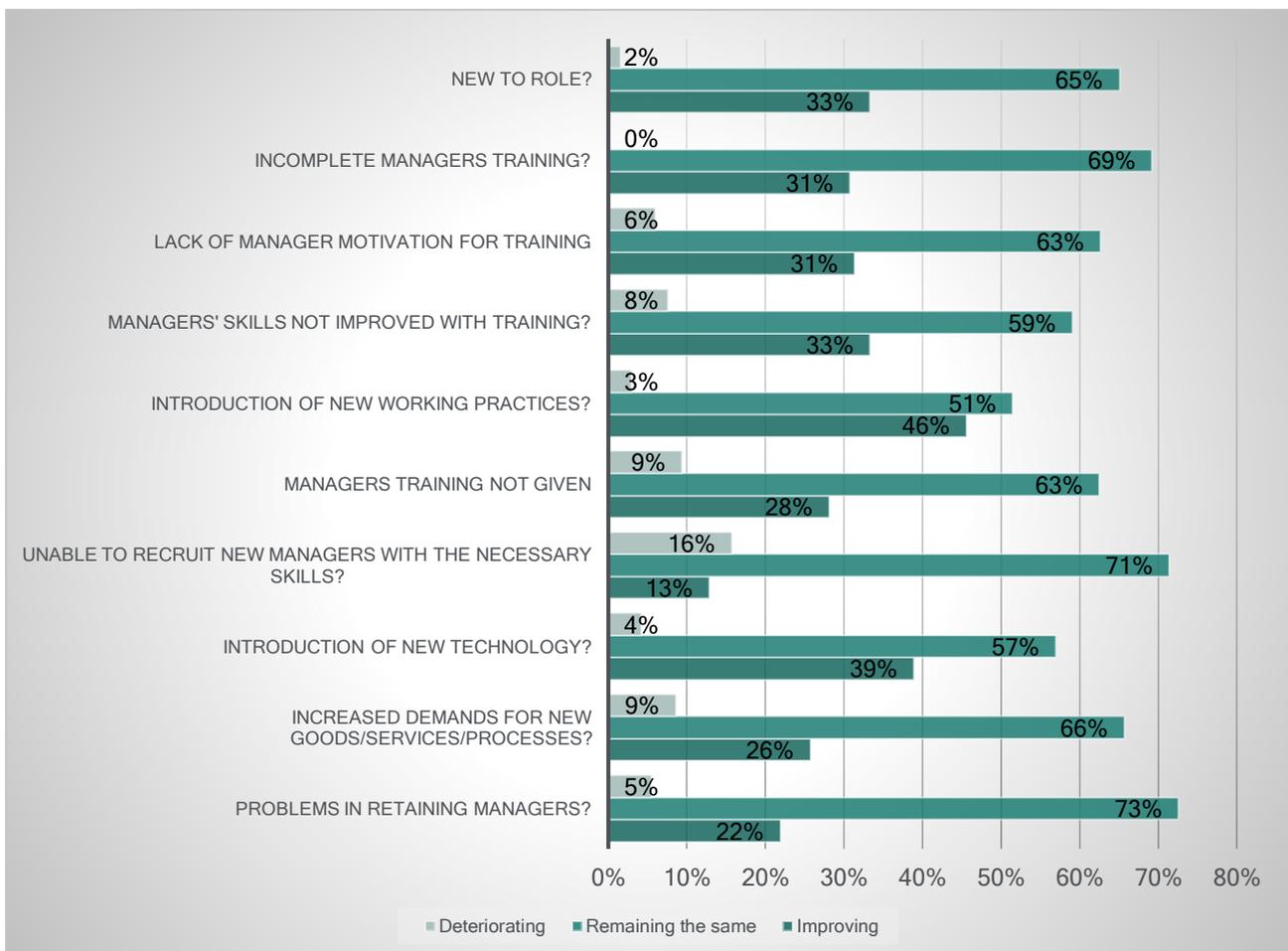
On average one in three Hertfordshire enterprises perceive their leaders and managers to be either poor or just average in their performance, significantly so (42 per cent) in the area of developing new goods, services or improved processes, see figure A.5.1 above.

Interestingly, when medium-sized Hertfordshire employer' were asked about the reasons behind these performance differences in their leaders/managers, their responses were interesting:

- 73 per cent put it down to the difficulty in retaining managers;
- 71 per cent cited the problem of recruiting a suitably skilled manager in the first place;
- 66 per cent suggested it related to the increased demands of leaders/managers to drive new goods/service developments;
- 65 per cent that the managers were new to the role;
- 63 per cent insufficient manager training;
- 57 per cent suggested it was down to the introduction of new technology.

Overall, the skills gaps in leaders/managers, and hence the poor to average performance of over 1/3 of all employer leaders/managers is in part being addressed by the employers investment in future training as shown in their future 3 years business plans, see section A.8.

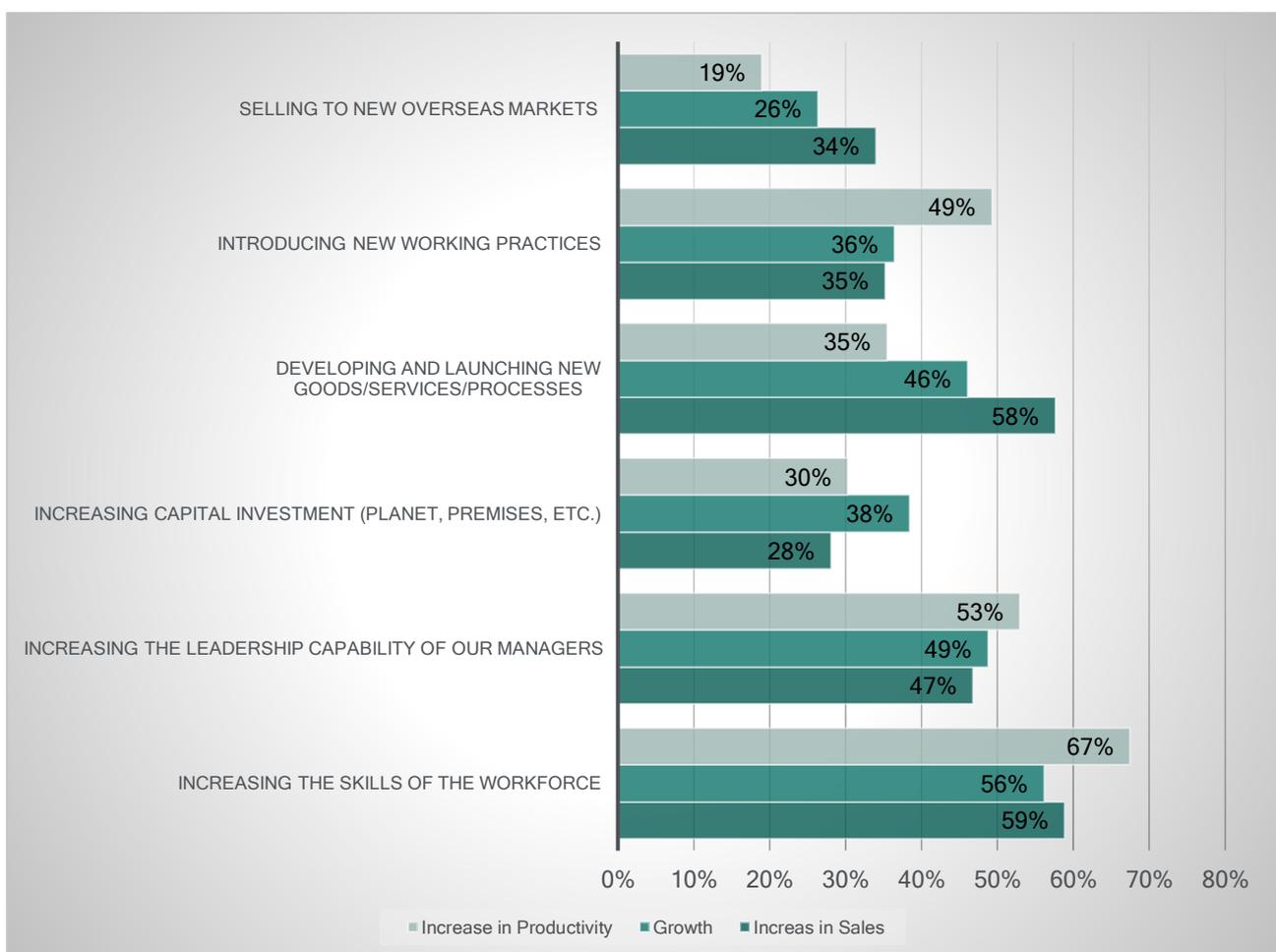
FIGURE A.5.2 HERTFORDSHIRE MEDIUM-ENTERPRISES NOTED SOME CHANGES IN THEIR LEADERS' AND MANAGERS' SKILLS GAPS OVER THE LAST YEAR



Employers' strategy for the next three years recognizes that after increasing their investment in skills training of the general workforce and increasing the leadership capability of their managers, it is expected to have an impact on turnover, growth and improved productivity of the firm, see figure A.5.3 below.

In conclusion, national research informs us that those enterprises that extol strong management practices do have higher labour productivity (Office for National Statistics 2017a). How is this evidenced in enterprises, but through higher employee engagement and development, and most importantly the level of skills commensurate with the specific business performance goals (turnover, profitability and productivity). Those Hertfordshire enterprises exhibiting increased turnover are also those that are seeing an improving situation around managers' skills associated with introducing new goods/services, adoption of new technology and innovation activity (58 per cent in increasing sales), and the introduction of new working practices (49 per cent improvement in productivity) (McKinsey Global Institute 2017).

FIGURE A.5.3 HERTFORDSHIRE ENTERPRISES' BUSINESS PLANS FOR THE NEXT THREE YEARS



A.6. Business constraints

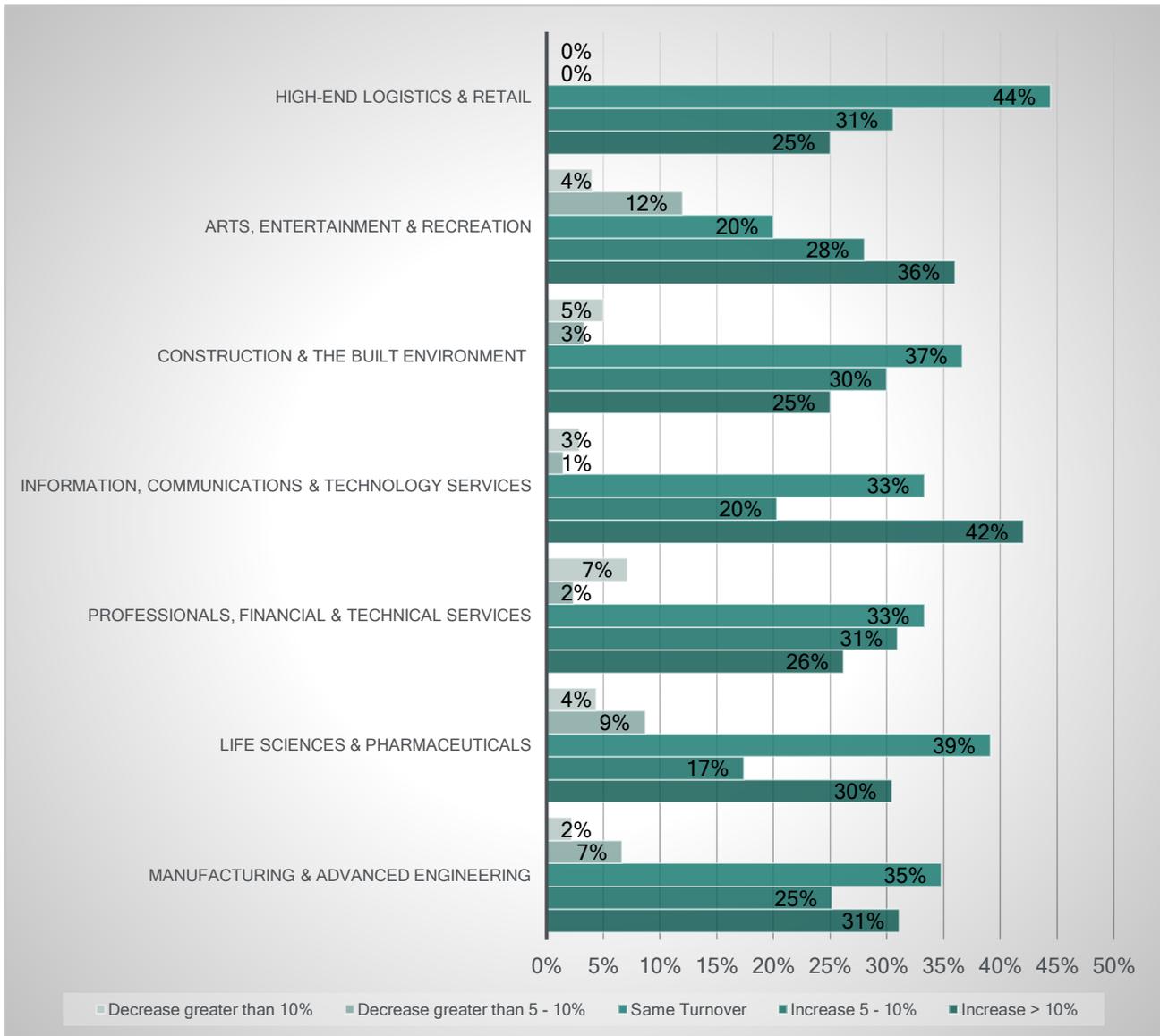
The UK is renowned for being a great place to start-up and grow a business (HM Government 2018a). This gives the UK and Hertfordshire a great opportunity to capitalize on these successes and help other less-successful enterprises utilize these best practices in their own enterprises to both grow and improve productivity.

Yet research still shows that SME's, in particular' cite the following as the principal constraints on their business growth and productivity (ERC UK 2018b):

- Competition in the marketplace (51 per cent and rising);
- Regulations and red tape (46 per cent and rising);
- Taxation, VAT, PAYE etc. (41 per cent and rising);
- Staff recruitment and skills gaps (37 per cent and rising);
- UK's exit from the EU (27 per cent and rising);
- Workplace pensions (21 per cent and rising);
- Obtaining finance (18 per cent and rising).

Yet with all of these business constraints Hertfordshire enterprises are still predicting strong growth in the coming year, particularly in manufacturing & advanced engineering (56 per cent), construction & the built environment (55 per cent), information/communications & technology services (62 per cent), and life sciences & the pharmaceutical (47 per cent) sectors. In the services industries, arts/entertainment and recreation and high-end logistics & retail are also predicting strong growth (64 per cent and 56 per cent) respectively, see figure A.6.1 below.

FIGURE A.6.1 HERTFORDSHIRE ENTERPRISES' PREDICTION OF TURNOVER GROWTH/DECLINE IN NEXT 12 MONTHS

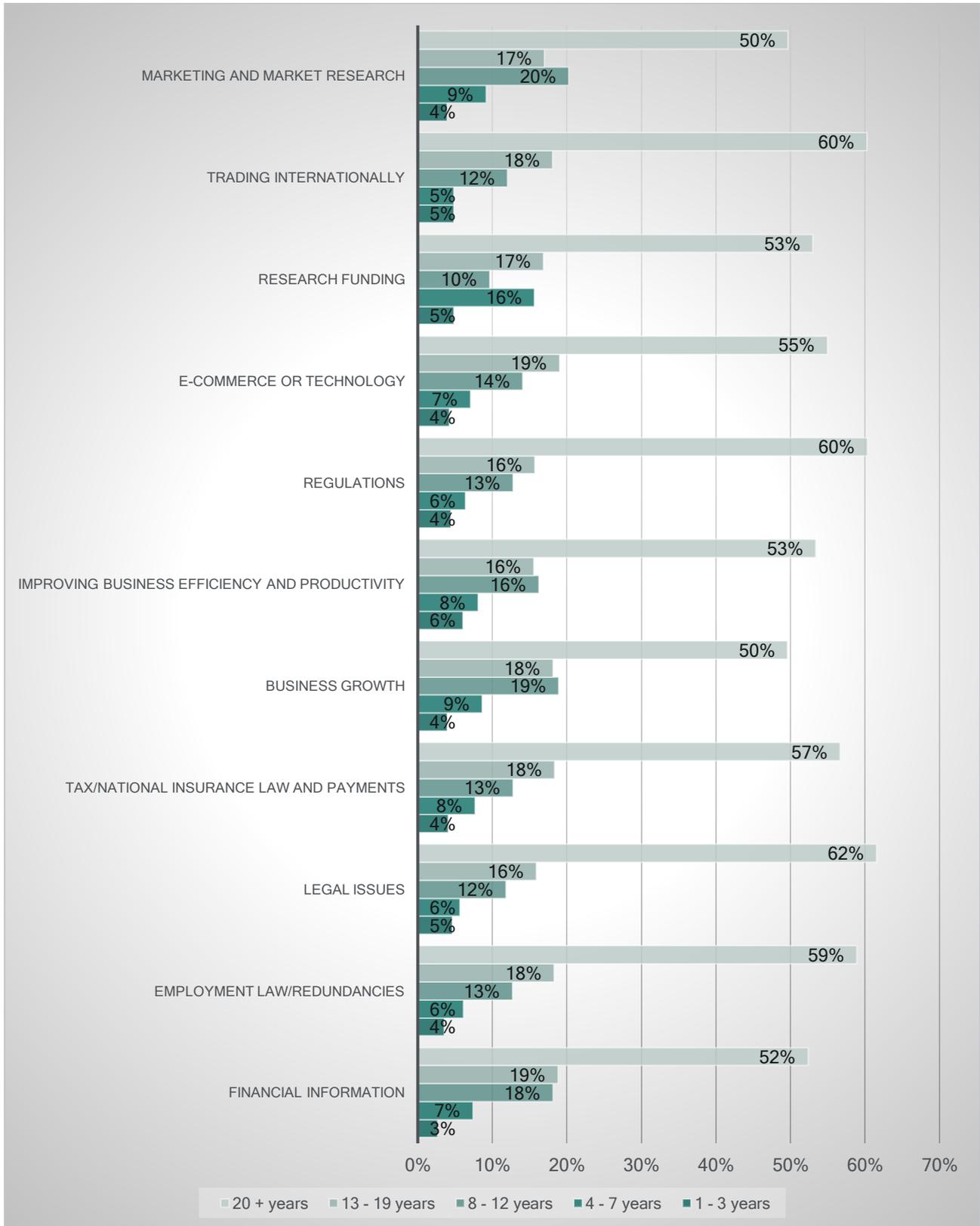


A.7. Business support and its impact on Productivity

Over the many decades of UK government funded programmes, policies and projects aimed at having a net positive economic impact, how many really have? We cannot answer that question here, but what we can answer is the lengths at which Hertfordshire enterprises will seek out information and who from, and perceived benefits of this? Nationally, research has found that young and growing enterprises use comparatively low quantities of information compared to more established enterprises (e.g. over 20 years of age) (ERC UK 2018a).

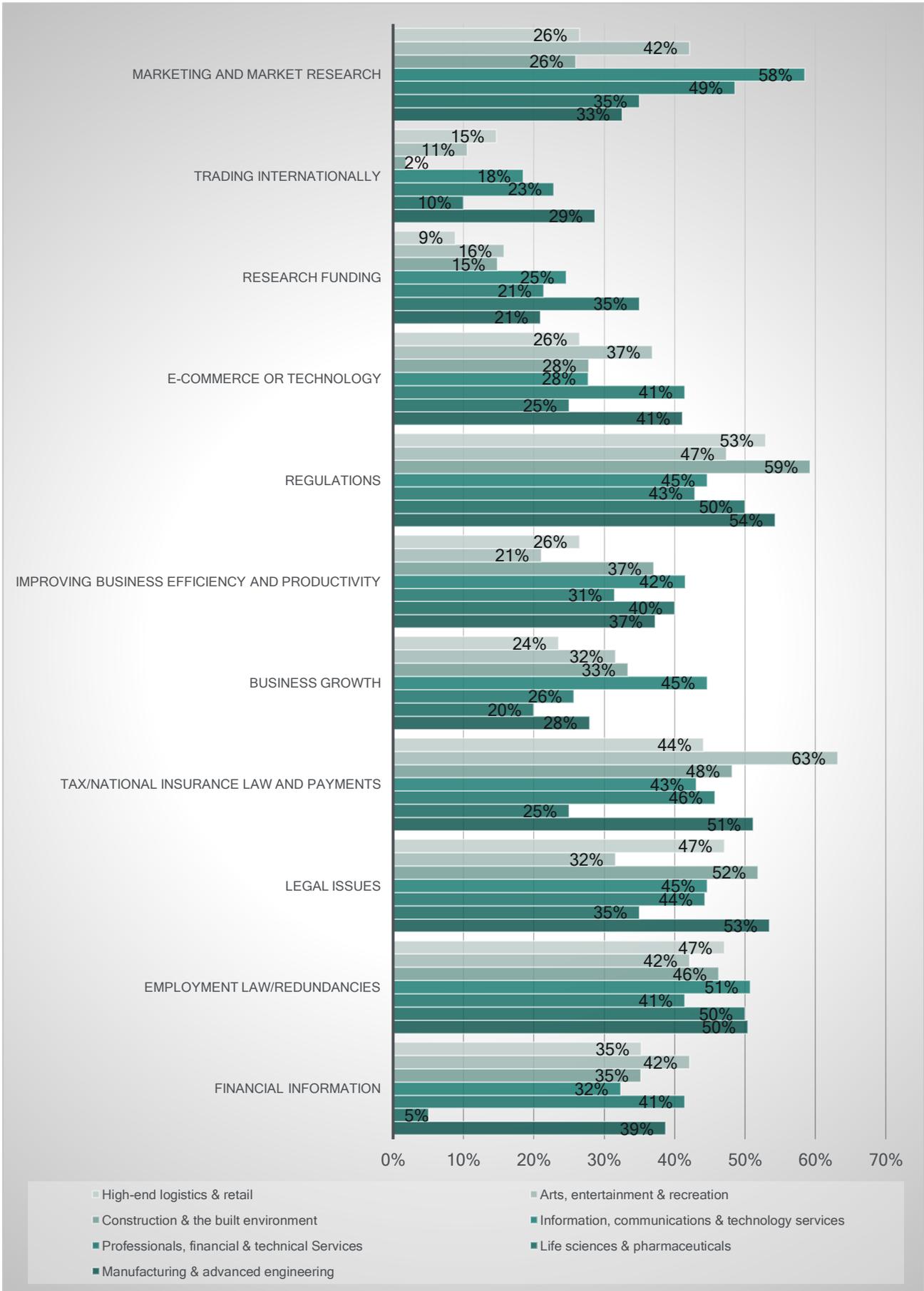
In Hertfordshire employers that are young and growing search for information on employment, financial and other regulation-based needs, presumably to strengthen their business model and overall business sustainability. As these enterprises mature then they increasingly seek, and prioritise, on marketing and market research information needs, better to help fuel their sales pipelines, see figure A.7.1 below:

FIGURE A.7.1 HERTFORDSHIRE ENTERPRISES' INFORMATION NEEDS BY BUSINESS AGE, IN THE LAST YEAR



The predominant concerns of Hertfordshire enterprises focus around dealing with the day-to-day activities of running their enterprises, regulations, employment issues, taxation and legal issues relating to leases and sales terms and conditions, see figure A.7.2 below.

FIGURE A.7.2 HERTFORDSHIRE ENTERPRISES' INFORMATION NEEDS BY SECTOR, IN THE LAST YEAR



Interestingly those sectors more constrained by regulations and legislation are focused on seeking information in these areas, but at the same time concerned with the business basics of running an agile enterprise e.g. employment law/redundancies, taxation, insurance, legal matters and payments.

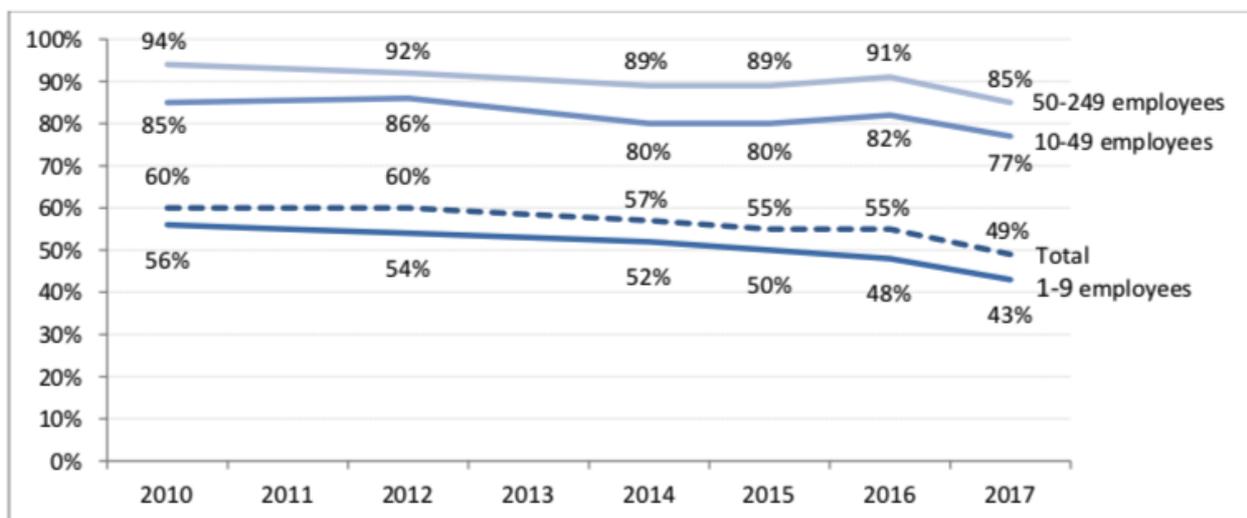
A.8. Business strategy and plans

In this HBPS study we focused on the perceived impact that specific areas of business investment would have on turnover, growth and productivity, and in particular:

- Sales exports
- Developing new goods/services and/or processes
- Improving managers' leadership
- Introducing new working practices
- Increasing capital investment
- Increasing workforce skills

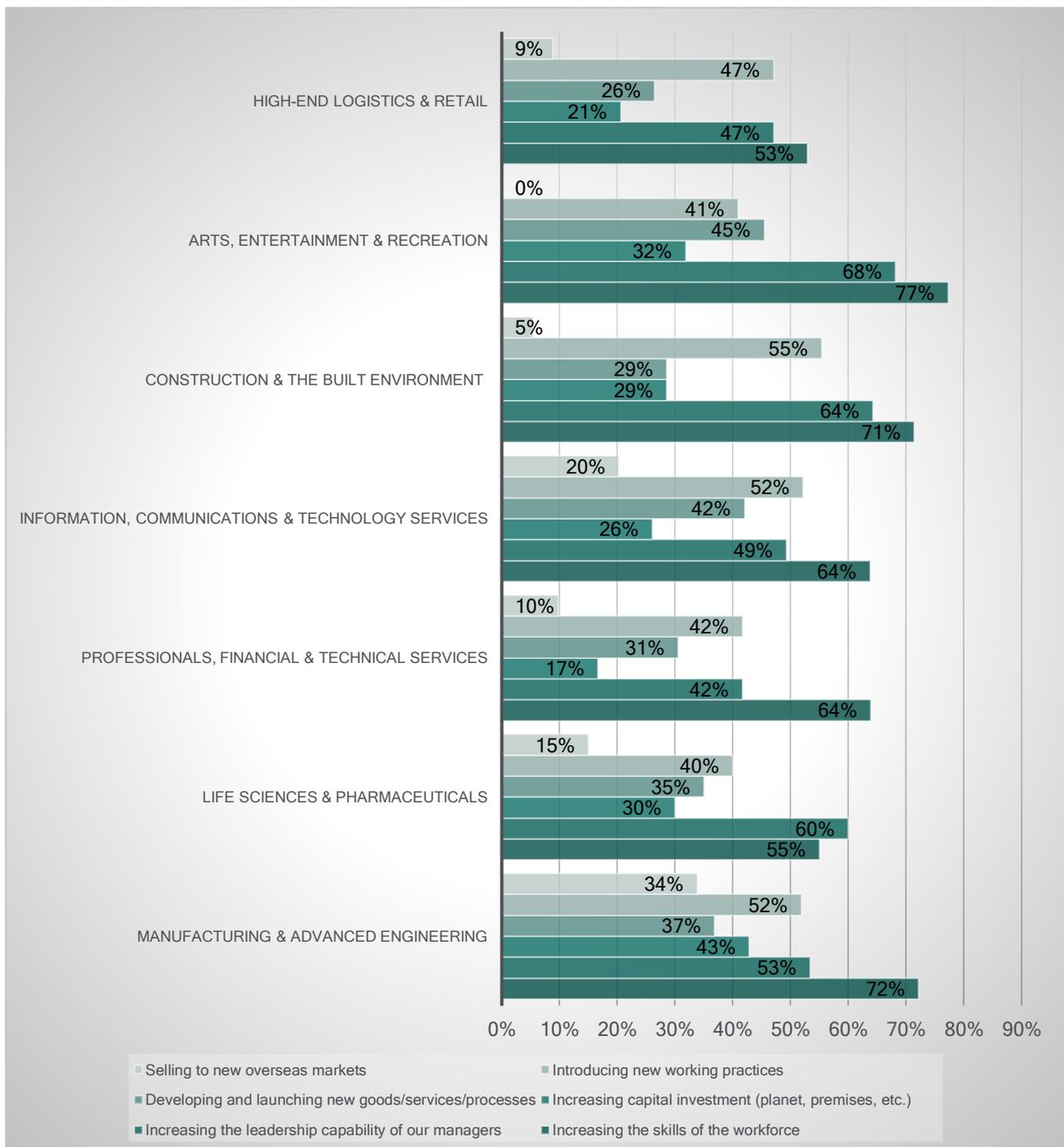
One of the highest priorities identified nationally, and regionally, is that of workforce skills, skills are vital to productivity (The Open University 2018). The importance of workforce and management training is evident in the previous sections' insights to the important link between the workforce, leaders and managers skills and the impact these have on overall labour productivity. Nationally we can see a worrying trend in the SME sector, where enterprises commitment to arranging, or funding, workforce & management training has shown a steady decline up to 2017 (Office for National Statistics 2019b), see figure A.8.1 below:

FIGURE A.8.1 PROPORTION OF SMEs THAT ARRANGE OR FUND TRAINING OF THEIR STAFF



In Hertfordshire, the majority of Hertfordshire enterprises responding to the HBPS study recognized the importance of increasing the skills of their workforce and the leadership capacity of their managers to improve overall productivity. This was resoundingly expressed in the following sectors (arts, entertainment and recreation (77 per cent and 68 per cent), construction and the built environment (71 per cent and 64 per cent), information, communications & technology (64 per cent and 49 per cent), and manufacturing & advanced engineering (72 per cent and 53 per cent) respectively), see figure A.8.2) below:

FIGURE A.8.2. HERTFORDSHIRE ENTERPRISES' BUSINESS PLANS ASSOCIATED WITH IMPROVING PRODUCTIVITY, BY SECTOR



A.9. Summary of links to Productivity

For Hertfordshire enterprises that export to the EU (Thirty-six per cent) over 74 per cent of these have introduced a new or significantly improved product/service in the last three years to both help increase turnover and improve productivity. For those Hertfordshire enterprises not exporting (sixty-four per cent) this drops to 62 per cent.

For those Hertfordshire enterprises that exhibited turnover growth in the last 12 months (fifty per cent) over 71 per cent of these had introduced a new product/service in the last 3 years. For those

predicting turnover growth in the next 12 months (fifty-four per cent) the introduction of a new product/service over the last 3 years increases to 74 per cent.

Both of these facts above supports the national picture of evidence that enterprises that both expose themselves to export markets and have significant innovative activities are more likely to have higher growth and productivity than those enterprises that don't (Love and Roper 2013a).

In summary, the longer-term Hertfordshire economy-wide productivity drive will be dependent on the following factors:

- Improving Hertfordshire enterprises' activities in driving up the introduction of new goods/services, on a regular basis, will prove their abilities to compete in both domestic and overseas markets;
- Continue to provide sufficient support and advice to those existing and potential scale-up enterprises, with greater than 20% growth over three consecutive years. Nationally we have 31,000 enterprises in this category (BEIS 2018);
- Relating to above provide at the regional level more business networking opportunities for those lower productivity Hertfordshire enterprises to learn best practices from their productive and scale-up enterprise neighbours (BEIS 2018, Chartered Association of Business Schools 2018). The BEIS business productivity review report suggested that these lower-productivity enterprises can encourage their employees to seek out those 'best-in-class' businesses, and learn from them;
- The increasing concerns over the middling performance of many enterprises (BEIS 2018) who export to EU and further overseas suggests that more focus needs to be on the ability of enterprises to understand their markets, and develop business strategies that increase the effectiveness of their new goods/service launches;

Section B Hertfordshire business community

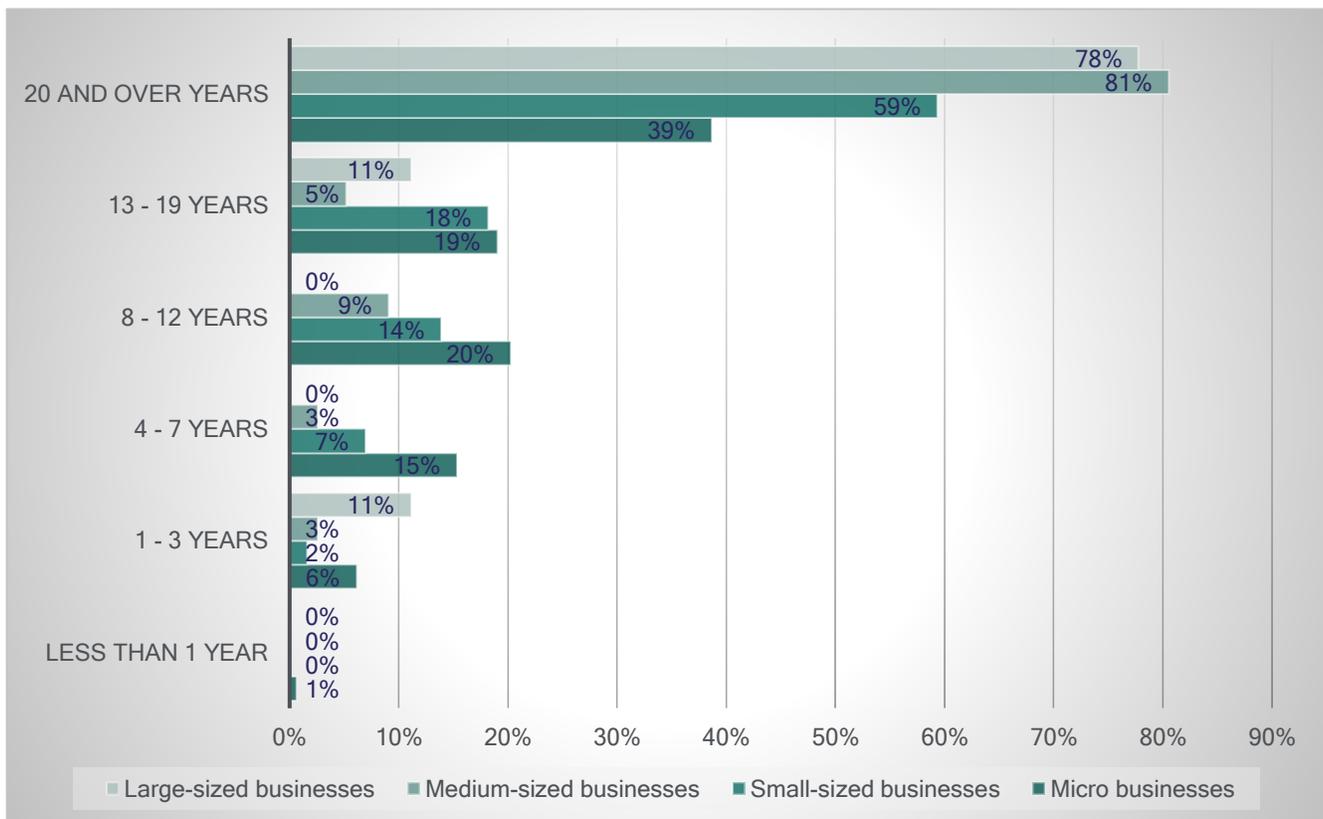
B.1 The Aims of the Survey

The HBPS study carried out a small-scale telephone survey of 435 enterprise owner-managers and senior managers of Hertfordshire businesses, commissioned by Hertfordshire Local Enterprise Partnership and Hertfordshire Growth Hub. This business survey was conducted between February and April 2019 jointly by the Marketing Research Services of the University of Hertfordshire and Projects UK. The original 400+ enterprise respondents were additional topped-up by 30+ from additional completions from a campaign by Hertfordshire LEP, any duplicate business survey completions were excluded. Some of these responses had to be excluded either because of none completions (not all questions were answered), or because of the enterprises falling outside of the Hertfordshire LEP area.

B.2 Age of enterprises sampled

1. Thirteen per cent of SME employers in 2018 first started trading 0 - 7 years previous. Fifteen per cent 8 - 13 years previously, 16 per cent 13 - 19 years previously, and 55% 20 years or more previously.
2. Small to medium-sized enterprises tended to be older than micro-enterprises. Eighty-one per cent of medium-sized enterprises were 20 years or more, compared to 59 per cent of small-sized enterprises, and 39 per cent of micro-enterprises.
3. By sector, those most likely to be aged 0 - 7 years were in life sciences/pharmaceuticals (26 per cent), arts/entertainment/recreation (20 per cent), and information/communication/technology 14 per cent). Those most likely to be aged 20 years or more were in manufacturing/advanced engineering (76 per cent), construction/built environment (65 per cent), and life sciences/pharmaceuticals (52 per cent).

FIGURE B.1 AGE OF BUSINESS, BY SIZE



B.2 Size and sector definitions

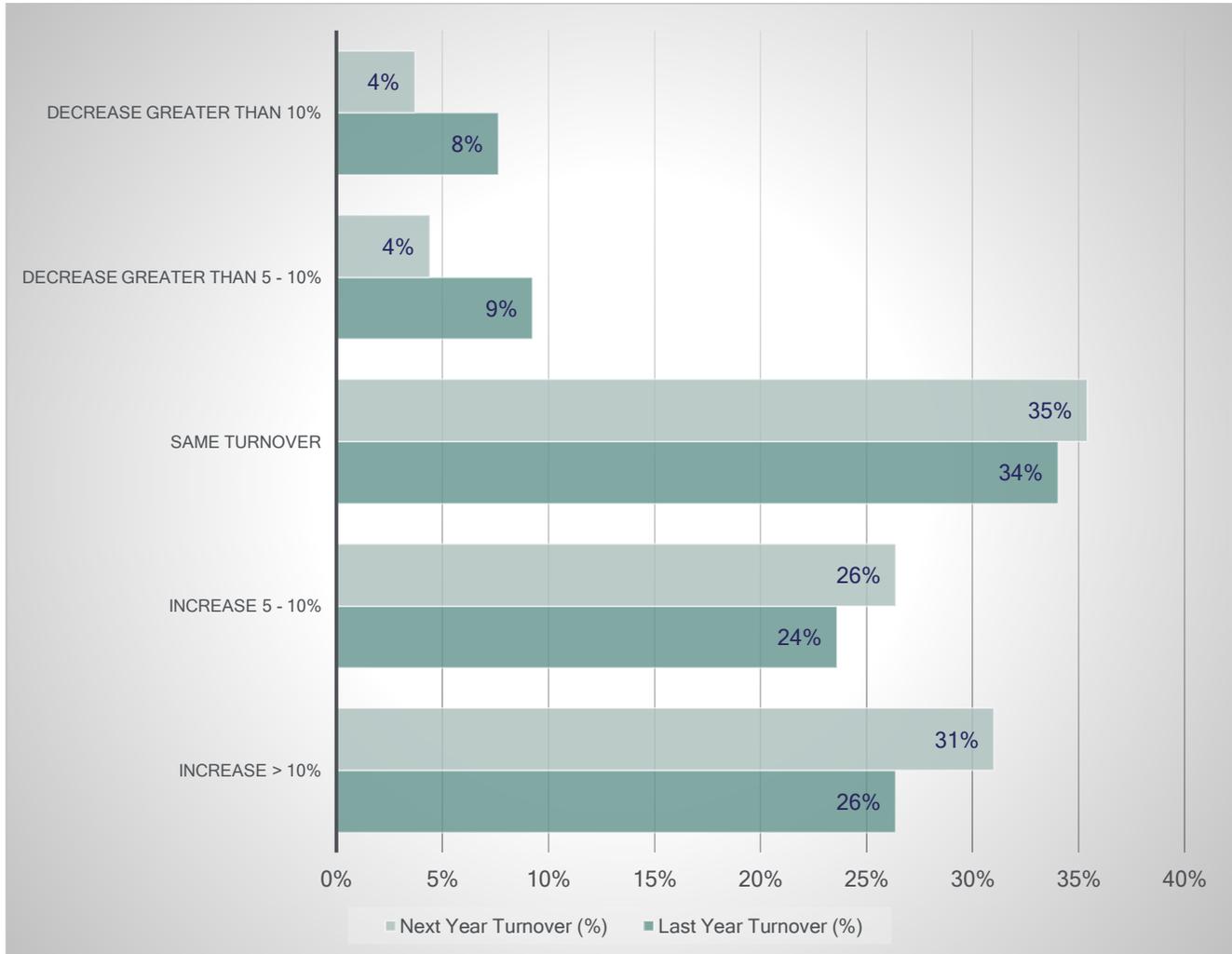
4. Throughout this interim report, the data tables and charts show business size and sectoral analysis. For the purposes of the Hertfordshire Local Enterprise Partnership focus on seven key sectors, we have encompassed them into the following:
 - 4.1. Manufacturing & advanced engineering - includes 95 of the three-digit SIC codes;
 - 4.2. Construction & the built environment - including electrical & plumbing (30%), building completion (25%) and building construction (18%);
 - 4.3. High-end logistics & retail - specialized stores (17%), maintenance and repair of motor vehicles (13%), non-specialised stores (12 %);
 - 4.4. Information, communications and technology services - computer programming and consultancy (74%);
 - 4.5. Professional, financial and technical services - management consultancy, architecture and engineering, accountancy, financial services and estate agencies;
 - 4.6. Life sciences & pharmaceuticals - general practitioners (42%), residential care, pharmaceuticals and social care;
 - 4.7. Arts, entertainment and recreation - sports activities (45%), creative and arts (34%), amusement/recreation (15%).

Section C - In-depth HBPS study findings

C.1 Hertfordshire enterprises' business performance (Turnover)

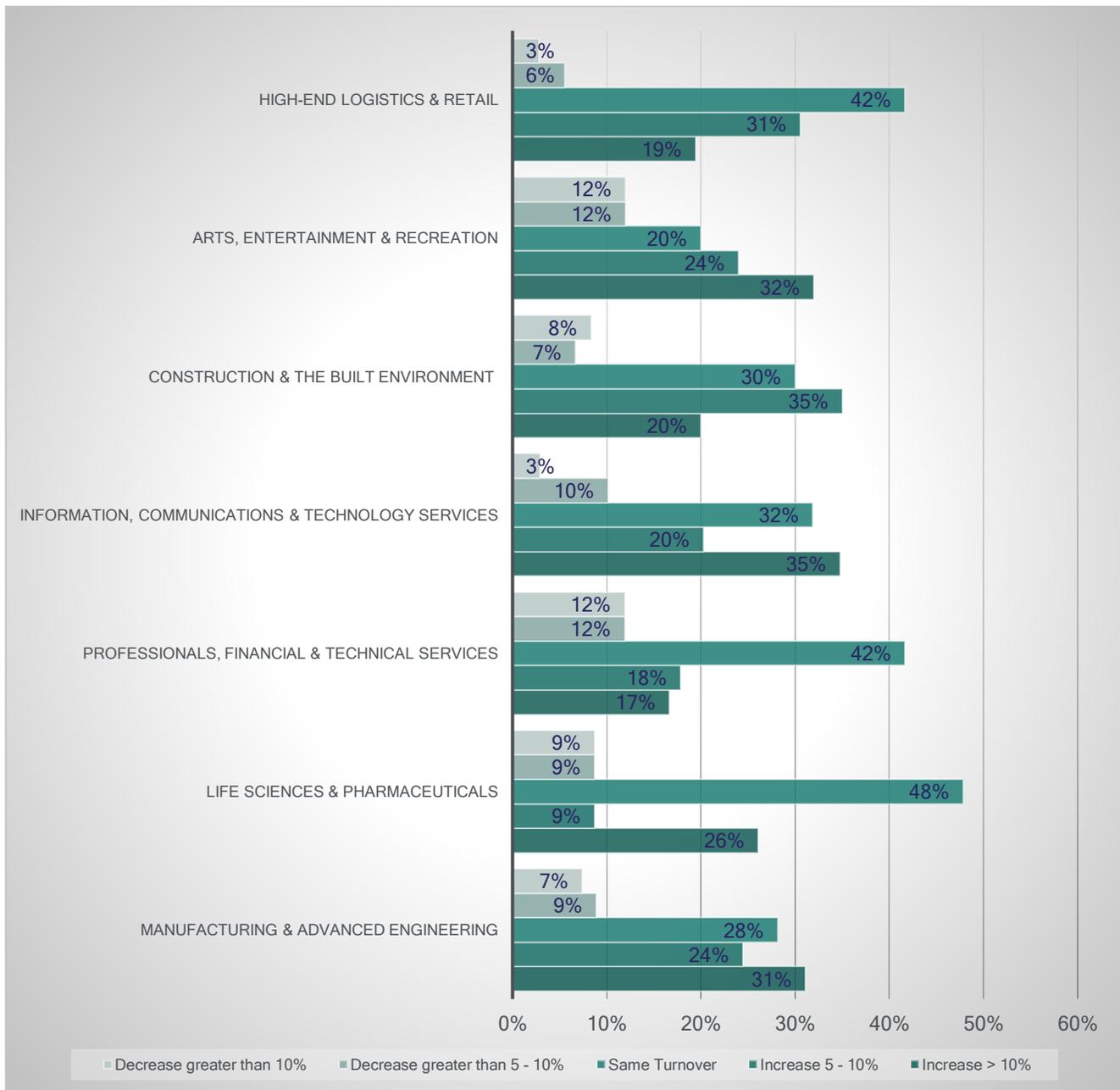
1. Fifty per cent of Hertfordshire enterprises had increased their turnover in the last financial year (2018). Thirty-four per cent of enterprises had approximately the same turnover and 16 per cent had decreased their turnover.
2. Fifty-seven per cent of enterprises predicted an increase in turnover for the next financial year (2019). Thirty-five per cent of Hertfordshire enterprises predicted the same turnover as in previous year, and 8 per cent predicted a decrease in turnover, see figure C.1.1 below.

FIGURE C.1.1 CHANGES IN HERTFORDSHIRE ENTERPRISES' TURNOVER, LAST AND NEXT YEAR (2018-19)



3. Fifty-six per cent of manufacturing/advanced engineering and arts/entertainment/recreation respondents had increased their turnover by more than 5% in the last year (2018). Against twenty-four per cent of professional/financial/technical and arts/entertainment/recreation enterprises who jointly experienced a decrease of 5% or more in their last year (2018), see figure C.1.2 below.

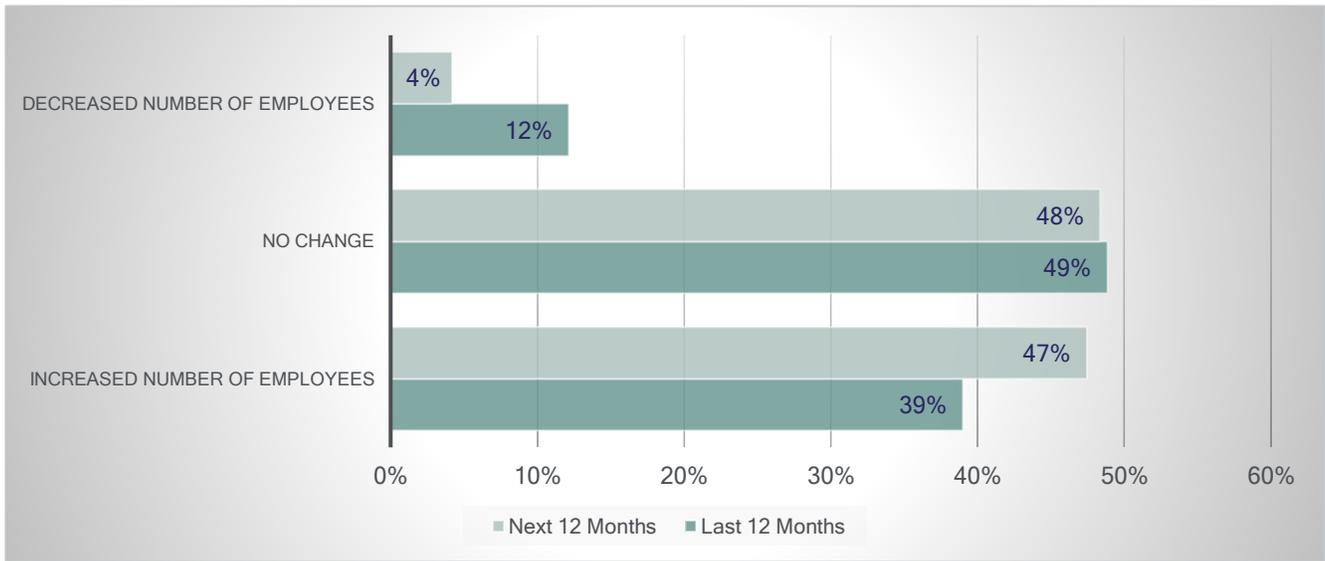
FIGURE C.1.2 CHANGES IN HERTFORDSHIRE ENTERPRISES' LAST YEARS' TURNOVER, BY SECTOR (2018)



C.2 Hertfordshire enterprises' expectations for employment growth

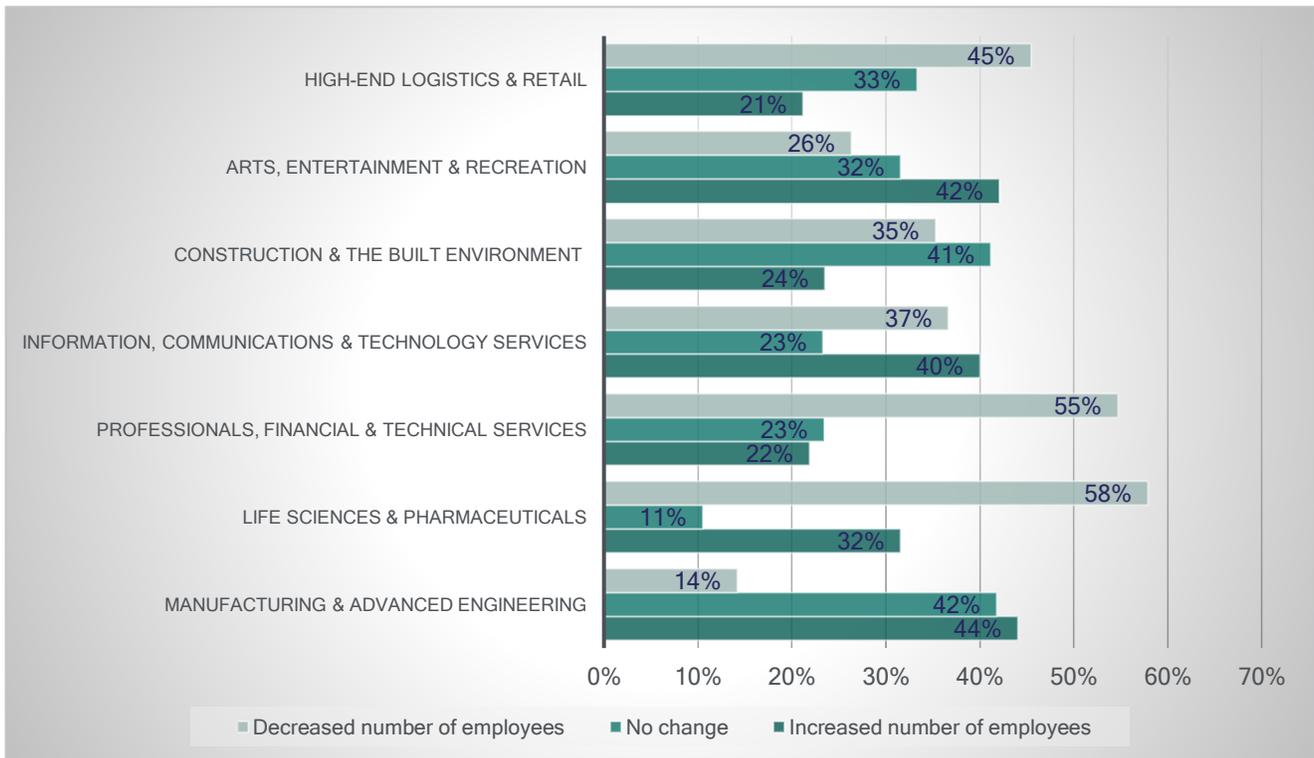
4. Thirty-nine per cent of enterprises employed more people than a year ago (2018). Forty-nine per cent of enterprises employed the same number of people and 13 per cent had a decrease in the number of people employed.
5. Forty-seven per cent of enterprises predicted they would employ more people in the next year (2019). Forty-nine per cent of enterprises predicted they would employ the same number and 4 per cent predicted they would decrease the number of people employed, see figure C.2.1 below.

FIGURE C.2.1 HERTFORDSHIRE ENTERPRISES' EMPLOYMENT LEVELS LAST AND NEXT YEAR (2018-19)



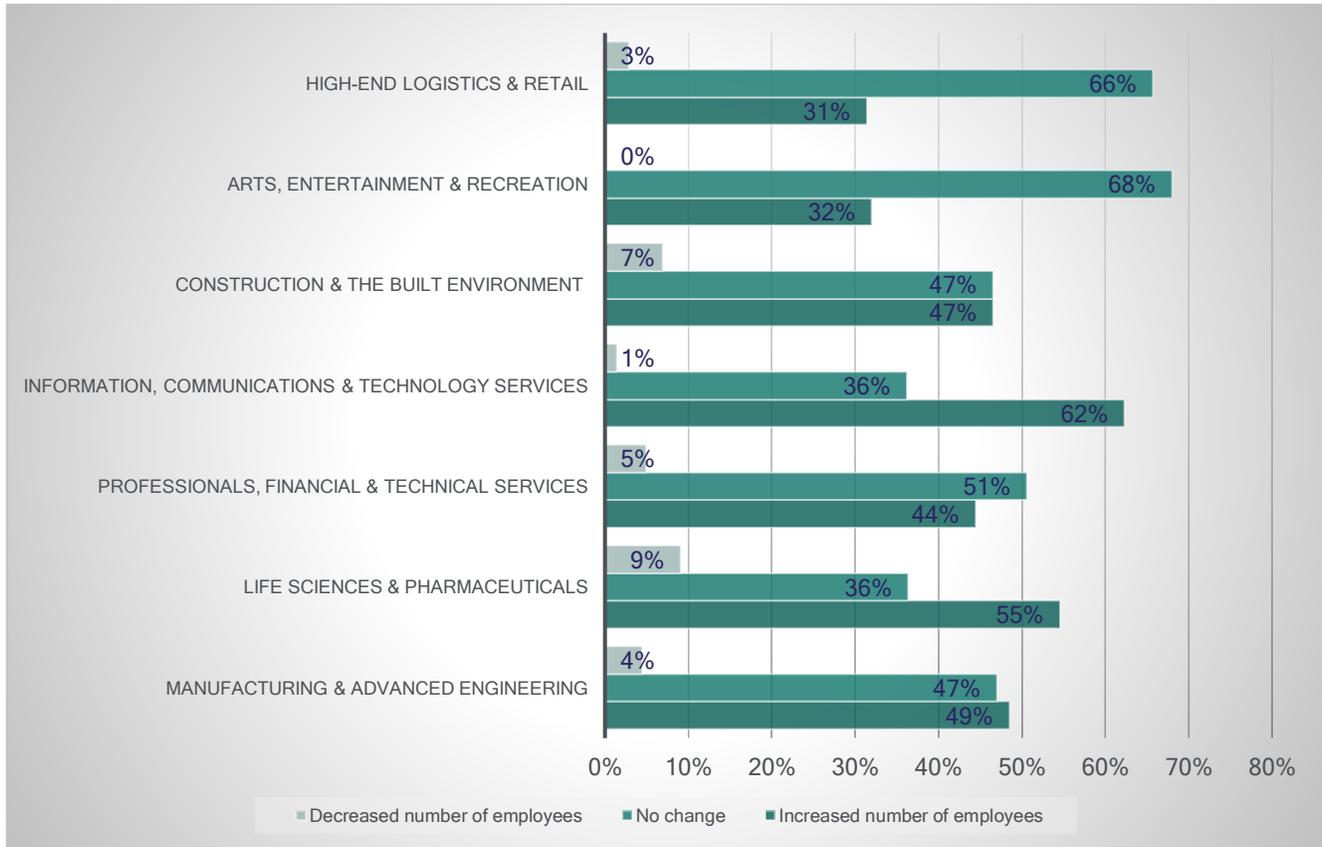
6. In the last year, manufacturing/advanced engineering, arts/entertainment/recreation, and construction/built environment had the strongest increase in levels of employment (44 per cent, 42 per cent and 41 per cent respectively). Life sciences/pharmaceuticals (fifty-eight per cent), professional/financial/technical services (55 per cent), and high-end logistics/retail (45 per cent) sectors had significant decreases in the level of employment, see figure C.2.2 below.

FIGURE C.2.2 HERTFORDSHIRE ENTERPRISES' EMPLOYMENT LEVELS LAST YEAR, BY SECTOR (2018)



7. The top employers predicting significant increases in the level employment are information/communications/technology services (62 per cent), life sciences/pharmaceuticals (55 per cent), manufacturing/advanced engineering (49 per cent), and construction/built environment (47 per cent), see figure C.2.3 below.

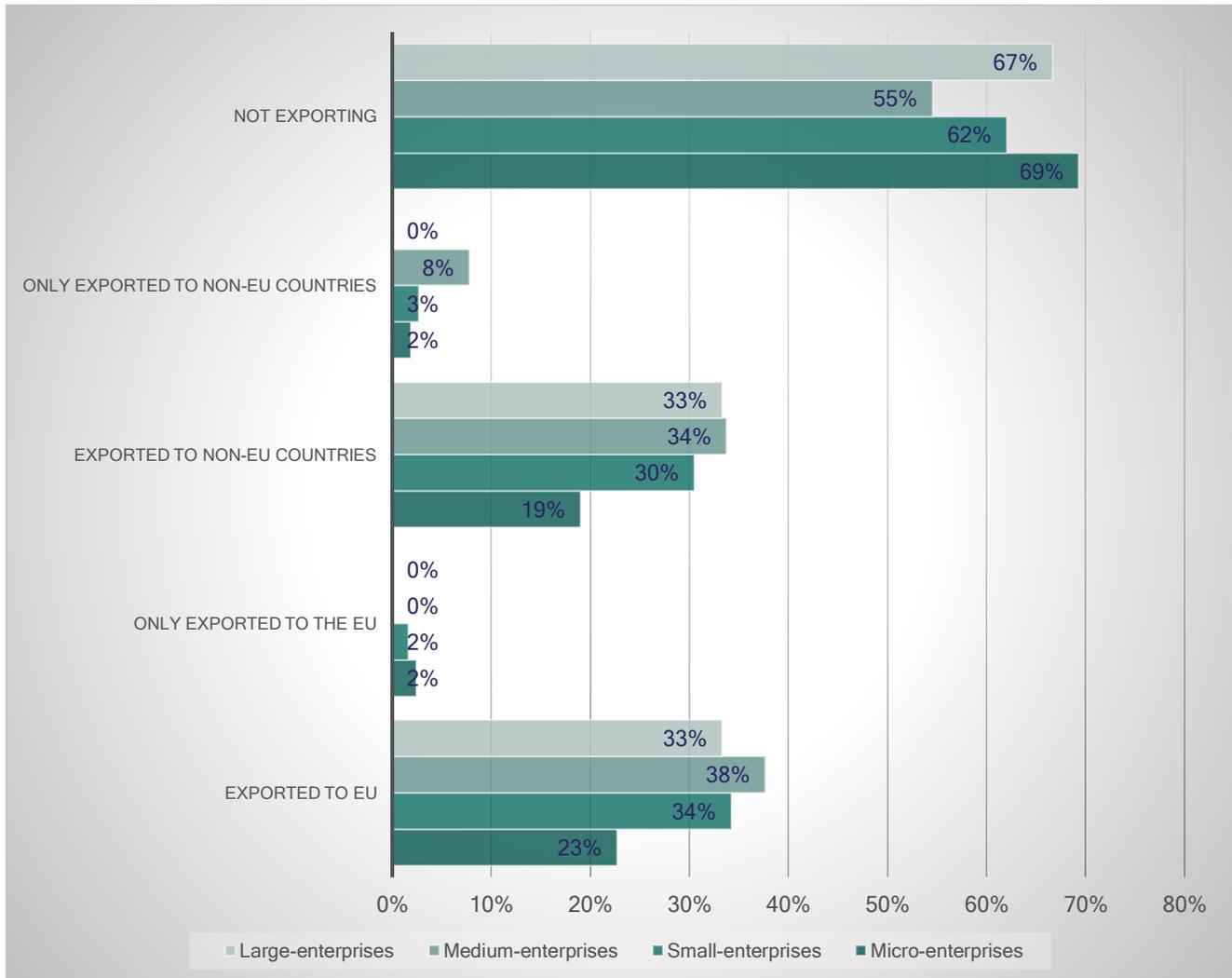
FIGURE C.2.3 HERTFORDSHIRE ENTERPRISES' PREDICTED EMPLOYMENT LEVEL FOR NEXT YEAR, BY SECTOR (2019)



C.3 Hertfordshire enterprises' sales of goods or services outside the UK

8. Nearly sixty-three per cent of Hertfordshire enterprises had not exported goods or services in the last year (2018). Sixty-nine per cent of micro-enterprises, 62 per cent of small-sized enterprises, 55 per cent of medium-sized enterprises and 67 per cent of large enterprises had not-exported goods or services in the last year.
9. Of the enterprises who had exported goods and services in the last year, eighty-four per cent exported to EU countries and 74 per cent exported to non-EU countries, see figure C.3.1 below.

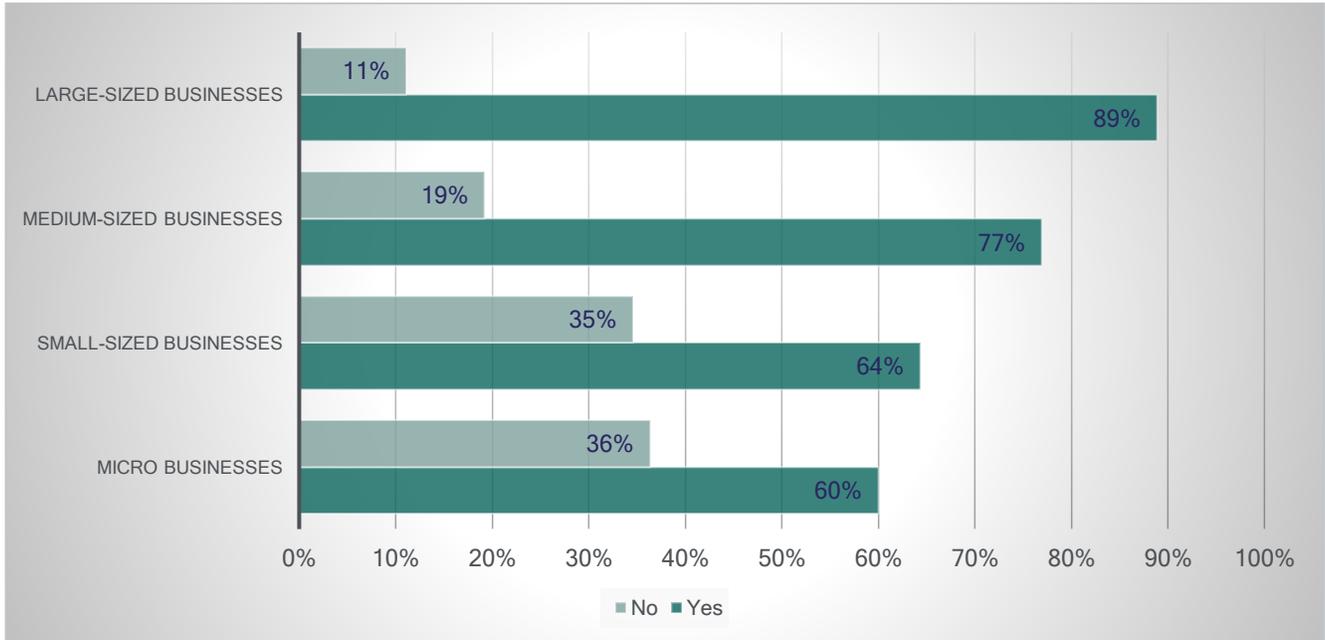
FIGURE C.3.1 HERTFORDSHIRE ENTERPRISES' EXPORTS TO EU AND NON-EU COUNTRIES, BY SIZE (2018)



C.4 Hertfordshire enterprises' that had new or significantly improved goods, services or processes in the last three years

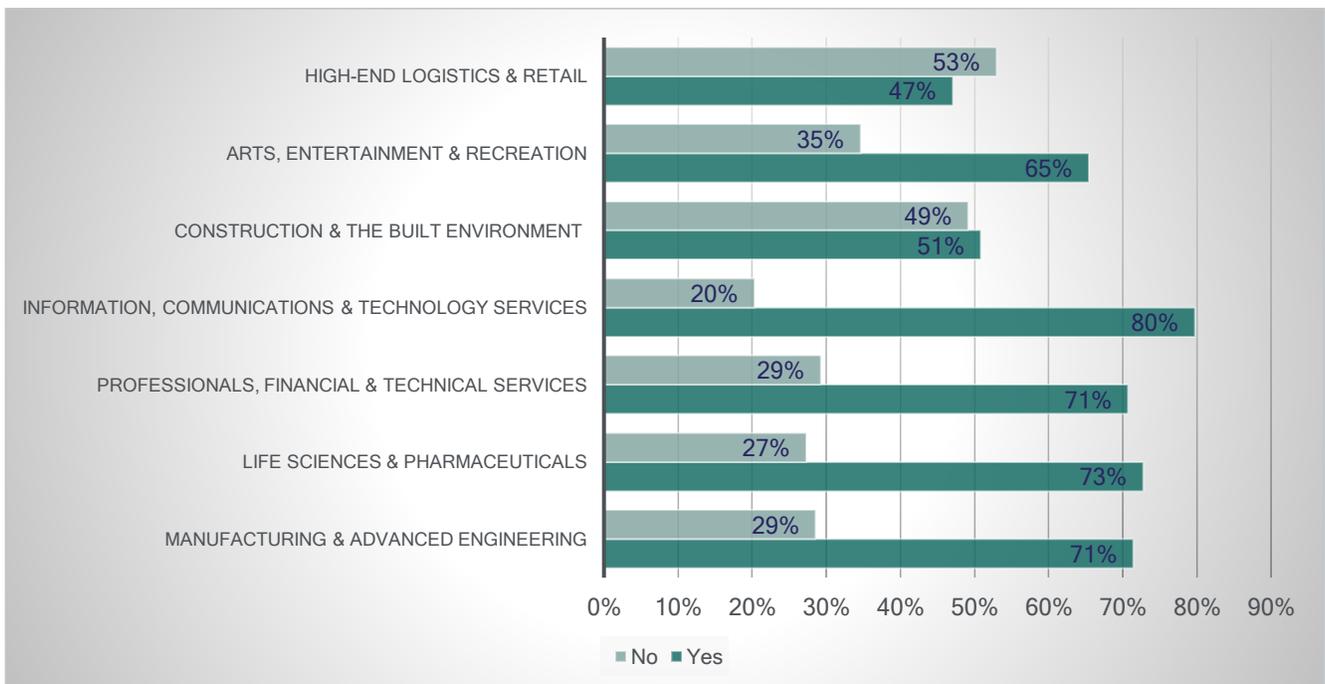
10. Over sixty-five per cent of Hertfordshire enterprises had developed and introduced new goods, services or processes in the last three years. Micro-enterprises (60 per cent), small enterprises (64 per cent), medium-sized enterprises (77 per cent) and large enterprises (89 per cent) had introduced new goods, services or processes in the last three years, see figure C.4.1 below.

FIGURE C.4.1 HERTFORDSHIRE ENTERPRISES WHO HAD NEW OR SIGNIFICANTLY IMPROVED GOODS, SERVICES OR PROCESSES IN THE LAST THREE YEARS, BY BUSINESS SIZE (2018)



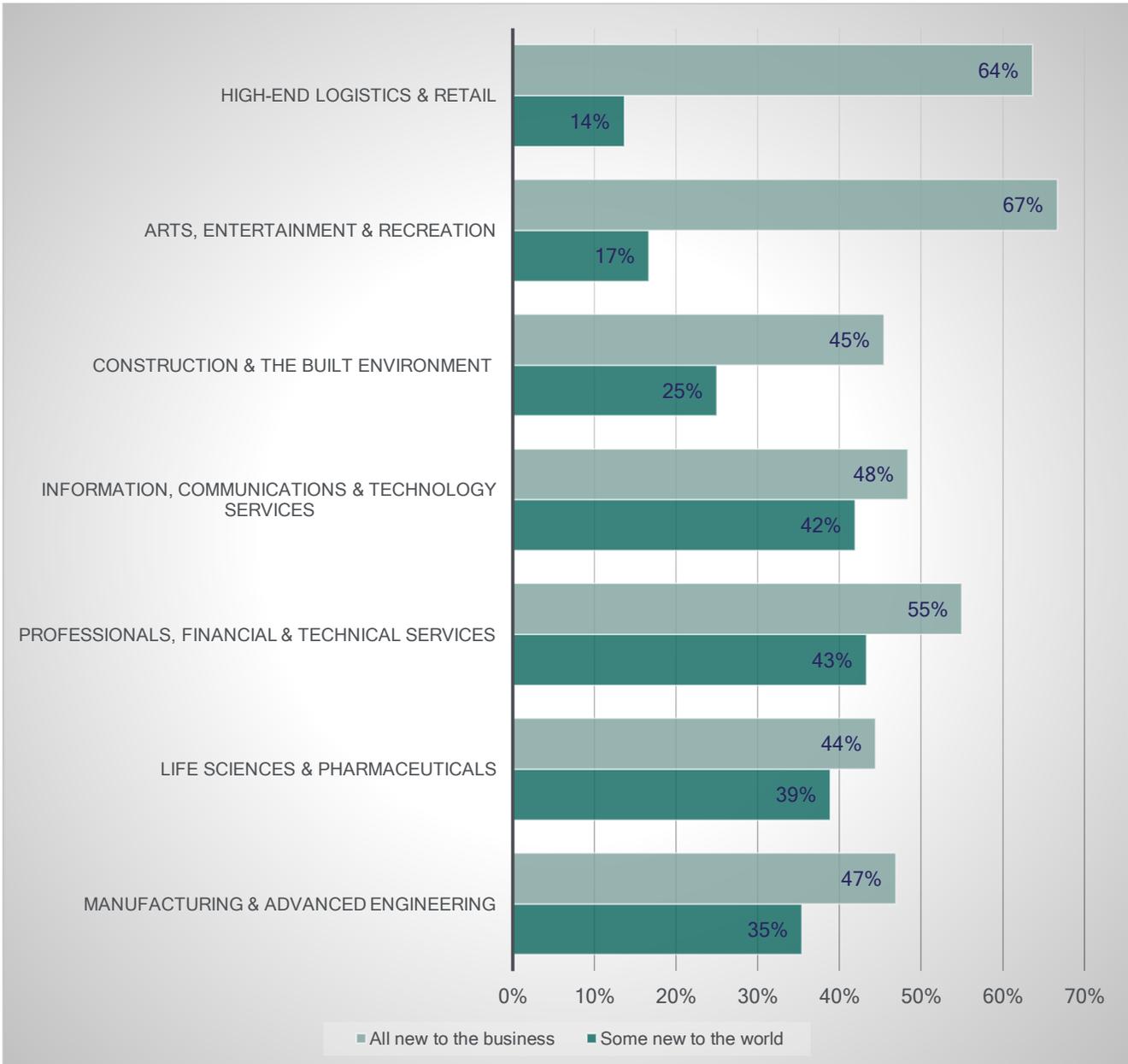
11. By sector, the proportion of Hertfordshire enterprises that had introduced any new or significantly improved goods, services or processes in the last three year was highest in information/communications and technology (80 per cent, followed by life sciences/pharmaceuticals (73 per cent) and manufacturing/advanced engineering (71 per cent), and the lowest was construction/built environment (51 per cent) and high-end logistics/retail (47 per cent), see figure C.4.2 below.

FIGURE C.4.2 HERTFORDSHIRE ENTERPRISES WHO HAD NEW OR SIGNIFICANTLY IMPROVED GOODS, SERVICES OR PROCESSES IN THE LAST THREE YEARS, BY SECTOR (2018)



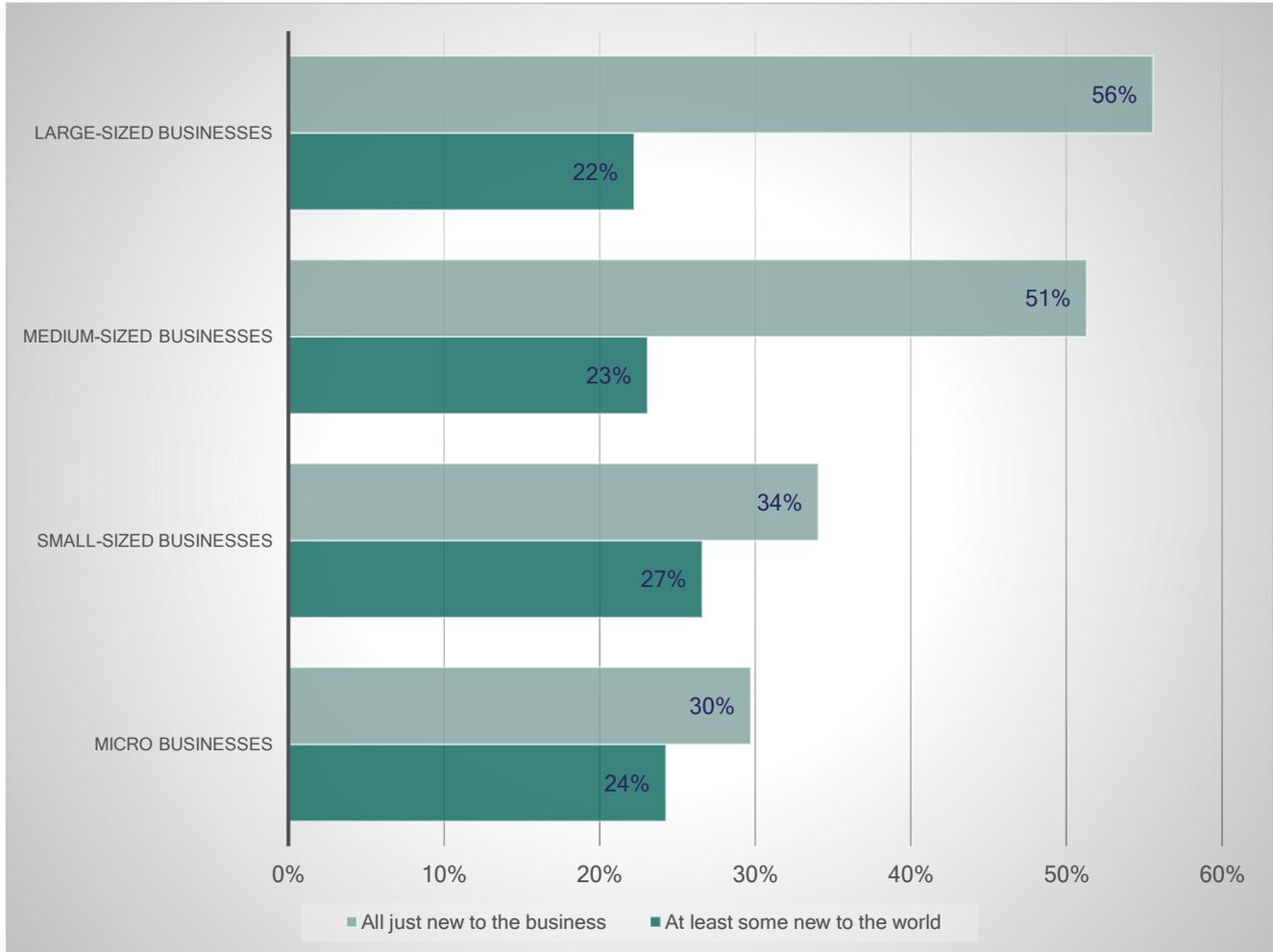
12. Hertfordshire enterprises that had introduced goods, services and processes that were new-to-the-world were most likely in information/communication/technological services (42 per cent), professional/financial/technical services (43 per cent), life sciences/pharmaceutical (39 per cent) and manufacturing/advanced engineering (35 per cent), see figure C.4.3 below.

FIGURE C.4.3 HERTFORDSHIRE ENTERPRISES WHO HAD EITHER NEW-TO-THE-WORLD OR NEW-TO-BUSINESS IMPROVED GOODS, SERVICES OR PROCESSES IN THE LAST THREE YEARS, BY SECTOR (2018)



13. Twenty-five per cent of the SME respondents had introduced goods, services or processes that were new-to-the-world. Highest proportion introducing new-to-the-world goods, services or processes were small-enterprises (27 per cent), followed by micro-enterprises (24 per cent), see figure C.4.4 below.

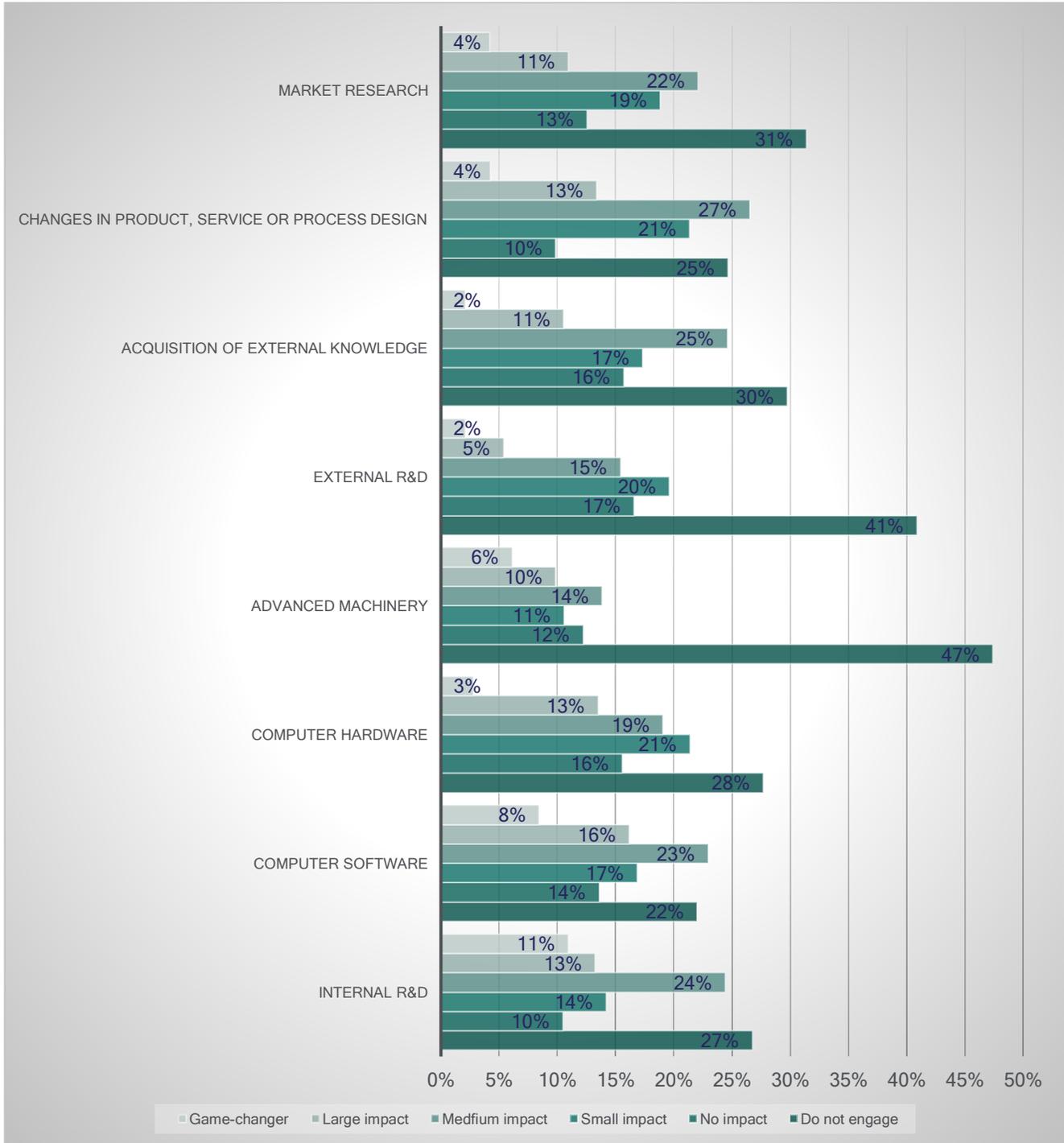
FIGURE C.4.4 HERTFORDSHIRE ENTERPRISES WHO HAD EITHER NEW-TO-THE-WORLD OR NEW-TO-BUSINESS IMPROVED GOODS, SERVICES OR PROCESSES IN THE LAST YEAR, BY BUSINESS SIZE (2018)



C.5 Hertfordshire enterprises' innovative activity

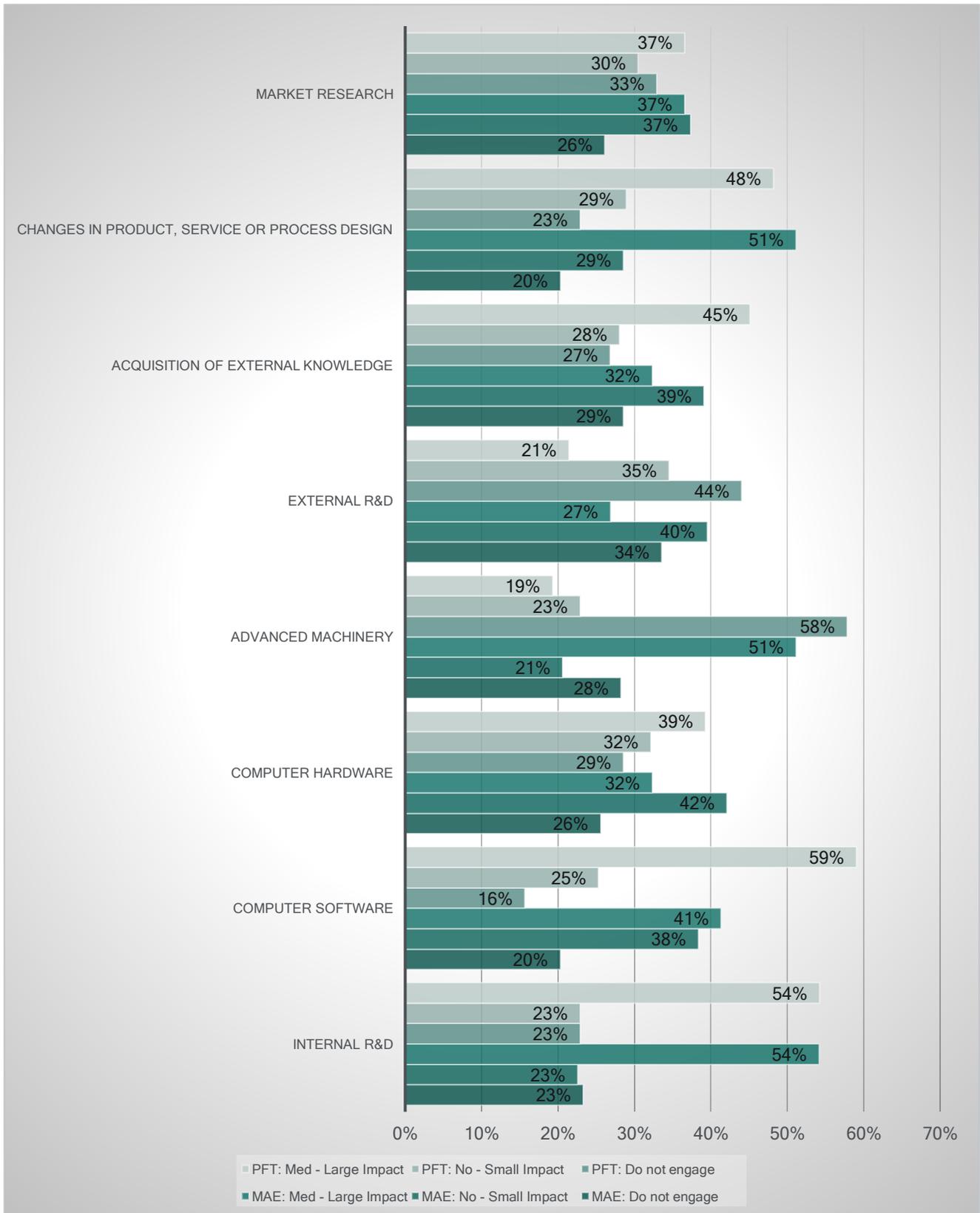
14. The top ranked innovation activities reported by Hertfordshire enterprises that had significant impact on their enterprises were internal R&D (49 per cent), computer software (48 per cent), changes in goods, services and process design (44 per cent), and acquisition of external knowledge (37 per cent), see figure C.5.1.

FIGURE C.5.1 HERTFORDSHIRE ENTERPRISES INNOVATION ACTIVITIES, AND THE REPORTED IMPACT ON THEIR BUSINESS GROWTH, TURNOVER AND PRODUCTIVITY (2018)



15. In comparing manufacturing and advanced engineering to the professional, financial and technical services sectors, then manufacturing and advanced engineering are 50 per cent less likely to acquire external knowledge to help design, develop and deliver their goods/services than are professional, financial and technical service enterprises, see figure C.5.2 below:

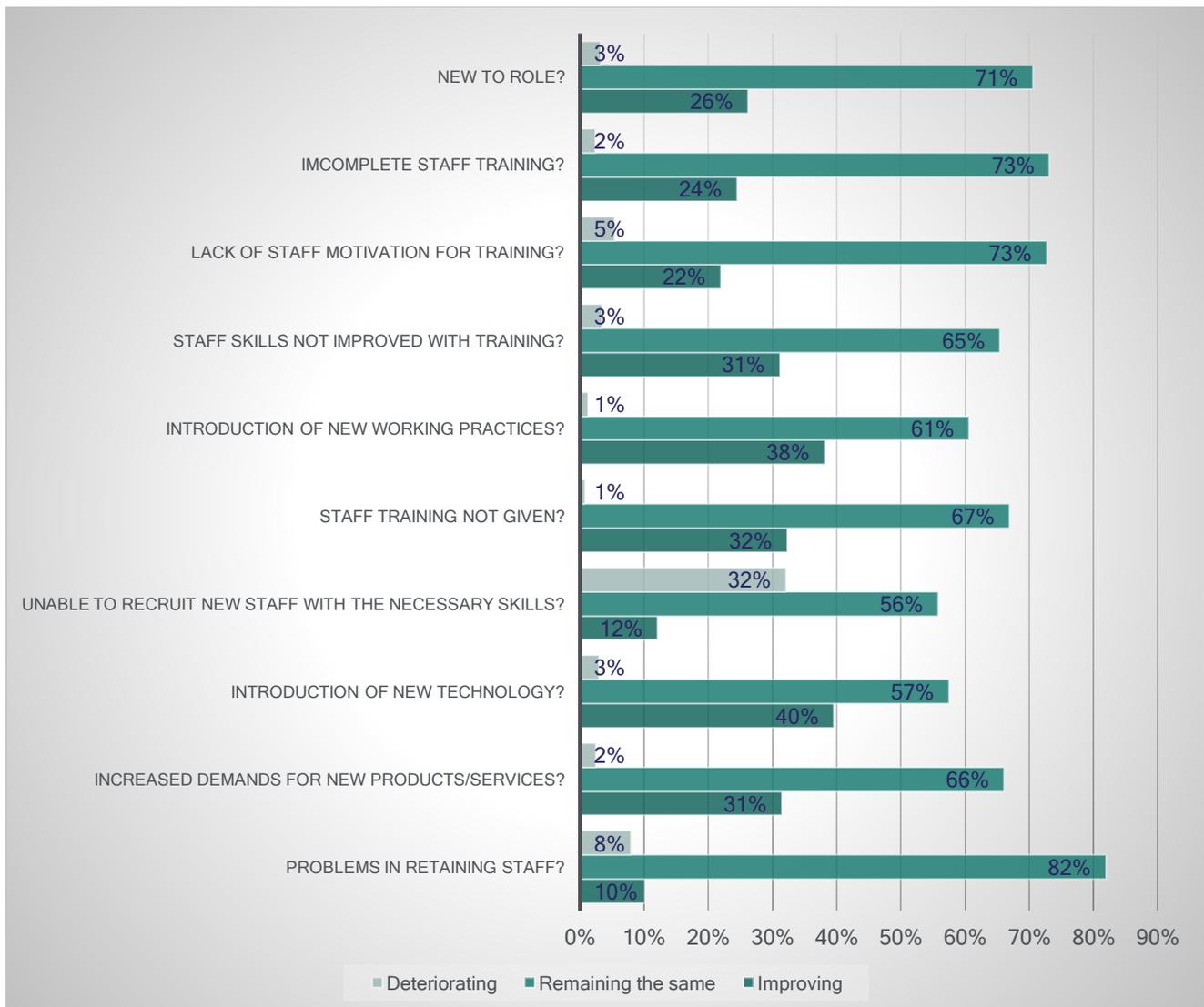
FIGURE C.5.2 HERTFORDSHIRE MANUFACTURING & ADVANCED ENGINEERING COMPARED TO PROFESSIONAL, FINANCIAL AND TECHNICAL SERVICES ENTERPRISES INNOVATION ACTIVITIES



C.6 Hertfordshire enterprises' skills gaps in their workforce and leadership & management

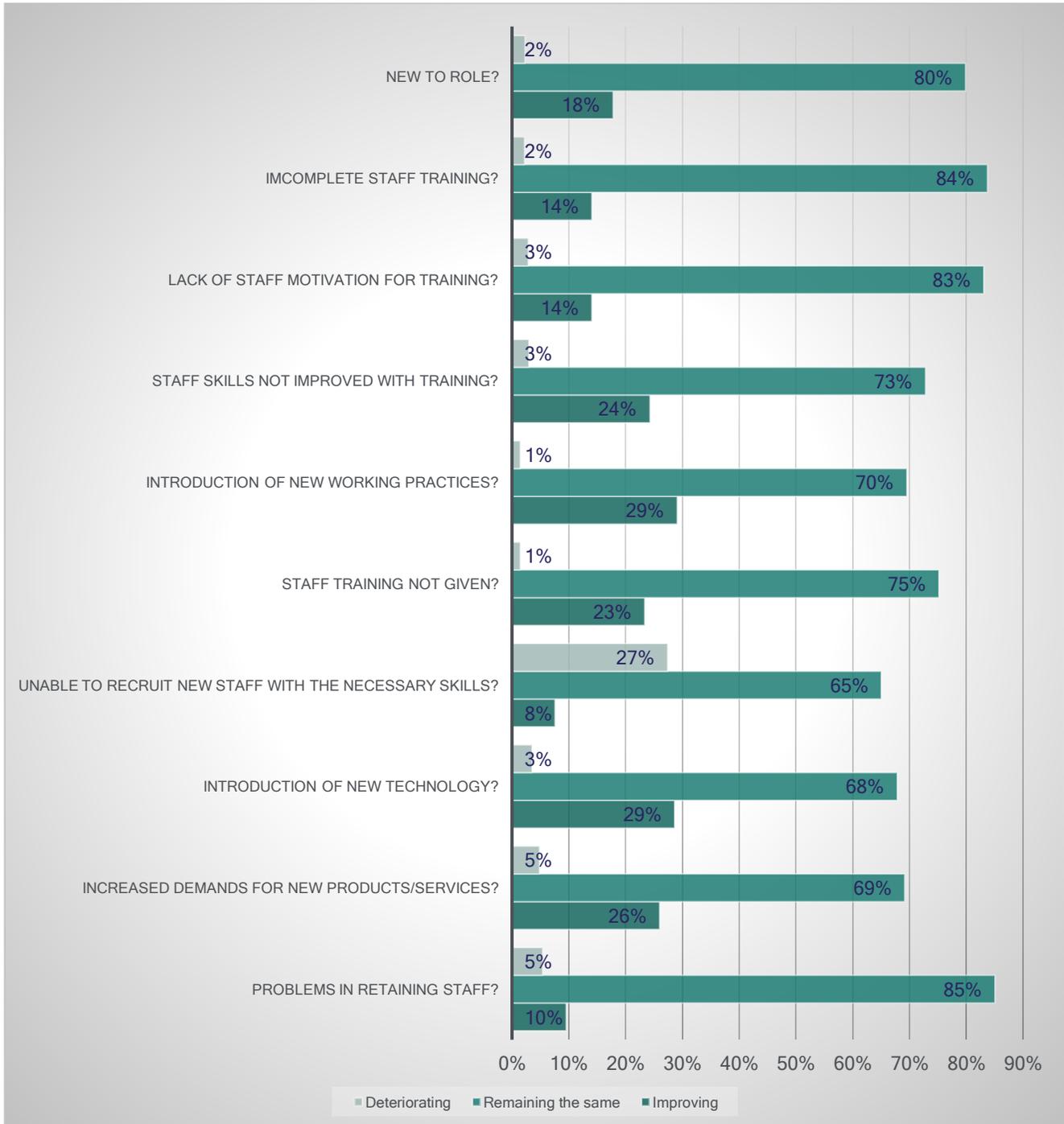
16. For those enterprises who have staff skills gaps, the highest reasons for the skills gaps are problems in retaining staff (96 per cent), increased demands for new goods/services/process (94 per cent), Unable to recruit new staff with the necessary skills (94 per cent), introduction of new technology (93 per cent), introduction of new working practices (92 per cent), and the lowest was new to role (86 per cent).
17. Of those Hertfordshire enterprises who reported a skills gap, forty per per cent identified the introduction of new technology, 38 per cent identified introduction of new working practices, 32 per cent identified increasing demand for new goods, services and processes, 32 per cent identified lack of staff training, and staff skills not improved with training as the situation has improved, see figure C.6.1 below.

FIGURE C.6.1 HERTFORDSHIRE ENTERPRISES' COMMON REASONS FOR REPORTED SKILLS GAPS, AND IMPROVEMENT OR DETERIORATION IN THE LAST YEAR



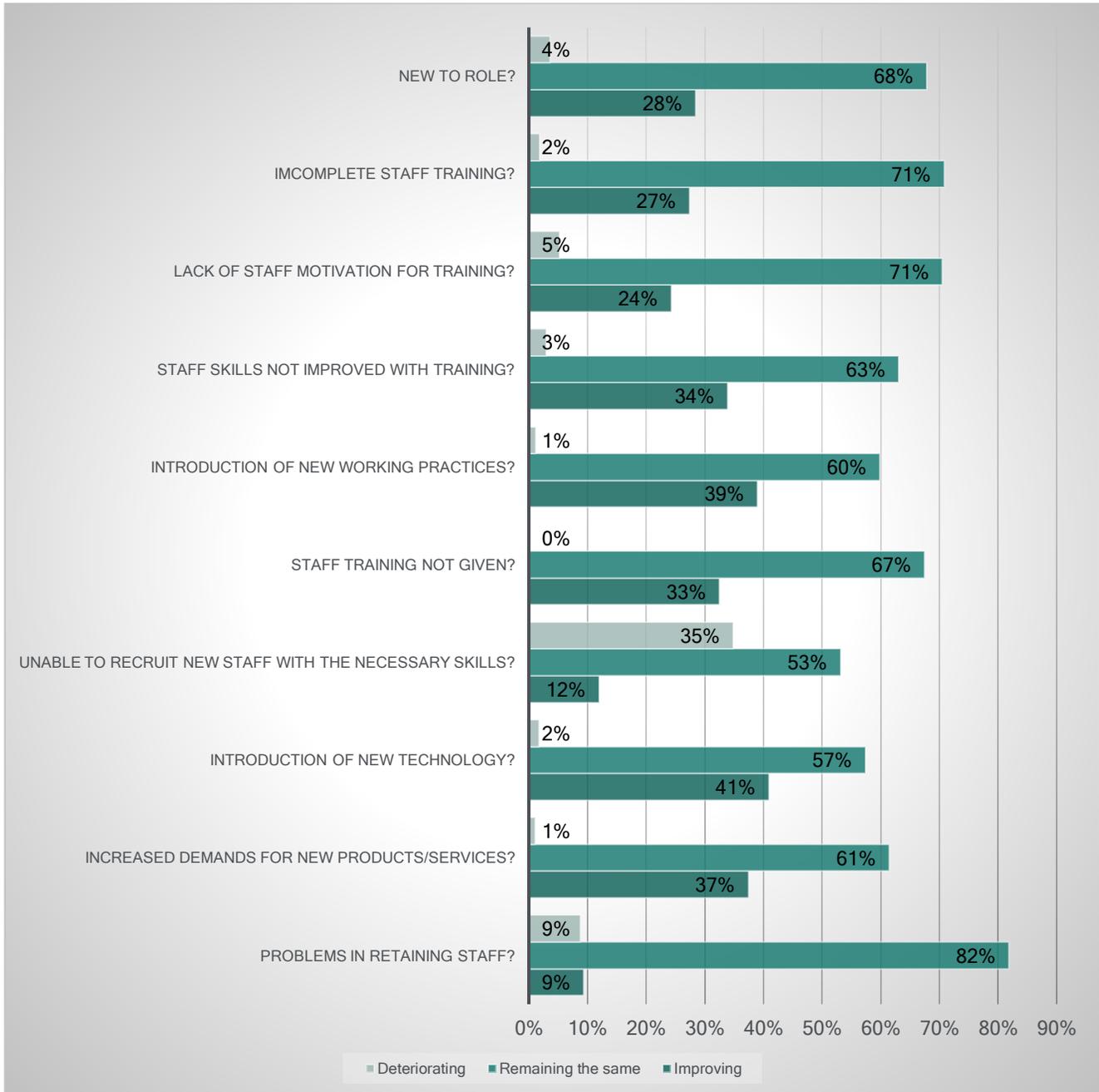
18. Ability to access new staff with the necessary skills is a continuing problem for micro-enterprises with twenty-seven per cent reporting a deterioration in this area. Whereas skills gaps associated with introducing new working practices (29 per cent), introduction of new technology (29 per cent) and increased demands for new goods, services and processes (26 per cent) is improving over the last year, see figure C.6.2 below.

FIGURE C.6.2 HERTFORDSHIRE MICRO-ENTERPRISES' REASONS FOR STAFF SKILLS GAPS, IS IT IMPROVING?



19. The top challenges around Hertfordshire small-business staff skills gaps are in problems of retaining staff (97 per cent), increased demands for goods/services/processes (95 per cent), introduction of new technology (94 per cent), and inability to recruit new staff with the necessary skills (93 per cent). This final reason for small enterprises' skills gaps was noted by our respondents as getting progressively worse in the last year (35 per cent), see figure C.6.3 below.

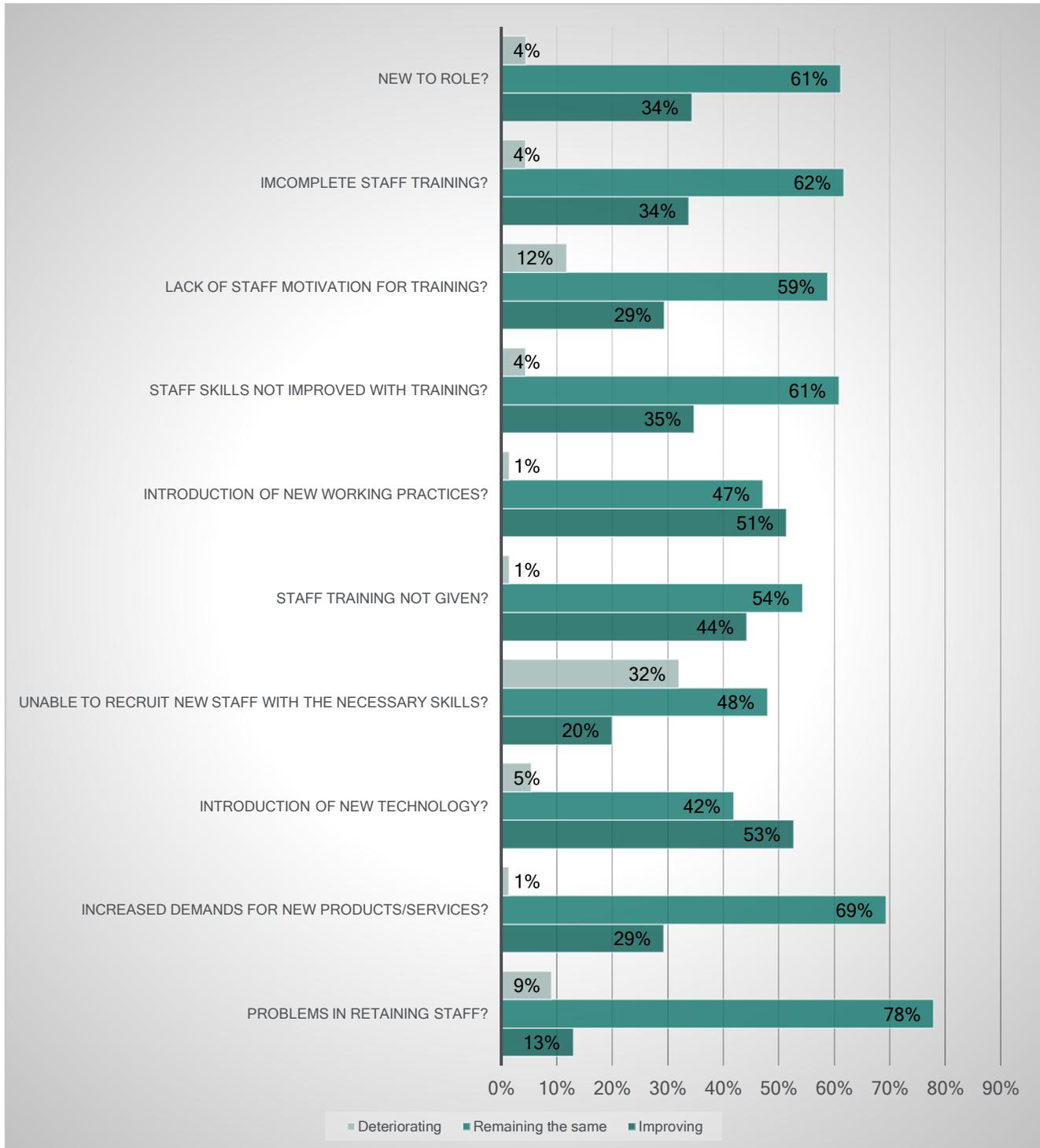
FIGURE C.6.3 HERTFORDSHIRE SMALL-ENTERPRISES' REASONS FOR STAFF SKILLS GAPS, IS IT IMPROVING?



20. For Hertfordshire's medium-sized enterprises the top four reasons for their current staff skills gaps are problems in retaining staff (ninety-nine per cent), increased demands for new goods/services/processes (96 per cent), inability to recruit new staff with the necessary skills (96 per cent), and introduction of new technology. Again, like the small business sector inability to recruit

new staff with the necessary skills has significantly deteriorated for the medium-sized business over the last year (32 per cent), see figure C.6.4 below.

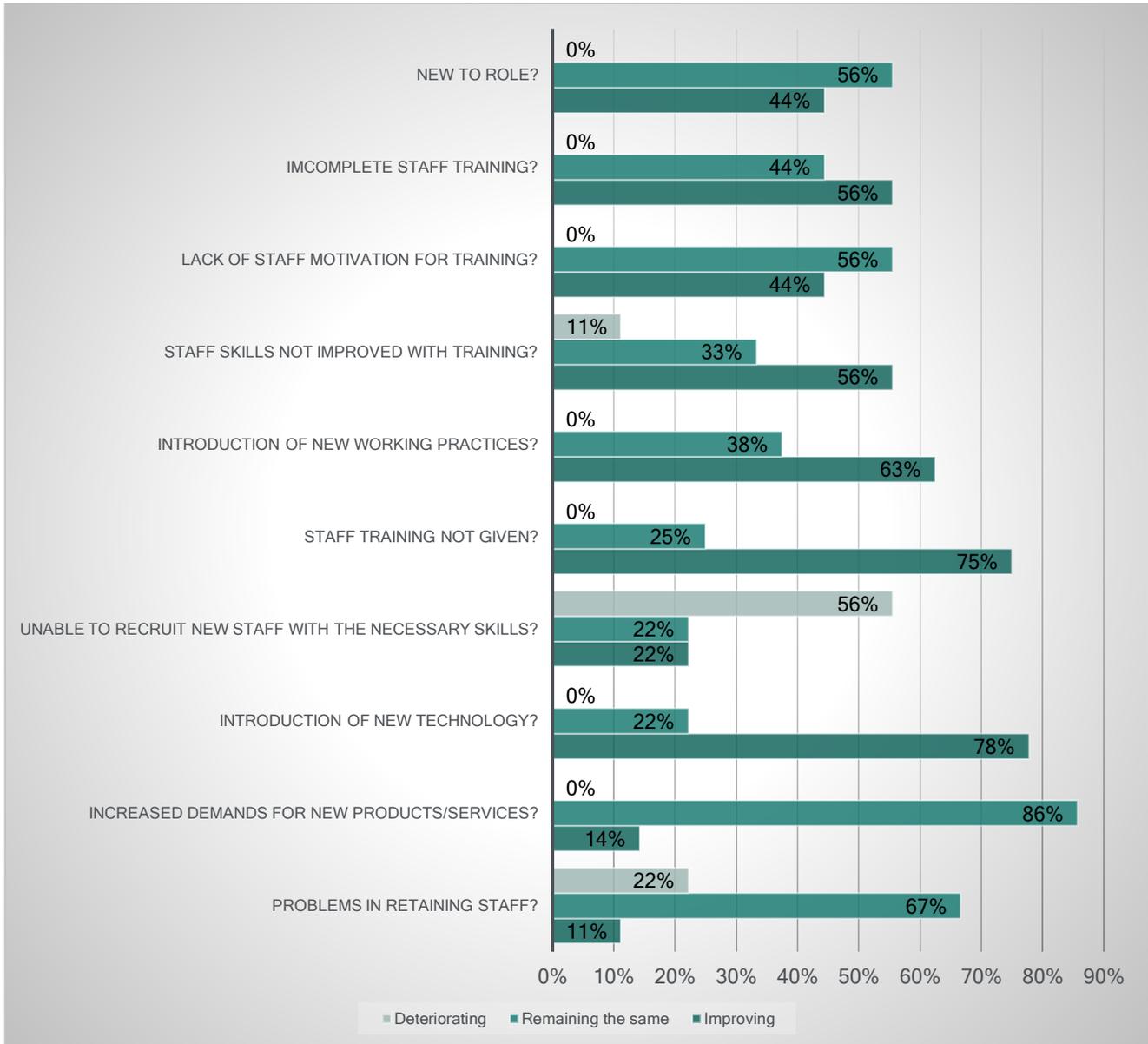
FIGURE C.6.4 HERTFORDSHIRE MEDIUM-ENTERPRISES' REASONS FOR STAFF SKILLS GAPS, IS IT IMPROVING?



21. Hertfordshire large enterprises reported staff skills gaps in all areas, but particularly a deteriorating situation in the inability to recruit new staff with the necessary skills over the last year (56 per cent). Hertfordshire large enterprises did also report an improved staff skills over the last year in increasing

overall staff training (seventy-five per cent), introduction of new technology (78 per cent), introduction of new working practices (63 per cent), and overall improvement of staff skills after training completed, see figure C.6.5 below.

FIGURE C.6.5 HERTFORDSHIRE LARGE-ENTERPRISES' REASONS FOR STAFF SKILLS GAPS, IS IT IMPROVING? (2018)

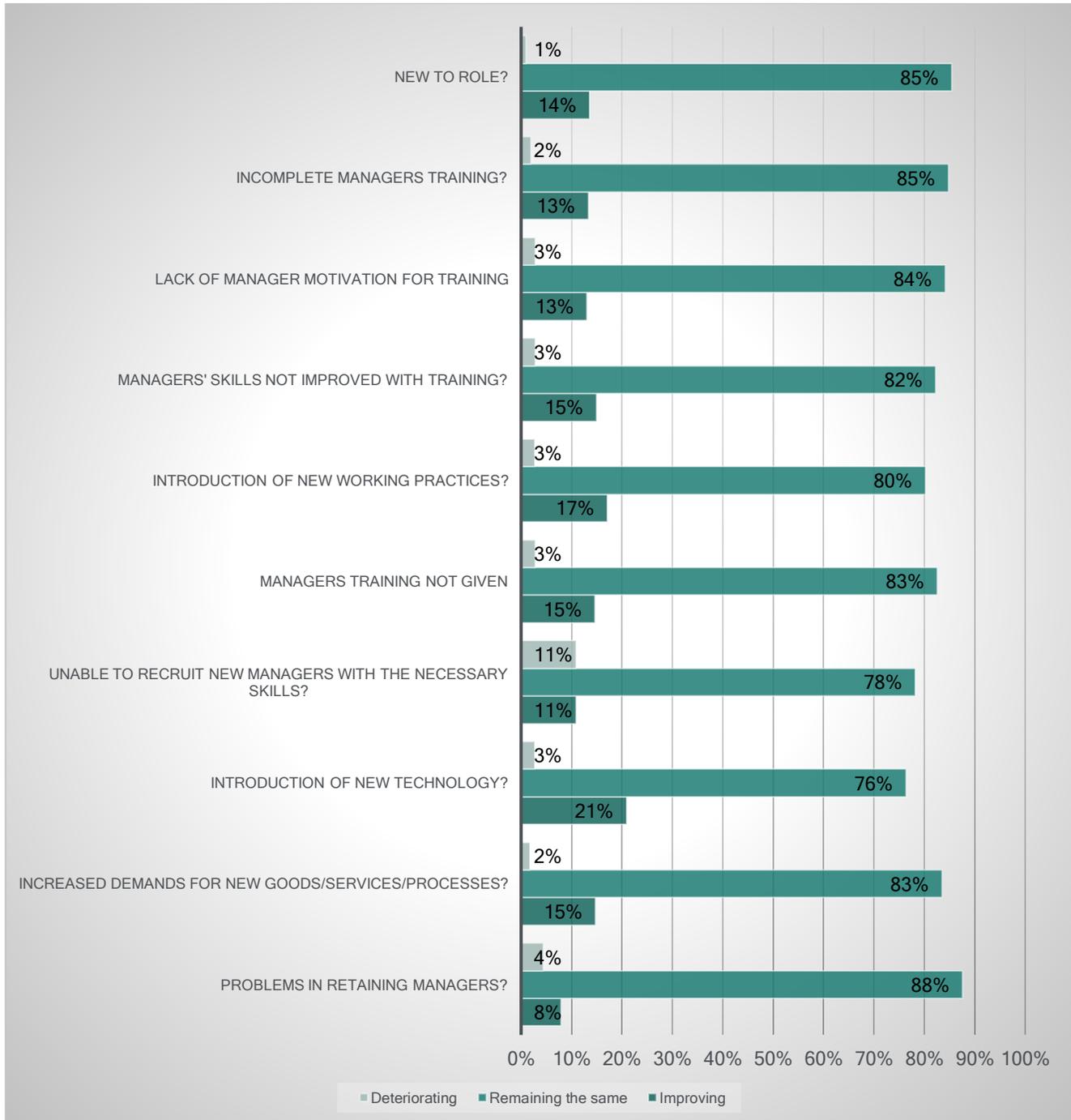


C.7 Hertfordshire managers/leaders' reasons for skills gaps

22. Hertfordshire enterprises ranked the following reasons as contributory towards their overall managers/leaders skills gaps: problems in retaining their existing managers (84 per cent), increased demands for new goods, services and processes (82 per cent), introduction of new technology (82 per cent), and unable to recruit new managers with the necessary skills (81 per cent).
23. Of those managers/leaders' skill gaps reported, Hertfordshire enterprises reported an improvement of the last year in managers' skills handling the introduction of new technology (30 per cent),

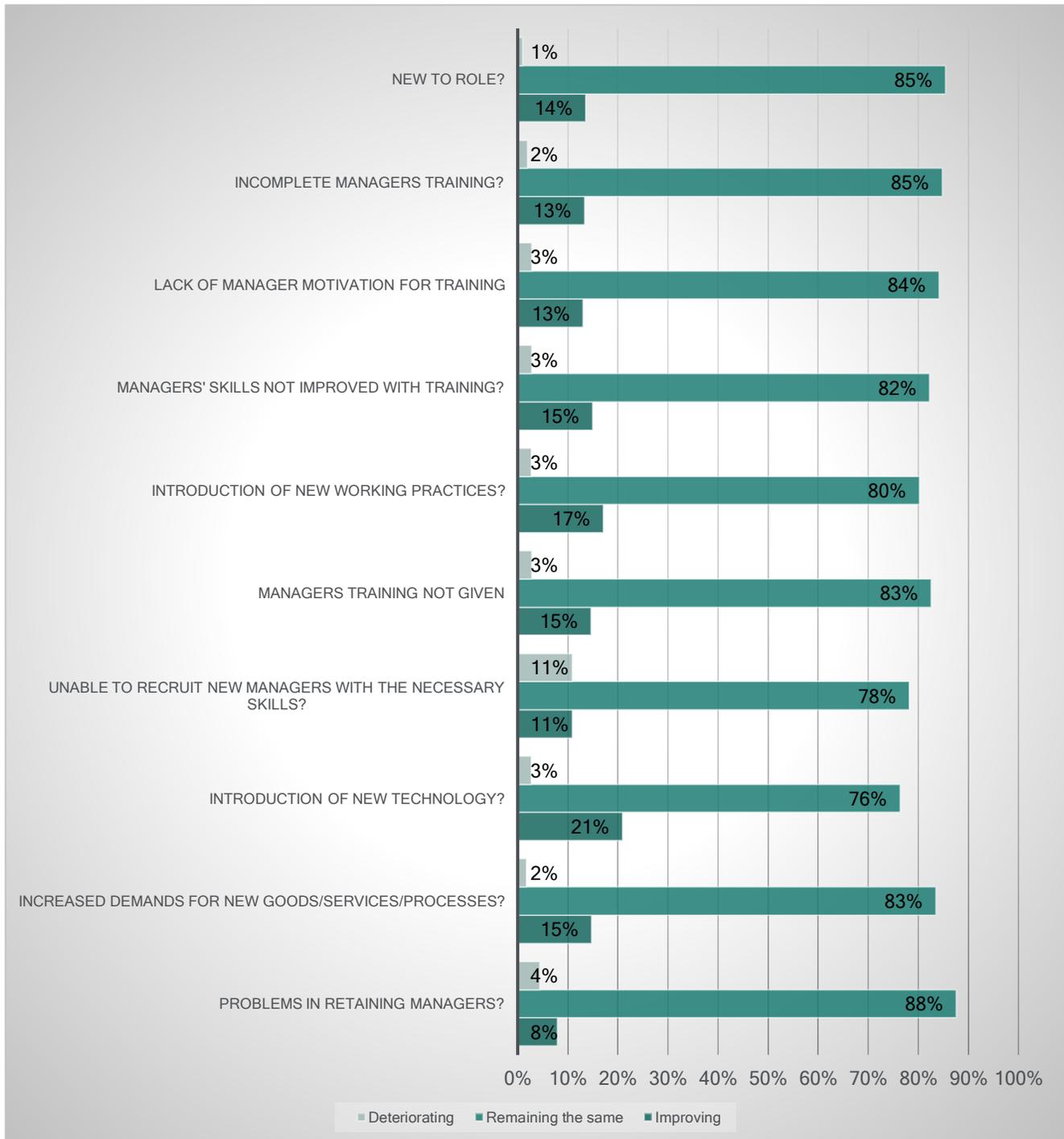
introduction of new working practices (30 per cent), being trained and seeing an improvement in their skills (23 per cent), see figure C.7.1 below.

FIGURE C.7.1 HERTFORDSHIRE ENTERPRISES' COMMON REASONS FOR REPORTED MANAGERS' SKILLS GAPS, AND IMPROVEMENT OR DETERIORATION IN LAST YEAR (2018)



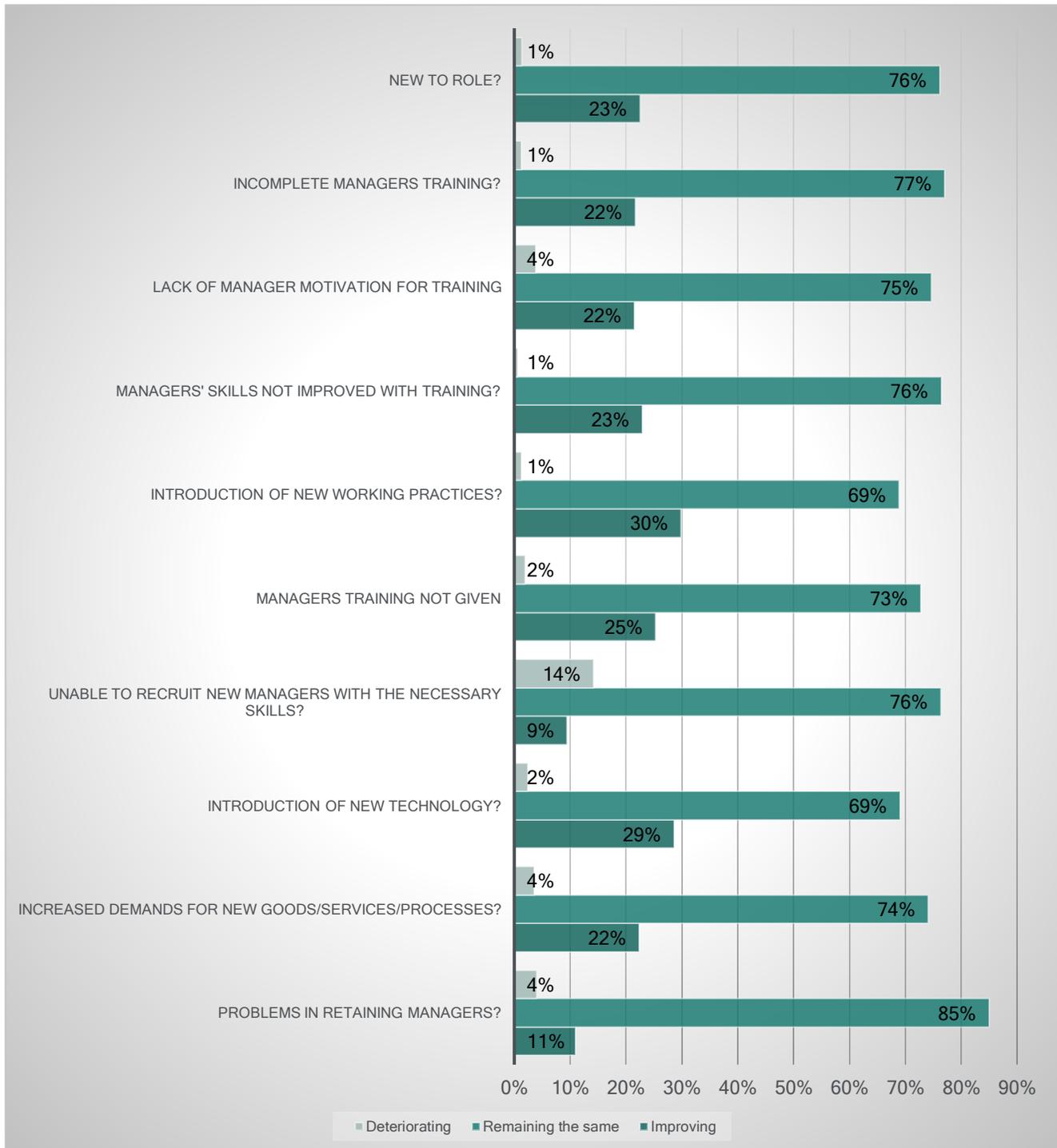
24. Hertfordshire micro-enterprises noted improvements in manager's skills in introducing new working practices (17 per cent), increasing activities around the demand for new goods, services and processes (15 per cent), manager's being given training (15 per cent), and manager's skills improving after training (15 per cent), see figure C.7.2 below.

FIGURE C.7.2 HERTFORDSHIRE MICRO-ENTERPRISES' COMMON REASONS FOR MANAGERS' SKILLS GAPS, AND IMPROVEMENT OR DETERIORATION IN LAST YEAR (2018)



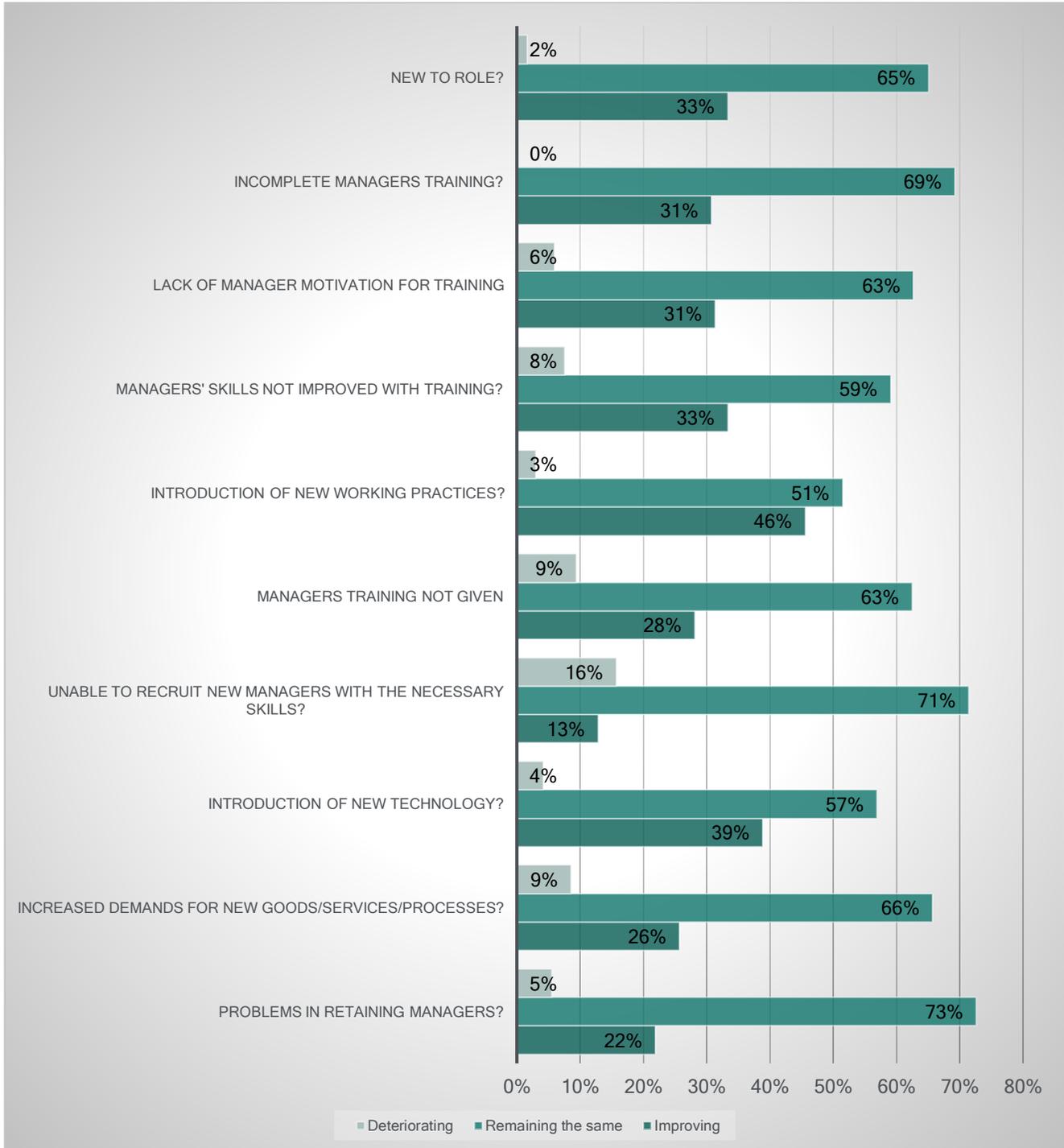
25. Hertfordshire small-enterprises noted a steady improvement in manager's skills in introducing new working practices (30 per cent), introduction of new technology (29 per cent), manager's training being given (25 per cent), and manager's skills improving with training given (23 per cent), see figure C.7.3 below.

FIGURE C.7.3 HERTFORDSHIRE SMALL-ENTERPRISES' COMMON REASONS FOR MANAGERS' SKILLS GAPS, AND IMPROVEMENT OR DETERIORATION IN LAST YEAR (2018)



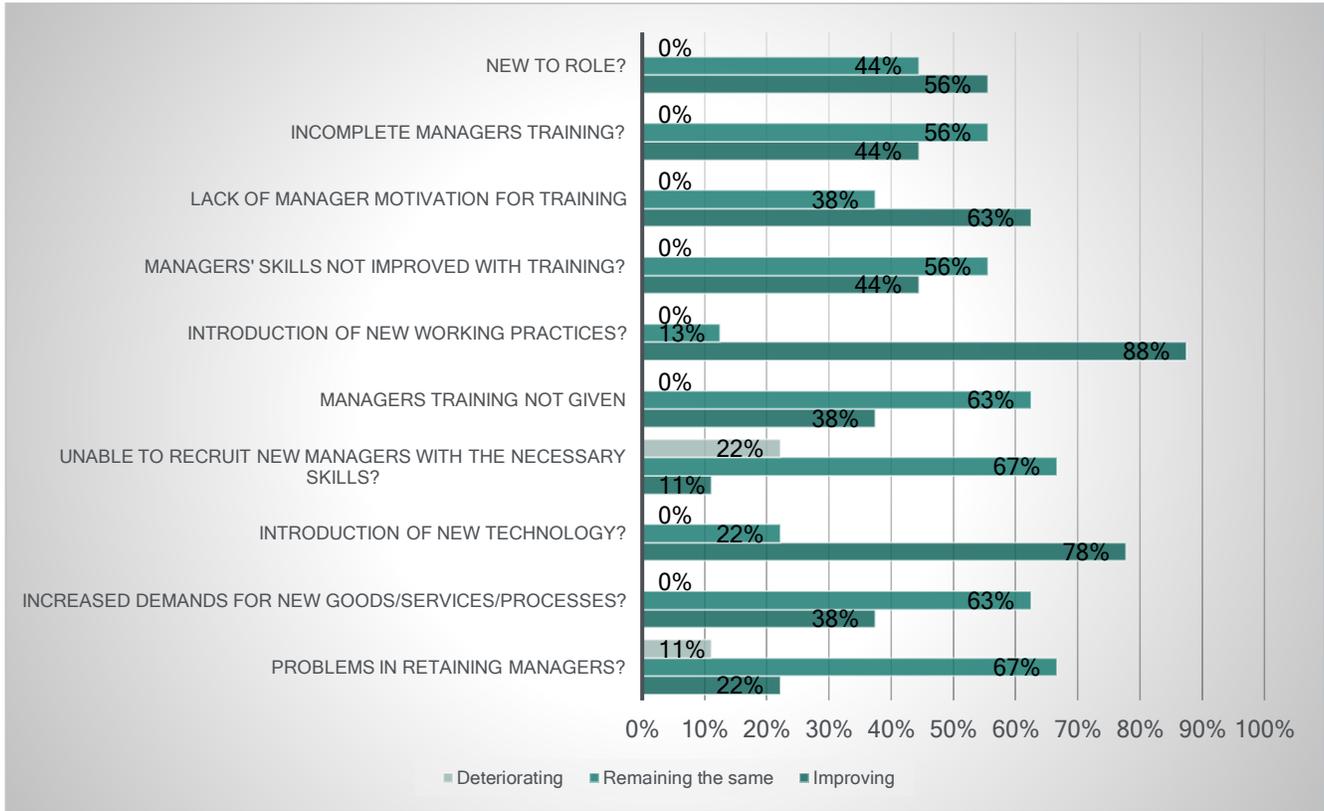
26. Hertfordshire medium-sized enterprises expressed improvements in manager's skills in introducing new working practices (46 per cent), introduction of new technology (36 per cent), newness to the role (33 per cent), and manager's skills being improved with training (33 per cent), see figure C.7.4 below.

FIGURE C.7.4 HERTFORDSHIRE MEDIUM-ENTERPRISES' COMMON REASONS FOR MANAGERS' SKILLS GAPS, AND IMPROVEMENT OR DETERIORATION IN LAST YEAR (2018)



27. Hertfordshire large-sized enterprises reported that improvements were noted against manager's skills in handling the introduction of new working practices (88 per cent), the introduction of new technology (78 per cent), improvement in manager's motivation to training (63 per cent), and newness to the role (53 per cent), see figure C.7.5 below.

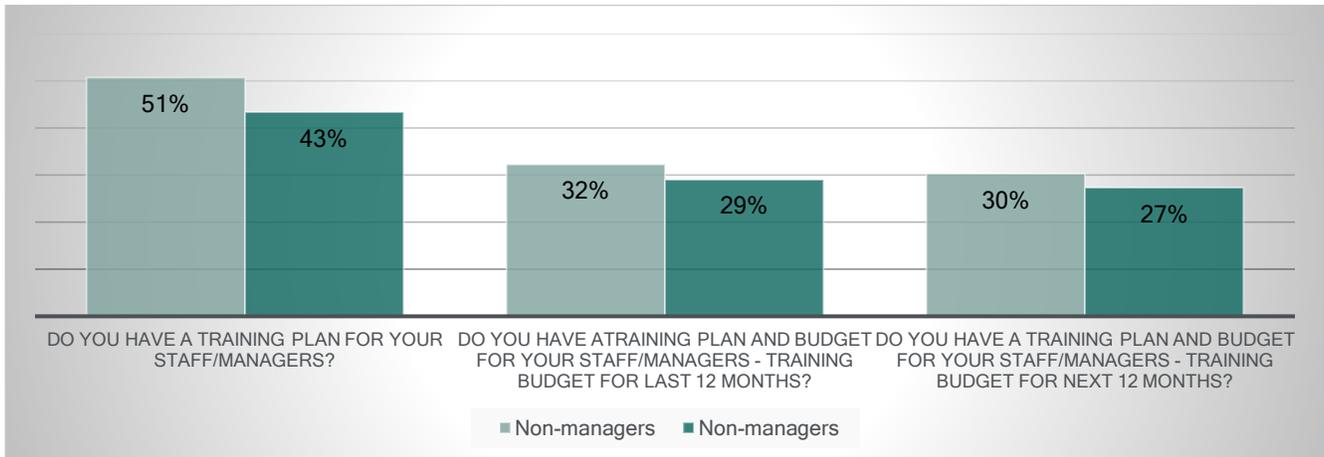
FIGURE C.7.5 HERTFORDSHIRE LARGE-ENTERPRISES' COMMON REASONS FOR MANAGERS' SKILLS GAPS, AND IMPROVEMENT OR DETERIORATION IN LAST YEAR (2018)



C.8 Hertfordshire enterprises' training plans

28. Fifty-one per cent of Hertfordshire enterprises polled had training plans for their general staff, 43 per cent had training plans for their managers/leaders. In the last year thirty-two per cent of Hertfordshire enterprises had a training budget for their general staff, and 29 per cent for managers/leaders. Thirty per cent expected to have a training budget for their general staff, and 27 per cent a training budget for their managers/leaders, see figure C.8.1 below.

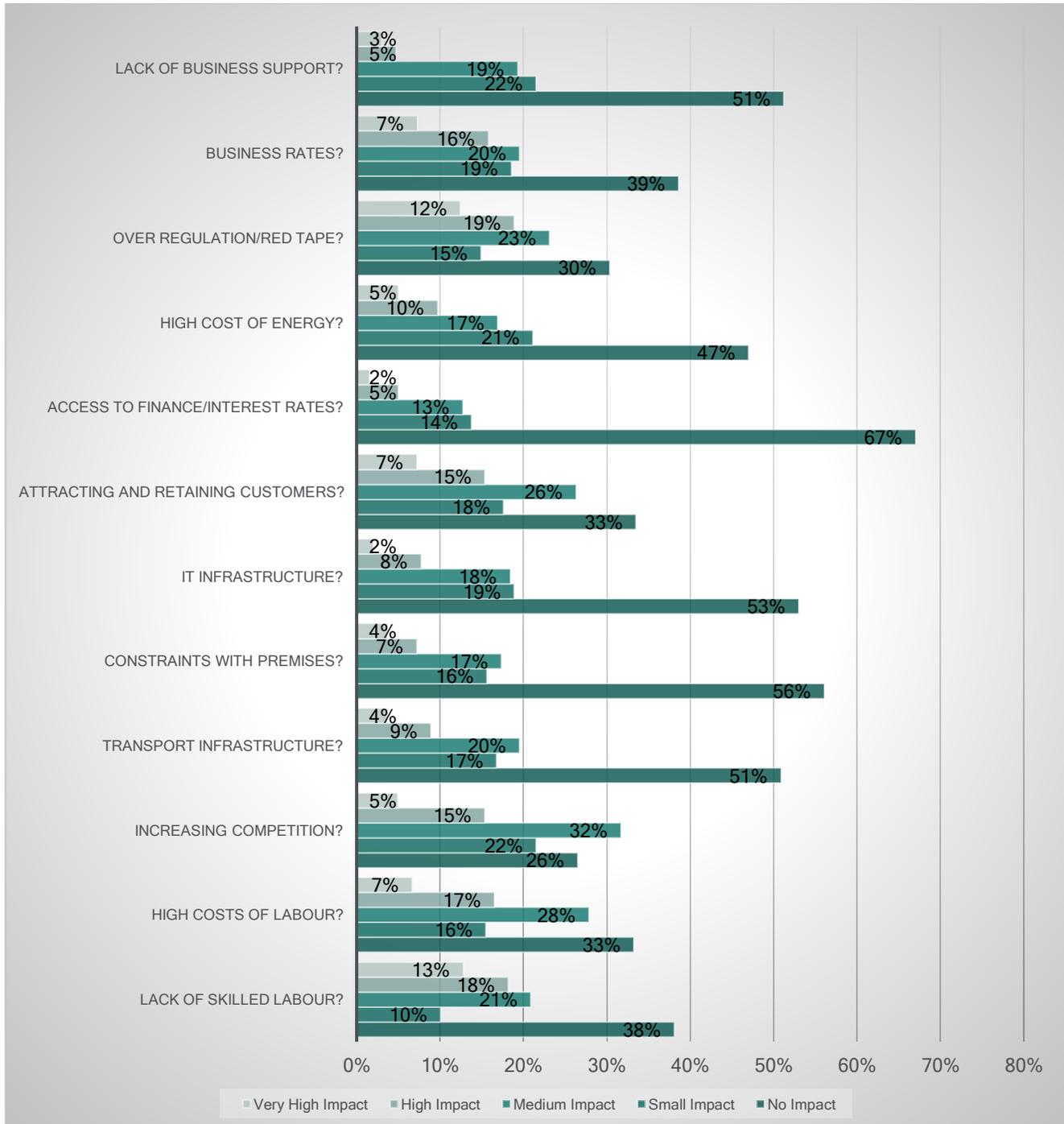
FIGURE C.8.1 HERTFORDSHIRE ENTERPRISES THAT HAVE TRAINING PLANS AND BUDGETS, LAST AND NEXT YEAR (2018-19)



C.9 Main constraints for Hertfordshire enterprises in achieving increased turnover, growth and productivity

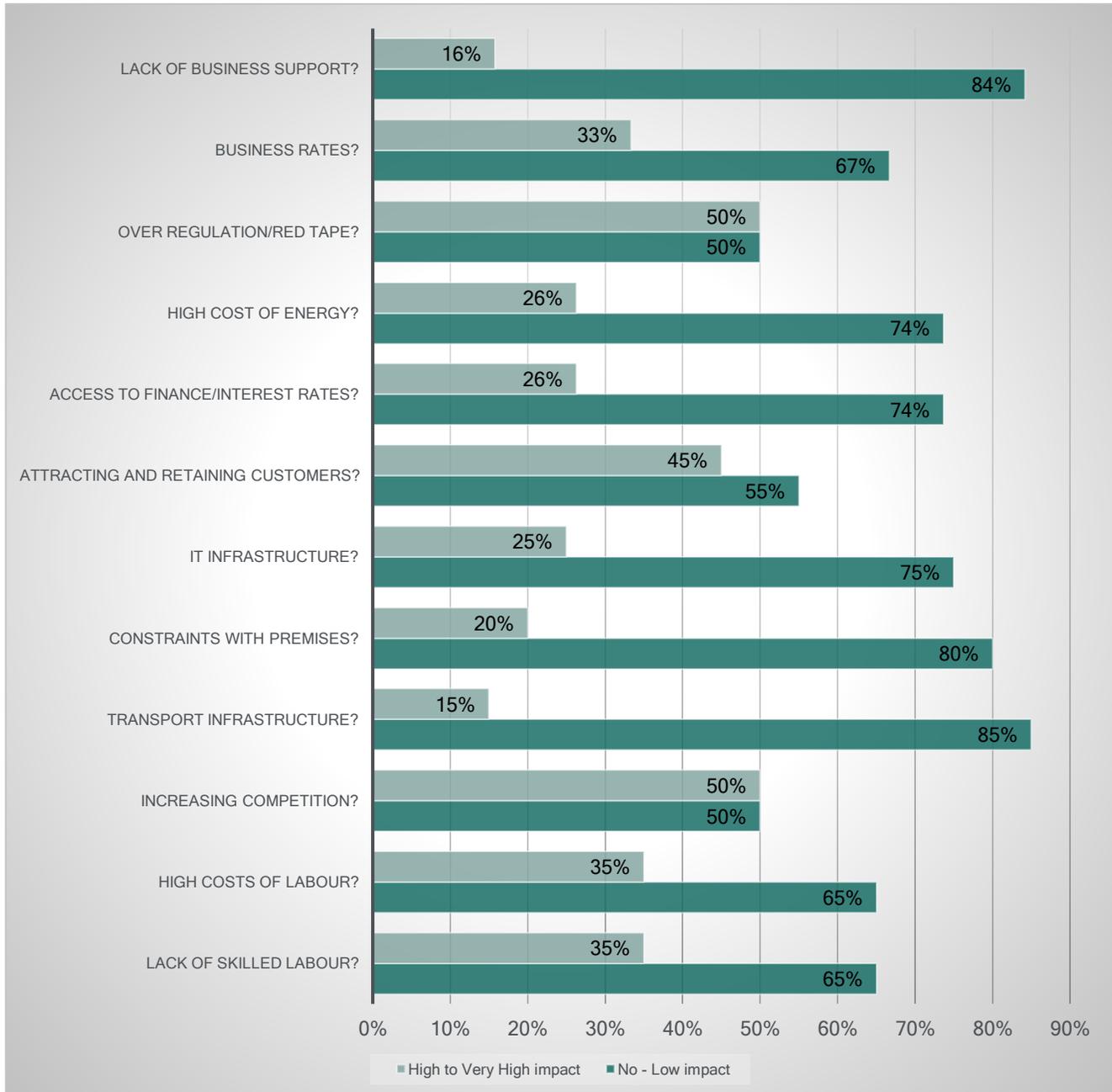
29. The top four obstacles cited by Hertfordshire enterprises are lack of skilled labour (31 per cent), over regulation/red tape (31 per cent), high cost of labour (23 per cent) and business rates (23 per cent), see figure C.9.1 below.

FIGURE C.9.1 HERTFORDSHIRE ENTERPRISES CITING EACH OF THE FOLLOWING MAIN CONSTRAINTS IN IMPACTING ON BUSINESS PERFORMANCE



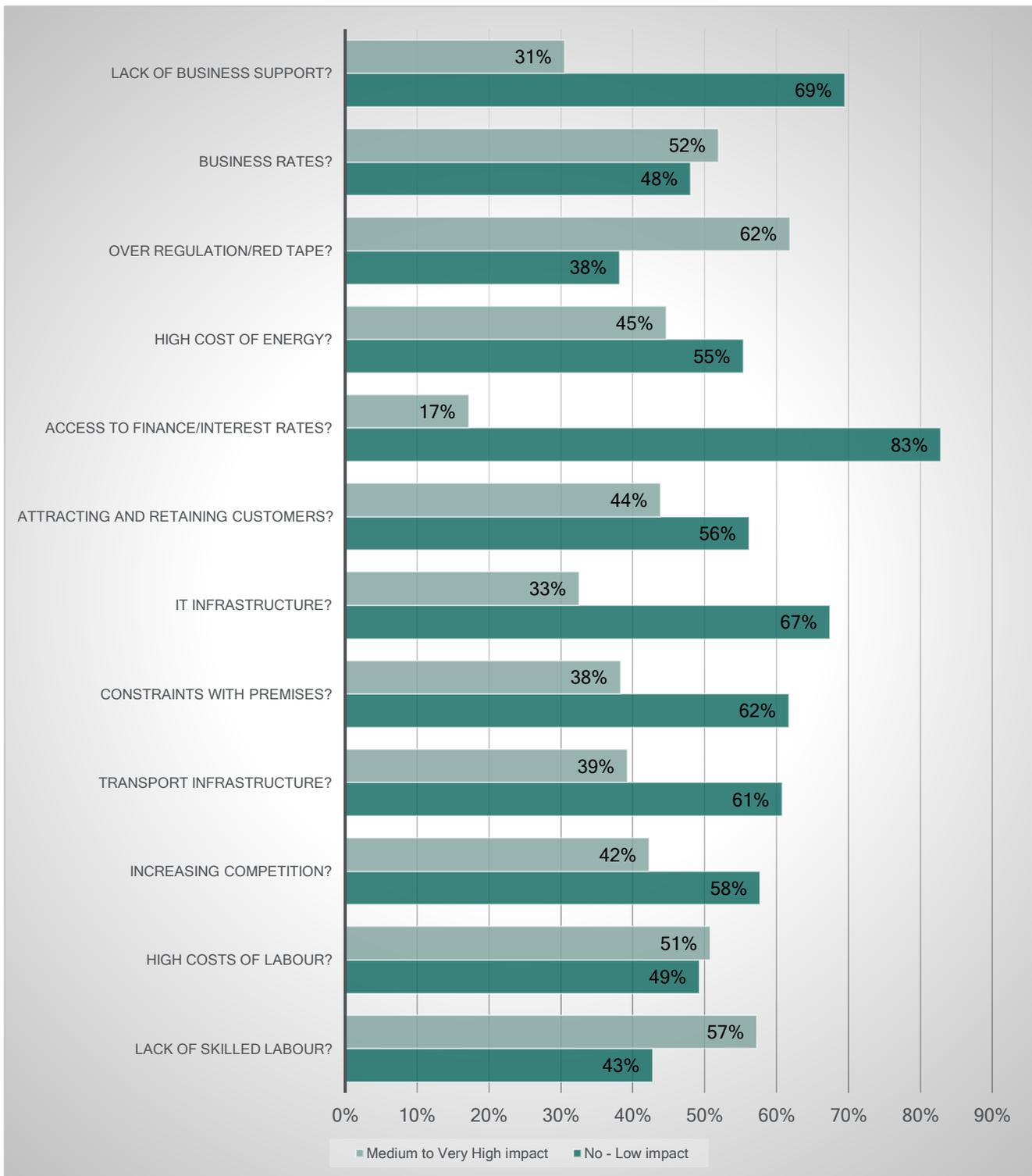
30. Hertfordshire micro-enterprises were more likely to report on over-regulation/red tape (30 per cent), lack of skilled labour (28 per cent), attracting and retaining customers (22 per cent), business rates (18 per cent) and increasing competition (19 per cent), see figure C.9.2 below.

FIGURE C.9.2 HERTFORDSHIRE LIFE SCIENCES AND PHARMACEUTICAL SECTOR'S MAIN CONSTRAINTS



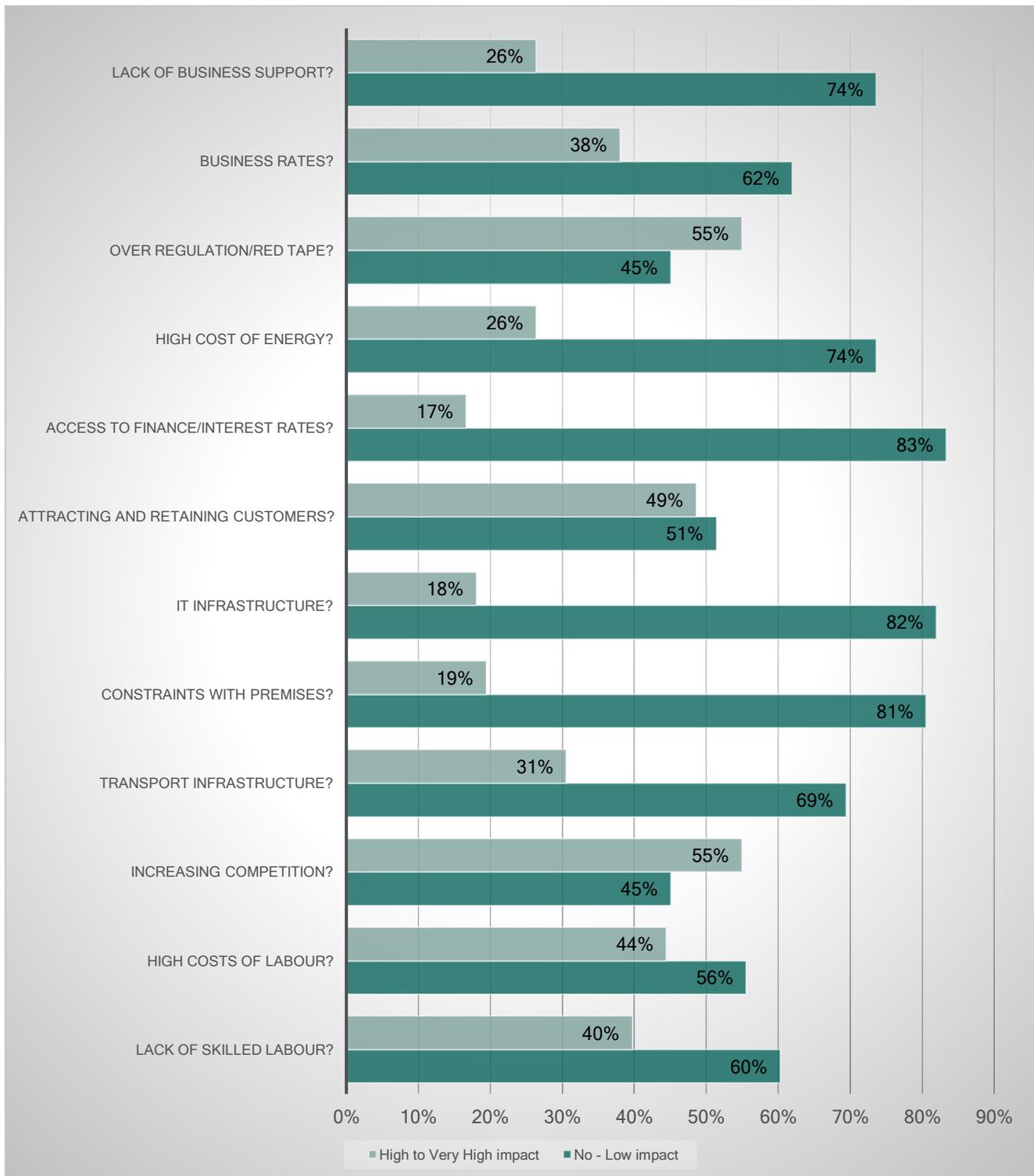
31. As one would expect there are some sectoral variations in the degree of impact Hertfordshire enterprises perceive the impact of these different constraints on them and their sector. Life sciences and pharmaceuticals enterprises rank the top four constraints on their sector as: increased competition (50 per cent), over regulation and red tape (50 per cent), attracting and retaining customers (45 per cent) and lack of skilled labour (35 per cent), see figure C.9.3 below.

FIGURE C.9.3 HERTFORDSHIRE MANUFACTURING AND ADVANCED ENGINEERING SECTOR'S MAIN CONSTRAINTS



32. The manufacturing and advanced engineering sector's top ranked constraints as: over-regulation and red tape (62 per cent), lack of skilled labour (57 per cent), business rates (52 per cent), and high costs of labour (51 per cent), see figure C.9.4 below.

FIGURE C.9.4 HERTFORDSHIRE PROFESSIONAL, FINANCIAL AND TECHNICAL SERVICES SECTOR'S MAIN CONSTRAINTS

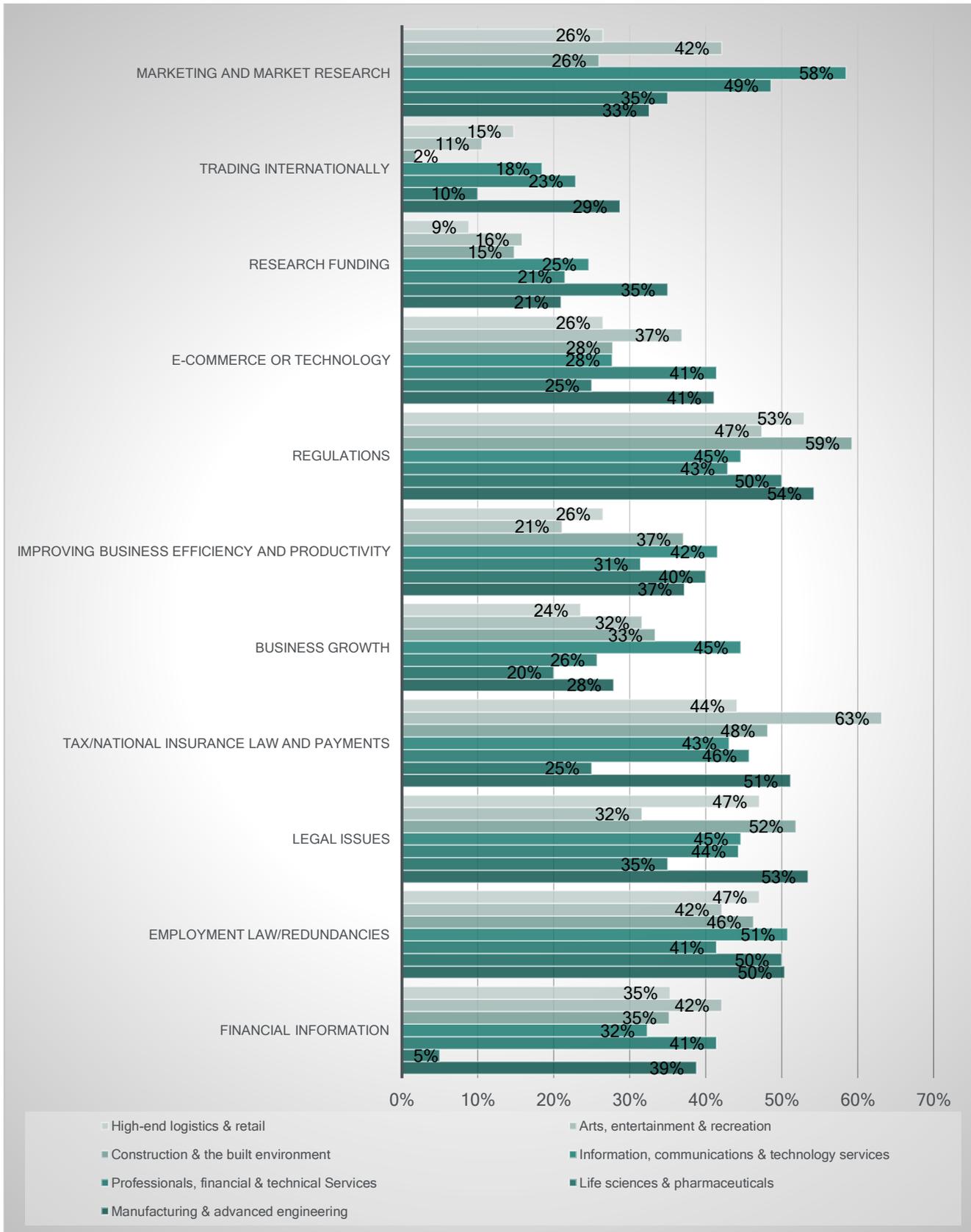


33. The professional, financial and technical services sector's top ranked constraints as: high-costs of labour (56 per cent), over-regulation and red tape (55 per cent), increasing competition (55 per cent), and attracting and retaining customers (49 per cent).

C.10 Hertfordshire enterprises' information seeking activities in the last year

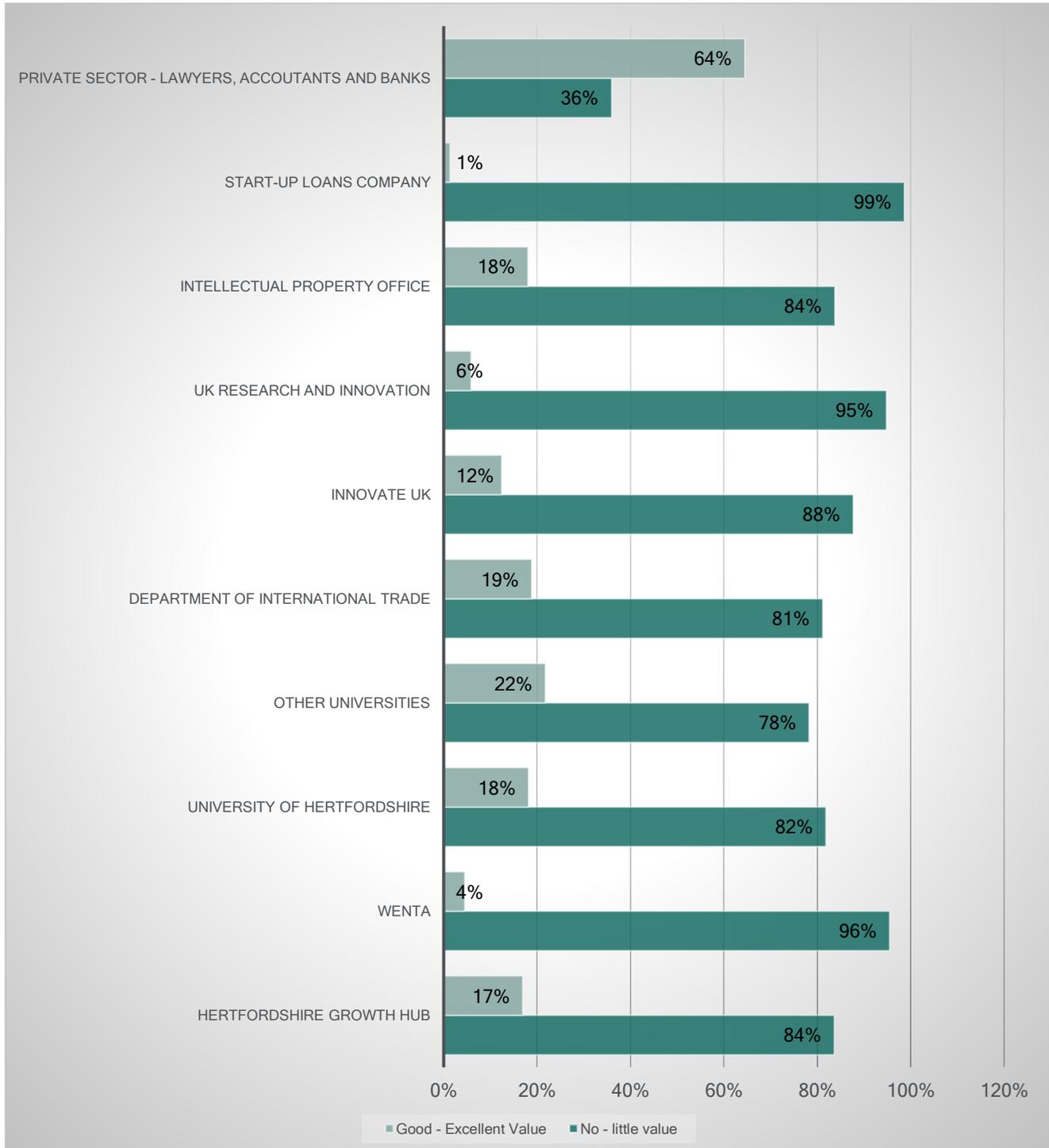
34. Enterprises most likely to financial information are in the professional/financial/technical services (41 per cent), arts/entertainment/recreation (42 per cent), manufacturing/advanced engineering (39 per cent), and construction/built environment (35 per cent) sectors.
35. Enterprises that sought marketing and market research information and advice were in the information/communications/technology service (58 per cent), professional/financial/technical services (49 per cent), arts/entertainment/recreation (42 per cent), and life sciences/pharmaceutical (35 per cent) sectors.
36. Enterprises which sought information on how to improve business efficiency and productivity were in the information/communication/technology (42 per cent), life sciences/pharmaceutical (40 per cent), construction/built environment (37 per cent), and manufacturing/advanced engineering (37 per cent) sectors, see figure C.10.1.

FIGURE C.10.1 HERTFORDSHIRE ENTERPRISES' INFORMATION SEEKING ACTIVITIES, BY SECTOR



37. Sixty-four per cent of enterprises seeking advice received good to excellent value from approaching their financial advisor, accountants or solicitor. Twenty-two per cent of enterprises had good-excellent value information and advice from universities, department of international trade (19 per cent), intellectual property office (18 per cent) and Hertfordshire Growth Hub (17 per cent), see figure 10.2 below.

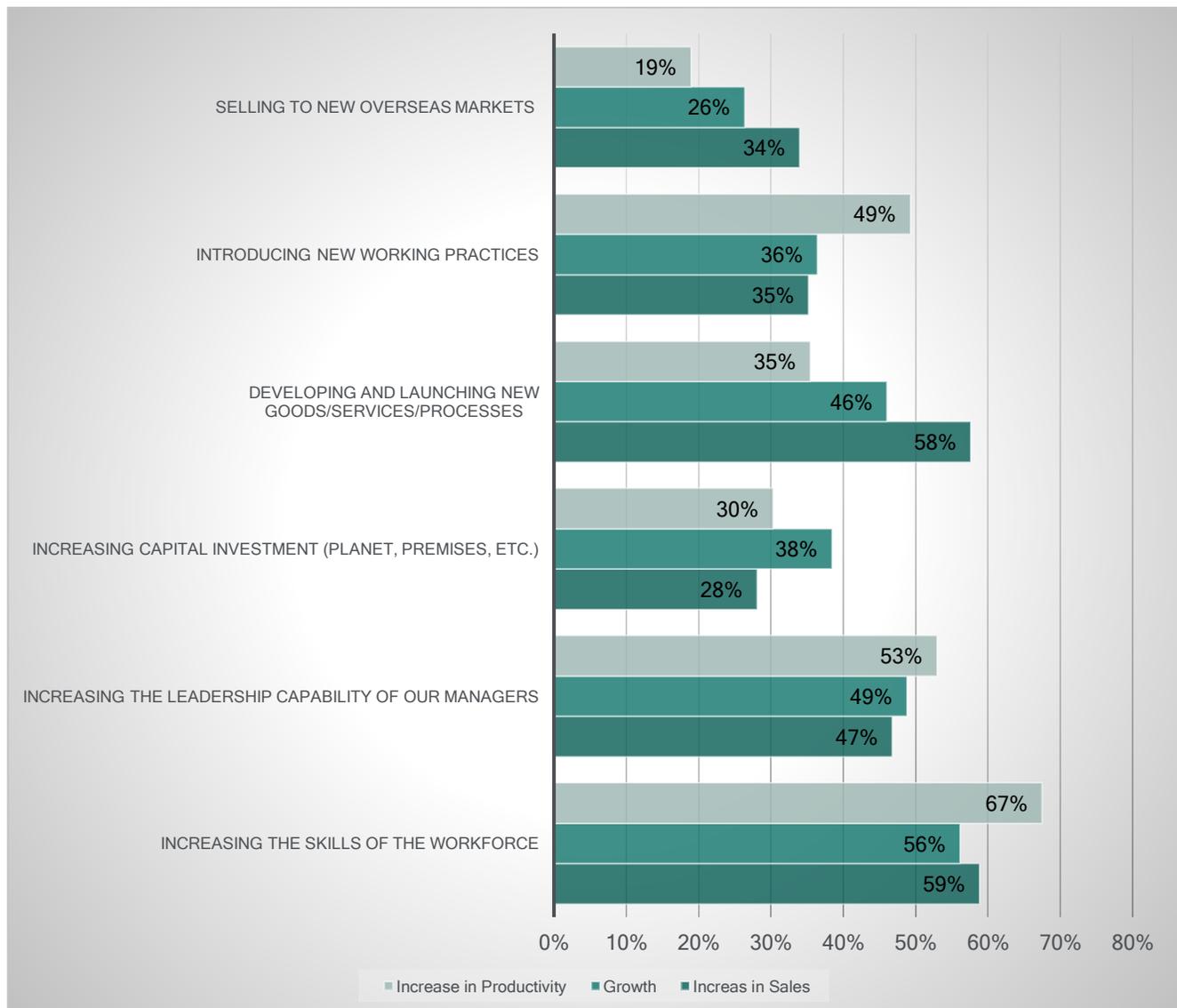
FIGURE C.10.2 HERTFORDSHIRE ENTERPRISES' SOURCES OF INFORMATION, AND THE PERCEIVED VALUE OF ADVICE GIVEN



C.11 Hertfordshire enterprises' business plans for the next three years

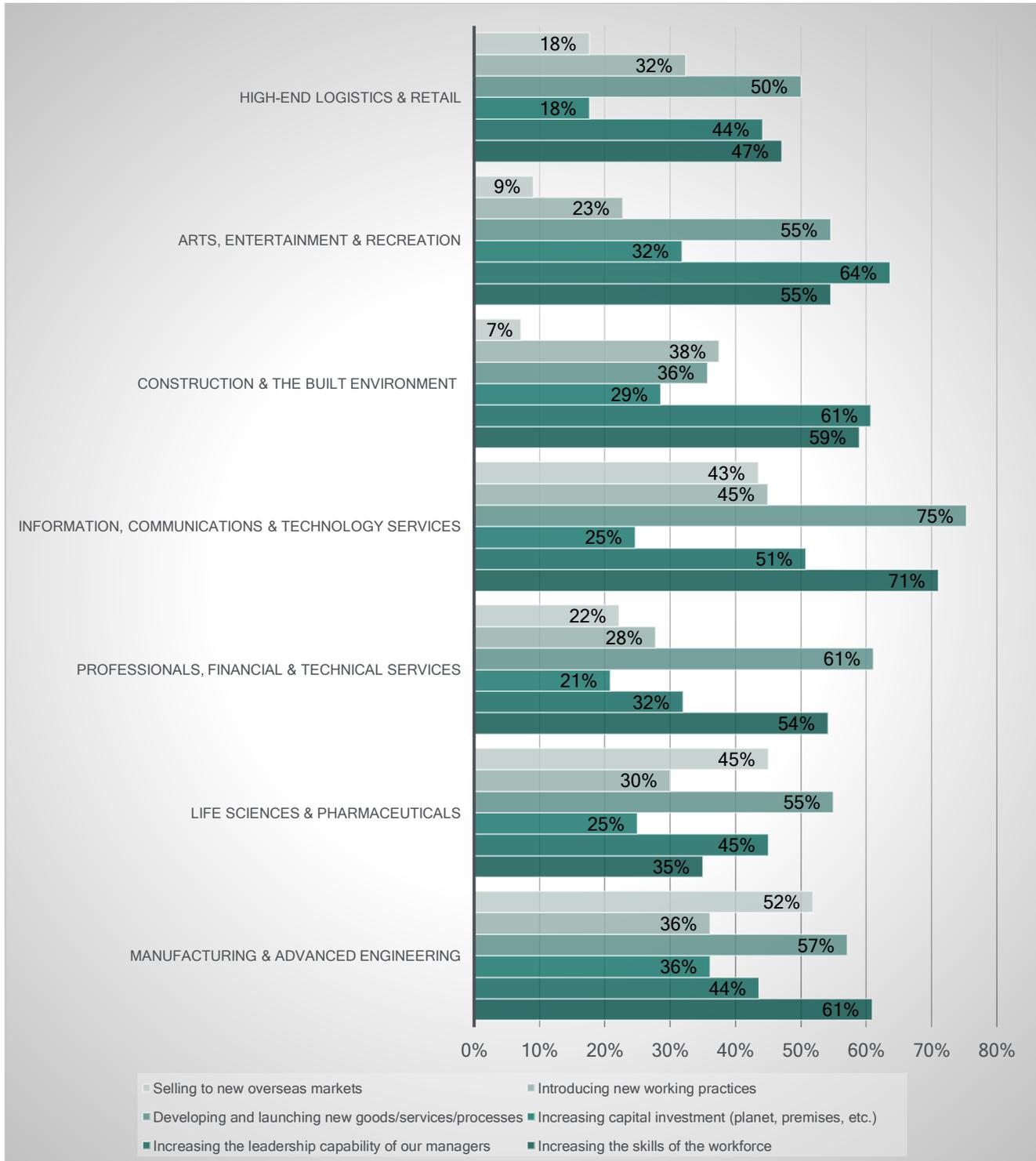
38. Hertfordshire enterprises understand the importance of increasing the skills of the workforce and its potential impact on increasing turnover (59 per cent), contributing towards business growth (56 per cent), and increasing overall productivity (67 per cent).
39. Investing in new goods, services and processes development is recognized, by the enterprises, to increase turnover (58 per cent), contribute towards growth (46 per cent), and increase overall productivity (35 per cent).
40. Most significant after investing in the skills of their staff is the investment in increasing leadership capability of their managers/leaders, with over fifty-three per cent suggesting it would improve productivity, 49 per cent linking it to improved growth, and 47 per cent in increasing overall business turnover, see figure C.11.1.

FIGURE C.11.1 HERTFORDSHIRE ENTERPRISES' BUSINESS PLANS FOR THE NEXT THREE YEARS



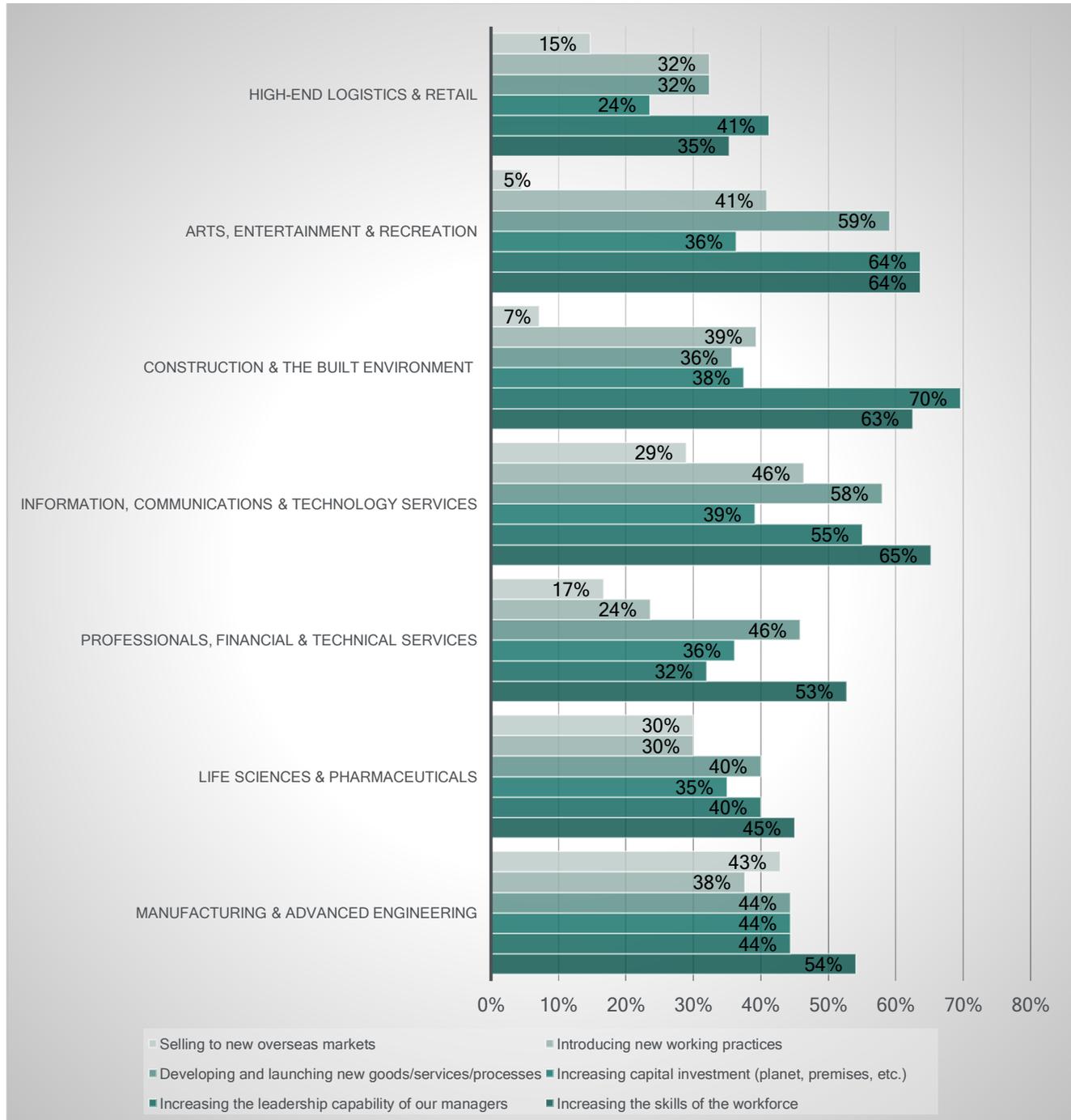
41. Hertfordshire business sectors: information/communication/technology (45 per cent), construction/built environment (38 per cent), and manufacturing/advanced engineering (36 per cent) saw introducing new working practices as being 3rd most influential in increasing sales, see figure C.11.2 below.

FIGURE C.11.2 HERTFORDSHIRE ENTERPRISES' BUSINESS PLANS TO INCREASE SALES OVER THE NEXT THREE YEARS, BY SECTOR.



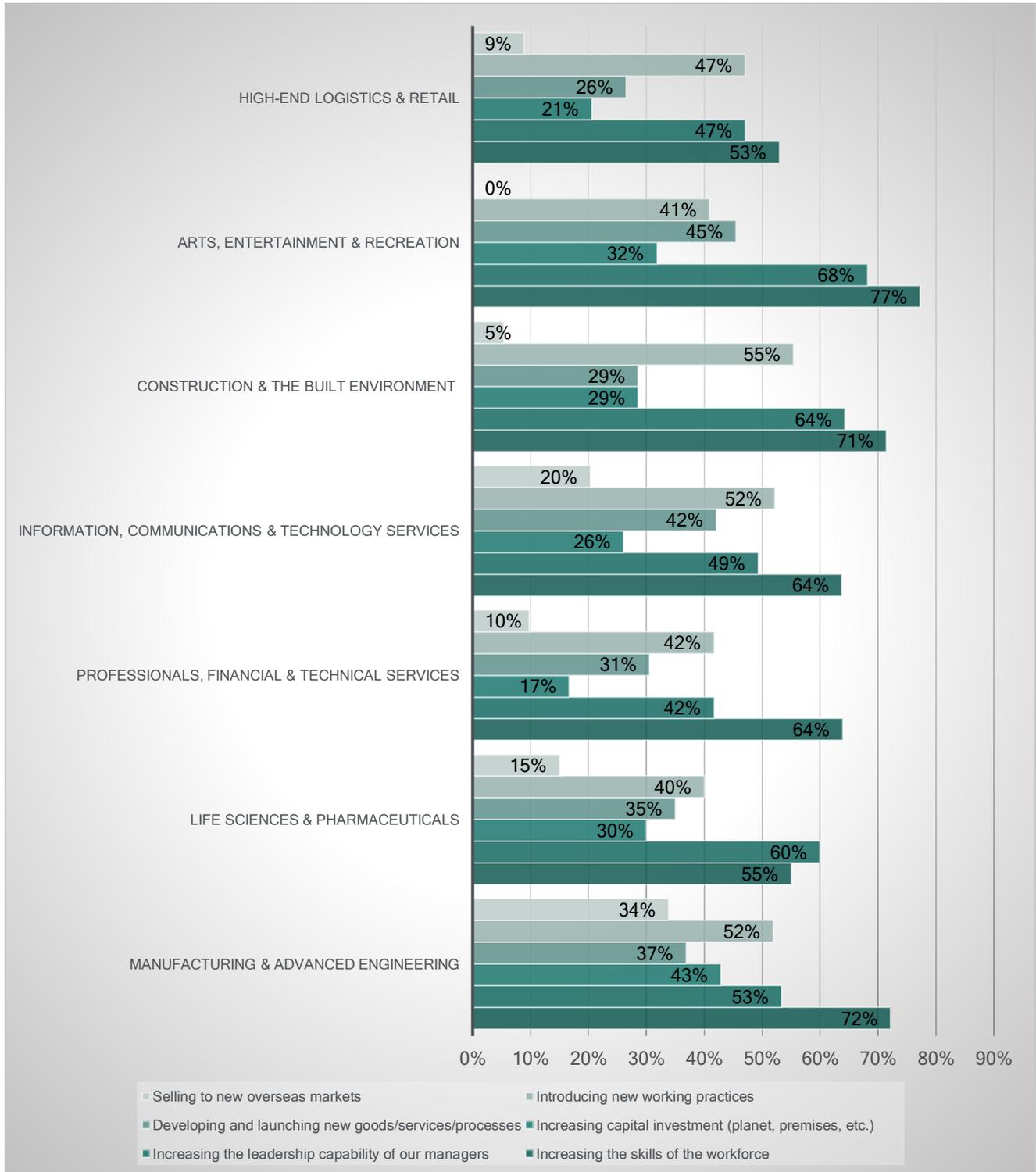
42. Information/communications/technology business sector ranked increasing the skills of the workforce (71 per cent) and developing new goods/services/processes (75 per cent) as most influential on increasing sales.
43. Developing new goods, services and processes was the 2nd most likely business plan activity, in the next three years, to increase sales for information/communications/technology service (65 per cent), professional/financial/technical service (55 per cent), arts/entertainment/recreation service (55 per cent) and manufacturing/advanced engineering (57 per cent) sector enterprises.

FIGURE C.11.3 HERTFORDSHIRE ENTERPRISES' BUSINESS PLANS TO GROW OVER THE NEXT THREE YEARS, BY SECTOR.



44. Manufacturing/advanced engineering, professional/financial/technical, information/communications/technology, construction/built environment and arts/entertainment/recreation business sectors ranked increasing the skills of the workforce (72 per cent, 64 per cent, 64 per cent, 71 per cent and 77 per cent respectively), see figure C.11.4 below.

FIGURE C.11.4 HERTFORDSHIRE ENTERPRISES' BUSINESS PLANS TO INCREASE PRODUCTIVITY OVER THE NEXT THREE YEARS, BY SECTOR.



Section D: Hertfordshire Business Productivity Survey study key findings

The HBPS study findings have revealed some interesting insights and perspectives of the Hertfordshire business community, particularly around their activities in driving increased turnover, growth and improved productivity. These are summarized in the sub-section below, but we would like to share with you some overall observations:

- Hertfordshire enterprises are experiencing steady growth, across the sector more than 56 per cent have increased turnover by more 5 per cent or more. In sector terms the strongest sectors are arts/entertainment and recreation (56 per cent), manufacturing and advanced engineering (55 per cent), and information/communications and technology (55 per cent). The weaker sectors for growth in turnover in the past year were life sciences and the pharmaceuticals (35 per cent), and professional/financial and technical services (35 per cent);
- As a consequence of Hertfordshire enterprises' growth above, they are increasingly confident to increase employment levels, nearly 47 per cent predicting recruiting new staff in the next year (2019);
- Surprisingly, there are a considerable number of SME's still not exporting goods/service. Most Hertfordshire enterprises who are exporting are equally exporting to EU and Non-EU markets in the previous year (2018);
- Not surprisingly it is the micro- and small-enterprises who have few new goods/services being launched each year compared to medium- and large-enterprises. The STEM skilled sectors (e.g. manufacturing and advanced engineering, life sciences and the pharmaceutical, etc.) that have the highest incidence of goods/service launches per year. It is these STEM skilled sectors that more frequently launch new-to-the-world goods/services;
- Hertfordshire enterprises that deliver goods, relying on a high STEM skilled workforce, also recognize the high impact of internal R&D (47 per cent), and the linked importance of external knowledge acquisition. As a contrast between manufacturing and advanced engineering and professional/financial and technical services, manufacturing are twice as likely to have internal R&D functions than PFT enterprises, they are also 50 per cent less likely to use external knowledge to help their goods development;
- Hertfordshire micro- and small-enterprises identify the challenge of retaining staff (82 per cent) as having a significant impact on both increasing turnover and on overall productivity, 10 per cent reporting a continuing worsening of this situation;
- Hertfordshire enterprises reported a worsening of their leaders and managers (19 - 21 per cent) ability to cope with introducing new technology, and the increased demand for new goods/services;
- Hertfordshire life sciences and the pharmaceuticals enterprises cite three highest impact constraints are being over-regulation/red tape (50 per cent), attracting and retaining customer/clients (45 per cent), and increasing competition (50 per cent);
- Hertfordshire enterprises' business plans are dominated by the focus on skills gaps and up-skilling their workforce. Key to their future success: turnover, growth and improved productivity; is the ability to recruit and hold on to the right workers;
- Hertfordshire enterprises' business plans identified the importance of increasing capital investment and investing in increasing the workforce's and leader/managers skills and its linkage to improved productivity. National studies suggest a degree of skepticism about enterprises

level of commitment to improving productivity (Centre for Innovation and Productivity 2018), but our findings suggest differently;

National research using bigger datasets have affirmed the important links between labour productivity and strategic management, business capability, business networks and adoption of technology & innovation (Centre for Innovation and Productivity 2018). Clearly, the principal output of this study was to provide additional data on the local business community's challenges and issues, thus feeding into the Hertfordshire LEP's new industrial strategy with priorities, and the clear evidence behind these (National Audit Office 2019). Part of the LEP's stratagem is to use the LEP network to identify 'best practice' and learn from other LEPs around England (National Audit Office 2019).

D.1 General business productivity (micro, small, medium and large-enterprises)

Business research looking back over 2003 - 2015 period, the bottom 10% of lower productivity firms exhibited the following (Office for National Statistics 2017b):

- The majority of these 'laggard' firms are small enterprises, and over 90% of these are micro-enterprises;
- 40% are young enterprises in their first five years of business;
- The majority of those in this bottom 10% of lower productivity enterprises were in services industries;
- In terms of regional distribution, the larger share of these enterprises were located in the North-east and Wales.

In Hertfordshire like most LEPs in England have a dominant micro- and small-enterprise community, with over 90.9 per cent micros and 7.4 per cent small-enterprises (NOMIS 2019). In the 2018 outlook report Hertfordshire LEP was 10th out of 38 LEPs in regards to GVA, just 0.7 per cent above the UK average (Hertfordshire Local Enterprises Partnership 2018). Yet Hertfordshire's employment growth rate (2.7 per cent, per annum) from 2012 to 2016 continues to exceed the UK average growth rate of 1.7 per cent. This largely down to the continued birth rate exceeding death rate in Hertfordshire businesses over 14,715 new active enterprises, since 2010. Most importantly is the 57 per cent of Hertfordshire employees who work in skilled jobs. In the working-age Hertfordshire residents there are over 47.7 per cent who are qualified to NVQ level 4 or above, so what we have in Hertfordshire is a working-age population who are well-qualified, largely employed and who contribute significantly to creating and/or growing our enterprises.

Micro- and small enterprises it is suggested (CBI 2019b), have a fundamental weakness over their larger enterprise cousins, this is not always the case. In the area of digital transformation of goods, services and processes they often have significant advantages:

- They are more likely to adopt technologies than larger enterprises (European Commission 2018);
- Enterprise start-ups and enterprise less than five years old are born-digital, and mid-life enterprise (10 - 15 years) have the highest degree of technology adoption;

The digital transformation for micro- to large enterprises are not the only contemporary challenges they face. M&SE's face a number of challenges when they start-out, and also in their tentative years of growth (NESTA 2015). These are focused on:

- Early skills gaps in the leadership and management
- Inability to attract the relevantly qualified professionals to lead new developments
- General lack of information and access to expertise to drive enterprise growth.

In the following sections we try and summarise the key points from Sections A and C, and suggest recommendations.

D.2 Specific sectors

The UK industrial strategy is a framework of coordinating economic policies across the sectors focused on aligning with other longstanding national strategies, e.g. economic growth, well-being and environmental sustainability (Rhodes and Brown 2018).

D.2.1 Manufacturing and advanced engineering challenges

Technology and innovation are two areas of skills & expertise that are a vital component in both the basis of UK future economic growth and in creation new employment/improved productivity (UKCES 2016). The engineering sector across the UK recognizes the challenges of moving to a higher-skilled workforce, and this is reflected in Hertfordshire engineering community:

- with the increasing issues surrounding young people entering the engineering sector (Engineering UK 2018), then in Hertfordshire as the rest of the UK more business engagement with schools and colleges to encourage 'real-life' applications and career information to help steer young people in their subject and career decisions;
- The vulnerability of this sector to overseas, and particularly EU engineering talent, does suggest difficult challenges after Brexit;

For Hertfordshire manufacturing and advanced engineering enterprises over 49 per cent of HBPS respondents were confident enough to be increasing their workforce in 2019. Only 4 per cent suggested they would be reducing their workforce in 2019. Significantly in this sector is the difficulty to recruit new staff with the relevant skills (43 per cent), and then alongside this is lack of improvement in the sector for retaining the skilled staff they have, 82 per cent of M&AE enterprises responded that this situation is not improving.

D.2.2 Life sciences and the pharmaceuticals

With the continuing expectation that healthcare spending to outgrow the OECD economies CAGR by 3.3 per cent, then focusing on the key challenges for this sector is imperative. Key challenges are an aging population, a growing middle class and the continuing growing cost of treating chronic diseases (HM Government 2017). With the global life sciences industry expected to reach \$2 trillion by 2023 its

is clearly a sector that needs support, if it is to obtain both the current growth rate and an employer of highly skilled engineers and sciences.

In Hertfordshire the human health and social work activities sector employs 59,000 and represents 9.3 of employee jobs in Hertfordshire (NOMIS 2019). In the last year (2018) 47 per cent of life sciences and pharmaceuticals reported a 5 per cent or more improvement in turnover. This sector was one of the highest to report the introduction of new goods, services or processes to the marketplace, with over 39 per cent reporting that the new goods/services were new to the world. On the level of employment in the next year over 55 per cent were confident of increasing their workforce, On a positive the sector is seeing a steady demand for new goods/services, the impact on Hertfordshire life sciences and the pharmaceutical enterprises is the increasing skills gaps of their workforce to deliver these, 57 per cent. Like other STEM skilled sectors they struggle with retaining highly skilled staff, with only 14 per cent noting any improvement over the last year (2018), and 19 per cent suggesting the situation is deteriorating.

D.2.3 Professional, financial and technical services

This sector is traditionally broad and encompasses a number of trades and professional services:

- Legal activities
- Accounting, book-keeping, tax consultancies
- Management consultancies
- Architectural and engineering offices
- Scientific research and development
- Advertising and market research
- Veterinary activities

This sector has seen an average growth in the last ten years of 13 per cent, and the sector overall growing by 37 per cent over the same period (Office for National Statistics 2019b).

The professional, financial and technical services sector is a significant employer in Hertfordshire with over 14.1 per cent of the total employee jobs, some 89,000 (NOMIS 2019). This sector responded with over 35 per cent having increased turnover by 5 per cent or more over the last years (2018), at the same time nearly 24 per cent had recorded a 5 per cent or more decrease in overall turnover in the last year (2018). With an overall high skilled employee rate they suffer similar to any of the other STEM skilled sectors, with over 26 per cent being unable to recruit new staff with the relevant skills. It is this combined with 84 per cent still finding it hard to retain existing high skilled staff that creates a real challenge to their continued growth, and improving productivity levels. Over 40 per cent suggested that the introduction of new technology is helping to improve productivity, and that their existing staff are reacting well to re-training.

D.2.4 Information, communications and technology services

The Artificial Intelligence and Data driven areas of our future technology & innovation drivers for economic growth are likely to radically transform business models in almost every sector, but the ICT sector particularly (HM Government 2018a).

For Hertfordshire ICT enterprises who responded to having a skills gap over 82 per cent put the reason down to the difficulty they have in retaining their highly skilled staff. In the area of skills gaps around both the introduction of new technology, and in the market demands for new goods and services, 45 per cent and 43 per cent respectively state that the situation has improved last year (2018). Some of this reason for improvement comes down to their changing the working practices, over 40 per cent. Yet like other STEM skilled sectors over 24 per cent cite the inability to recruit relevant skilled new staff as being a significant contributor to their recurring workforce skills gaps.

D.2.5 Construction and the built environment

The construction and built environment sector continues to grow at a modest rate, in the first quarter of 2019 it grew by 2.9 per cent (Office for National Statistics 2019a). The construction industry contributes over £113 billion to the UK economy. Employment in this sector fluctuates slightly, but in the third quarter of 2018 there were 2.4 million jobs, representing 6.8 per cent of all UK jobs (House of Commons 2018b). Most interesting is the 1 million enterprises in this sector, significantly over 37 per cent of all jobs are self-employed.

In Hertfordshire the construction industry employs over 38,000 jobs representing 6 per cent of the total employer jobs (NOMIS 2017). In 2018 construction enterprises in the HBPS study revealed that over 55 per cent experienced a 5 per cent or more increase in turnover. In 2019 over 55 per cent of this sector's HBPS respondents predicted to increase their turnover by 5 per cent or more. In the area of innovative activity, the construction enterprises invested more and determined a medium to high impact to their performance from computer software goods (46 per cent), than using external R&D (16 per cent) or acquisition of external knowledge (38 per cent), in 2018. In the area of skills gaps construction enterprises suffer a similar challenge to other STEM skilled sectors, nearly 42 per cent responded that the inability to recruit new staff with relevant skills was deteriorating. On a positive note the introduction of new working practices and the general increase in staff training was improving, and making an impact.

D.2.6 Arts, entertainment and recreation

The arts, entertainment and recreation sector continues to grow year on year, contributing more than £10.8 billion to the UK economy GDP (Arts Council England 2019). Interestingly in 2009-2015 the estimated GVA for this sector was £66,000 per annum, compared to the equivalent UK average of £46,800 over the same period.

The arts, entertainment and recreation sector employed over 16,000 employees, representing 2.5 per cent of the total employee jobs in Hertfordshire (NOMIS 2017). In this HBPS study over 56 per cent of respondents reported a 5 per cent or more increase in turnover for 2018, with 64 per cent predicting a 5 per cent or more increase in turnover for 2019. In the area of introduction of new working practices

the sector enterprises reported a more than 50 per cent improvement in their staff skills gaps, with this being linked to improved staff training (43 per cent), and general improvement in staff motivation for training (25 per cent). Two areas that have shown less improvement are the staff's skills gaps around introduction of new technology (19 per cent), and the worsening issue of recruitment of new staff with the necessary skills (26 per cent).

D.2.7 High-end logistics and retail

The UK high-end logistics and retail (HL&R) sector is continuing to experience major shifts in the overall supply chain. Increasing changes in consumer behavior - both in-store and online, the continuing switch over to internet shopping, and overall economic challenges represented by Brexit and broader global markets (House of Commons 2018c). The retail sector contributed over £92.8 billion to the overall UK economy in 2017 and employed over 2.8 million.

In Hertfordshire the sector employs over 119,000 employees representing over 18.8 of the total employee jobs (NOMIS 2017). Over 50 per cent of the HBPS HL&R sector enterprises experienced 5 per cent or more increase in turnover in 2018, with 56 per cent predicting 5 per cent or more increase in turnover in 2019. In the introduction of technology and their staff skills gaps then 38 per cent of these HL&R enterprise respondents reported an improvement in the last year. This improvement in staff skills was also reported (34 per cent) in the area of introduction of new working practices. Unfortunately, like many other sectors they experienced little improvement in the ability to retain staff, and 21 per cent experienced a deteriorating situation around the ability to recruit new staff with the necessary skills.

D.3 Leading and managing technology and innovation

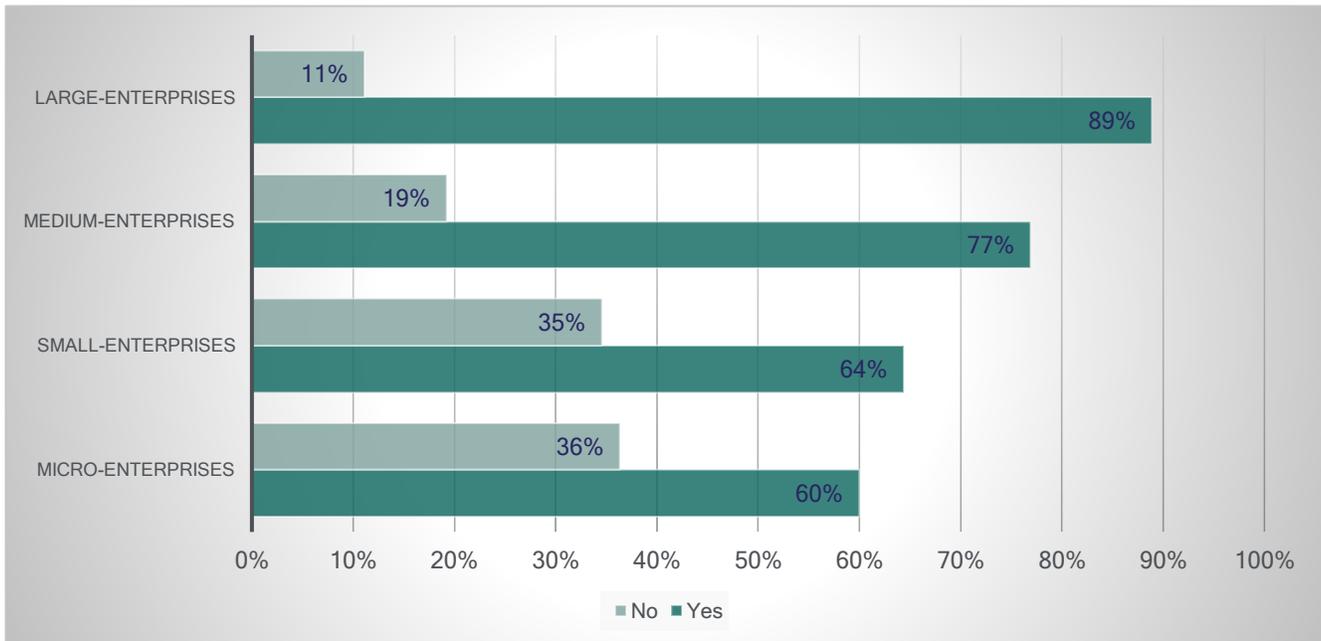
Data and technology is transforming the UK's economy, enabling efficiencies, productivity and access to new business and market opportunities for new product/service/process innovation (UK 2015). The economy is gradually been split into those enterprises that are make heavy use of this digital data to both identify new opportunities and then make well-informed/evidenced based decision-making to both impact on turnover and productivity, and those that a light/nil users of this digital data (UK 2015).

Hertfordshire enterprises reported stronger innovative activity in most sectors, 67 per cent of enterprises reported introducing new or significantly improved goods/services or processes in the last three years. Just 40 per cent of these enterprises reported that these goods/services or processes were 'new to the market'. Corporate research on goods/service innovation suggest that large enterprises fear the faster micro- and small enterprise competition, because of their gazelle abilities. The four top sectors for introducing new goods and services in the last year (2018) were:

- Information, communications and technology services (80 per cent)
- Life sciences and the pharmaceuticals (73 per cent)
- Professional, financial and technical services (71 per cent)
- Manufacturing and advanced engineering (71 per cent)

This study showed that both micro- and small-enterprises are catching up to the medium- and large enterprises regards to launching new goods/services in their respective marketplaces, see figure D.3.1 below

FIGURE D.3.1 INTRODUCTION OF NEW GOODS/SERVICE INTO THE MARKETPLACE, IN THE LAST YEAR



In Hertfordshire's manufacturing & advanced engineering, life sciences and the pharmaceuticals, information/communications and technological services, more than 50% of the enterprises invest 4 per cent or more in internal research and development (R&D).

Pivotal to the technology and innovation drivers in Hertfordshire enterprises, and their future impact on turnover, growth and improved productivity are the following three important factors:

- Adoption - building an eco-system supportive of all enterprises, that is both visible and effective (Department for Business Energy & Industrial Strategy 2017);
- Innovation - provide further access to innovation hubs and other mechanism for enterprises to see, trial and experiment with these new technologies. By improving innovation is linked closely to improving productivity (IPPR North 2017);
- Leadership - external and internal leadership is required to champion and lead these technology adoption and diffusion.

But all three of these important factors rest on an improvement in underlying digital skills, they are essential in both increasing productivity and stimulating innovative activity (House of Commons 2016-17).

D.3.1 Recommendations

1. **Recruitment of school/college and university graduates with relevant qualifications and skills** - the future needs of Hertfordshire enterprises will be determined by the up-to-date core and digital skills of its workforce (HM Government 2018a). Across the UK the digital economy is expected to need 760,000 more digitally-skilled workers by 2020, and this will squeeze the existing talent pool out there (IPPR North 2017). To both address the existing skills gaps of these workforce enterprises of all sizes must both recruit new staff from the growing talent pool exiting our

secondary, schools/colleges and universities; and re-skill their existing workforce's skills gaps through on-the-job and off-the-job training.

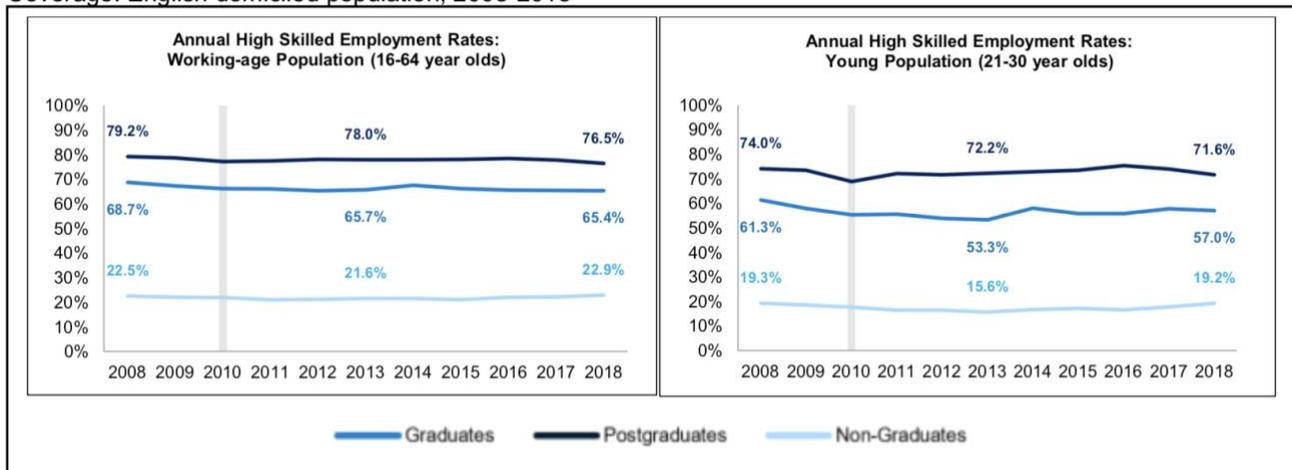
2. **Boost the business and soft skills associated with graduates minoring in data analytics** - increase additional pathways in both data analytic apprenticeships and other business-related undergraduate programmes. This is relevant to both the SME and large enterprises as both are challenged with digital transformation. The tech sectors have an appetite for leveraging technology/innovation to both best their faster competition, and ambitiously grow and export. To support them we must create a pipeline of young people who want to join these exciting enterprises and work on digital solutions, both in new goods and enhanced services;
3. **Encourage more support for innovative interventions by local authorities and the LEP** - both local authorities and the LEP's can play a key role in funding and supporting the analytical capabilities of both public and private institutions, by increasing support for open datasets, training, internships and placements. The digital transformation revolution is on us, for all Hertfordshire businesses it will be pivotal that they embark on this journey, without it they will not prosper;
4. **Raising the awareness of the value of data to Hertfordshire enterprises** - those low/nil data users ('the data-phobes') need encouraging to explore the opportunities of data and start to build up their overall analytical capabilities. There are significant examples across many of the sectors in Hertfordshire where the acquisition of external knowledge is relatively low on these enterprises priorities.

D.4 Skills gaps in the general workforce

One area of concern highlighted in the 2018 annual high-skilled employment rates, published by the Department of Education annually, is the largest fall over the 2008 - 2018 period of young graduates in high-skilled employment of 4.3 per cent from 61.3 per cent to 57 per cent. This suggests that since 2008 young graduates have found employment in medium/low skill roles, suggesting that there is an increasing absence of high-skill opportunities, based on the relevance of their qualifications and relevant skills (Department of Education 2018b), See figure D.4.1 below.

FIGURE D.4.1 ANNUAL HIGH-SKILLED EMPLOYMENT RATES FOR GRADUATES/POSTGRADUATES AND NON-GRADUATES

Coverage: English domiciled population; 2008-2018



Source: Department for Education analysis of the Labour Force Survey

In the Hertfordshire Business Productivity Survey (HBPS) study as reflected in both sections A and C above, we have evidenced key challenges in the area of workforce and manager skills gaps:

- Two common problems facing sector enterprises is the ability to retain staff, and the increasing difficulty in recruiting new staff with the necessary skills. The micro- and small enterprises have particular problems in recruiting new staff, suggesting that the situation has deteriorated (27 per cent and 35 per cent, respectively) in the last year;
- Hertfordshire enterprises reported a deteriorating challenge with staff skills gaps in the areas of 'introduction of new technology' (40 per cent) and introduction of new working practices (38 per cent). For employers the challenge is to both invest in training, and to also motivate staff to engage and take up this training.
- Hertfordshire's medium-enterprises are challenged with both retaining staff and recruiting new staff with the necessary skills (32 per cent), but with over 56 percent of large enterprises experiencing a deterioration in the ability to recruit high-skilled staff, the situation is set to get worst after Brexit;

D.4.1 Recommendations

1. **Recruitment of school/college/university graduates** - is dependent on these leavers transitioning into work with greater 'work readiness' behaviours, and a general readiness to adopt knowledge and skills that are both relevant and valuable to their future employers (CBI 2018);
2. **Improving Hertfordshire technical education provision** - this will help to address long-term the increasing STEM skills shortages of our young people, some of which is around encouraging existing staff to upskill and deliver more advanced technical learning and qualifications, something that was echoed in the HM Government's industrial strategy for the UK (HM Government 2018a);
3. **Skills mis-match of graduate/postgraduate young people** - With the nationally picture for graduates/postgraduates showing a 4.3 per cent and 2.4 per cent decline in high-skilled employment rates, and the sectors expressing an increasing demand for high-skilled young people, with relevant qualification and skills, it suggests a disconnect. It suggests the need to more fully map the differences between supply/demand for Hertfordshire employers and higher-education providers;
4. **Focusing on the skills that Hertfordshire enterprises in all sectors need to grow** - the skills map for Hertfordshire is both critical and fluid in provision and demand. As the economy transitions from Brexit more flexible and specific short- to medium-term skills gaps will develop, it is important the anchor institutions react appropriately and timely to these needs.
5. **All of the above note the importance of skills, specific and core, to the future industrial strategy** - there is a strong link between skills of workforces, and specifically the leaders/managers within these enterprises to driving innovation and improving productivity;

D.5 Leaders' and managers' skills

Nation research carried out by BEIS on SME performance continues to recognize the links between Leadership and Entrepreneurship skills exhibited by managers and leaders and overall turnover, growth and improved productivity (Department for Business Innovation & Skills 2015b). Key to this are the following driving factors:

- Importance of the managers and leaders' entrepreneurship & enterprise skills, and their positive link to increasing turnover and improved productivity;
- Positive and significant relationship between strategy formalization and responsiveness and turnover and improved productivity;
- Positive relationship between strategy formalization and turnover, and the positive association of strategy responsiveness and enterprise growth;
- Good management of human resources and its positive and significant impact on increased turnover and improved productivity.

These relationships are shown diagrammatically in figure D.5.1, see below.

FIGURE D.5.1 LINKING LEADERS AND MANAGERS SKILLS TO SKILLS SETS, MANAGEMENT PRACTICES AND PERFORMANCE OUTCOMES



It is the entrepreneurship skills of the owner-manager and senior managers that facilitate the process of initial opportunity identification right through to the development and implementation of these into launched goods/services, that indicate business success (Department for Business Innovation & Skills 2015a). National research points to the criticality of both entrepreneurship and enterprise skills to labour productivity, the effectiveness of turning opportunities into successful goods/services combined with a more capable workforce performing their roles, the more likely is business success.

In our Hertfordshire Business Productivity Survey (HBPS) study we see evidence of this in:

- The focus of bringing new to the world, and new to the specific business markets, goods/services that are positively linked to increased turnover/growth.
- A strong focus on the identification of the skills gaps in both the workforce, and specifically the leaders/managers around the process of turning identified opportunities into fully launched goods/services. A similar picture emerges in the areas of manager/leader skills gaps around managing new technology and working practice introductions, over 80 per cent on both of these;
- Interestingly Hertfordshire enterprises reported a 30% improvement on both of these managers' skills gaps. Notably, many enterprises reported a general improvement in these managers/leaders' skills gaps in the areas of: motivation to train (33 per cent) and improvements in their skills after training (33 per cent);

- Finally, a long-term commitment in these enterprises' plans for the next three years to commit resources to both the skills training required to upskill both the workforce and leaders/managers, and the commitment to further investment in capital and long-term working practices;
- Lastly, those enterprises committed to growth and improved productivity and also actively exporting.

D.5.1 Recommendations

1. **Improving management practices** - requires that first enterprises recognize the skills gaps in their leaders and managers, and then are willing to invest in management and leadership training. Increasing the business communities acceptance of the key link between productivity gains and management practices and can be best achieved by running a coordinated programme between management training colleges and universities and the support agencies like Chamber of Commerce, Federation of Small Business, local CBI and Institute of Directors to both inform and identify priority needs;
2. **The impact of the apprenticeship levy** - is still being carefully analysed and its full benefit on both young people transitioning into work, and those of the workforce who are in need of up-skilling, is being assessed.

D.6 Main constraints to business

The overriding constraints around existing enterprises remaining in business: regulations, employment law, business rates and access to affordable labour, are critical and need to be addressed. However the specific challenges facing SMEs who are strongly motivated by growth and investing in new technology and innovation are often held back by lack of finance (Isabelle Roland 2018). For these highly motivated and ambitious SMEs need access to both finance and improved management practices.

In our Hertfordshire Business Productivity Survey (HBPS) study we can summarise the main constraints for Hertfordshire enterprises to:

- The top four constraints noted by the HBPS respondents were: 52 per cent cited the lack of skilled labour, 42 per cent the high cost of that labour, 52 per cent the increased competition in their respective marketplaces, 54 per cent the over-regulation of their markets;
- Some sectors like life sciences and the pharmaceuticals suggest that attracting and retaining customers (45 per cent) and business rates (33 per cent) also have a significant impact on their business sustainability in addition to those four factors above;
- In the case of manufacturing and advanced engineering then the top four business constraints are: lack of skilled labour (57 per cent), over-regulation (62 per cent), high costs of labour (51 per cent) and business rates (52 per cent).

D.6.1 Recommendations

1. **Better access for SMEs to finance and equity** - continued concerns for micro- and small-enterprises to access affordable finance is still one of their top five concerns. To assess the impact of the existing means by which Hertfordshire enterprises gain access to financing products/services, and additional schemes that focus on particular micro- and small enterprises challenges;
2. **Quicker and more focused support for our more productive SMEs** - the identified scale-able SMEs are often hampered by the ability to acquire support and advice from our eco-system. Evidence from those micro- and small-enterprises who continue to be challenged to access finance, to mount the issues surrounding meeting national and international regulations/legislation and finally access suitably qualified labour, is holding back these enterprises growth potential.

D.7 Regional eco-system - support and advice

The latest Chartered Association of Business Schools on its response to the HM government's industrial strategy green paper suggested that business schools are, as one of the anchor institutions at both the regional and national level, pivotal to supporting, advising and driving improved productivity (CABS 2018). Further research into the important link between SME innovation activity and exports has been called for, but key to the positive link between these two is the importance of the business eco-system (Love and Roper 2013b).

In our Hertfordshire Business Productivity Survey (HBPS) study we were interested in the information sought and used by the different sectors/enterprises:

- The top three sectors who source information and services around marketing and market research were Information, communications and technology services (ICT) (58 per cent), professionals, financial and technical services (PFT) (49 per cent), and arts, entertainment and recreation (AER) (42 per cent);
- The top three sectors for sourcing information or services on e-commerce and/or technology were PFT (41 per cent), manufacturing and advanced engineering (M&AE) (41 per cent);
- The top three sectors sourcing information or services on employment law/redundancies were ICT (51 per cent), M&AE (50 per cent), and life sciences and the pharmaceuticals (LS&P) (50 per cent);
- Interestingly, in regards to the information sources then the HBPS respondents rated the following:
 - o Private sector - lawyers, banks and accountants (35 per cent)
 - o Universities (22 per cent)
 - o UKTI and other government departments (19 per cent)
 - o Intellectual property office (18 per cent)
 - o University of Hertfordshire (18 per cent)
 - o Hertfordshire Growth Hub (17 per cent)

D.7.1 Recommendations

1. **More structured and targeted support** - the work that Hertfordshire Growth Hub is doing around structuring the business support is going to be critical to helping SMEs develop and grow. The supply of well signposted information and clear links to the other support resources both nationally and regionally is critical. But most important is the further extension of mentoring networks, the different networks and incubators are very good but they need extending to help already established SMEs;
2. **The importance of five key elements of the eco-systems** - the access of enterprises to a rich research base both private and public institutions, a competitive marketplace, support for entrepreneurial activity, access to skilled human capital, highly supportive infrastructure and a rich source of business services. Barring those enterprises who choose to hold back their growth potential, lifestyle enterprises, then there are still those lower productivity enterprises than need both encouragement and support to reach their potential.
3. **University of Hertfordshire's key role in supporting growth** - continuing to work with the university to see further incentives and initiatives to continue to support and grow enterprise start-ups and development thus increasing economic and employment growth.

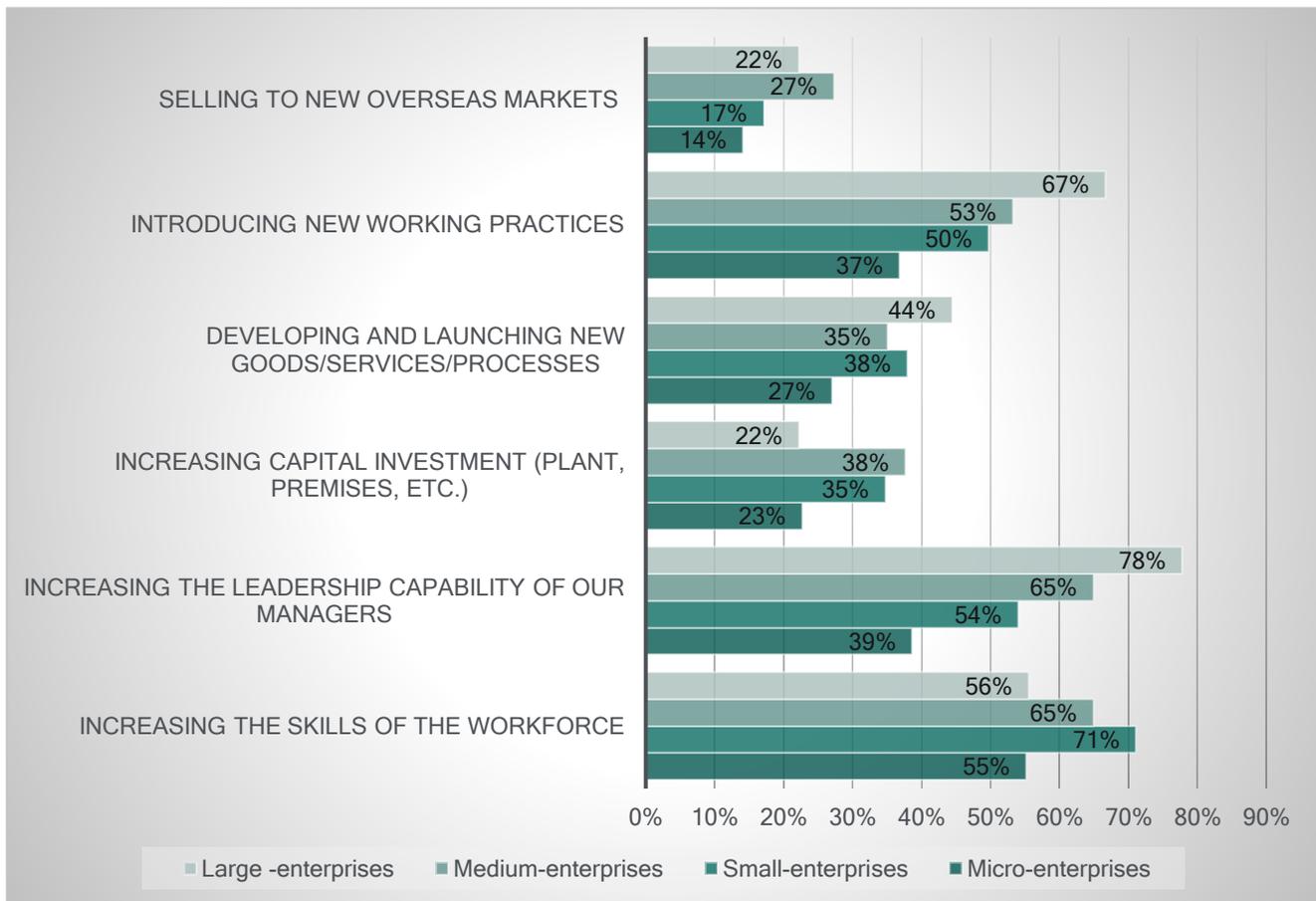
D.8 Business strategy and plans

In the SME sector, where the majority of businesses still have the original business owner acting in a senior role, and largely directing the businesses strategy and planning, then their business objectives are key (ERC UK 2018b). Significantly the latest research indicates a dominance of these business owner/managers' objectives being focused on keeping their business similar to how it presently operates, other drivers are:

- Keeping the business similar to how it presently operates (72.1 per cent);
- To increase the social and environmental benefits of the business (46.1 per cent);
- To grow the business rapidly and profitably with the view to exit (29.7 per cent);
- To build a national/international business (23.5 per cent)

From the study we see an interesting correlation between business size and the particular focus of business strategy to improve productivity, see figure D.8.1 below:

FIGURE D.8.1 HERTFORDSHIRE ENTERPRISE STRATEGY TO IMPROVE PRODUCTIVITY



In our Hertfordshire Business Productivity Survey (HBPS) study we see evidence of the relative importance of business attributes and their contribution to improving productivity:

- Significantly, it's the medium to large enterprises that are investing in new working practices (53 per cent and 67 per cent respectively) and increasing the effectiveness of their leaders and managers (65 per cent and 75 per cent respectively)-
- Micro and small-enterprises are proportionally investing in improving productivity by increasing the workforce skills (55 per cent and 71 per cent respectively) and their senior leaders/managers skills (39 per cent and 54 per cent respectively);
- The SME community were 25% more confident than large enterprises to grow in the next year (2019) and is reflected in their focus on both investing in capital investments, and in their workforce skills.

D.8.1 Recommendations

1. **More structured and targeted support** - the work that Hertfordshire Growth Hub is doing around structuring the business support is going to be critical to helping SMEs develop and grow. The supply of well signposted information and clear links to the other support resources both nationally and regionally is critical. But most important is the further extension of mentoring

networks, the different networks and incubators are very good but they need extending to help already established SMEs;

2. **Future important areas for support and growth** - manufacturing & advanced engineering, life sciences and the pharmaceuticals, high-end logistics and retail, professional financial and technical services, information communications and technology services and arts entertainment and recreation continue to be important for both employment and economic growth reasons. In the East of England the total GVA of this area was £123.7 billion, 7 per cent of the total UK economic output. Agriculture and food production generated over 5.2 per cent of this regions GVA in 2017, and has 69,700 jobs and 3 per cent of total jobs, this is 50 per cent higher than the UK average. The Agritech industry and food production is going to be an important area for future investment and focus;
3. **Continued support for entrepreneurial start-ups and scale-ups** -is a continuing area for focus, London and the South-east is blessed with a higher level of entrepreneurship and enterprise start-up activity. In 2018 there were over 4,752 tech-startups, the UK as a whole has more than 37 per cent of all tech-startups across the EU.

D.9 Concluding remarks

There are many observations and insights presented in this HBPS study, and many recommendations in the specific sections above. However, one important factor that should additionally be noted is the importance of gaining a clear and comprehensive picture of the Hertfordshire support and advice landscape. Productivity is top of the agenda nationally, and is constantly debated, discussed and analysed nationally. Our understanding of the very different challenges facing each local authority shows the gaps in our provision of these business support services (Jonathan Bone and Haley 2017). Subsequent mapping exercises help identify gaps between the supply and demand needs of our business community. What we have identified and presented in the way of evidence around the linking of internal and external factors impacting on productivity, is valuable.

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