

**‘An exploratory study into the impact of the Fourth
Industrial Revolution on administration professionals in an
Irish context’**

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Abstract

This research examines the impact of the Fourth Industrial Revolution (4IR) on administration professionals in an Irish context. By exploring key drivers of change as result of this revolution, the research investigates the impact of automation and the emergence of the GIG economy on the job profiles of these professionals and their future skill requirements. Previous lines of investigation into this subject matter, such as that of Sousa and Rocha (2019), and Venter, Herbst and Iwu (2019), have been focused on skills implications for other professions or in an international context, highlighting a gap in literature regarding Irish administrative professionals.

Through exploration of the current literature and primary research conducted in the form of a survey a mixed methods analysis was undertaken, encompassing qualitative and quantitative research. The sample population, stemming from a variety of employment backgrounds, comprises of HR or line managers in Irish businesses, who manage and recruit administrative professionals. The research looks to establish trends relating to job displacement, role specifications, future work skills and learning and development (L&D) initiatives for administrative professionals.

The research concluded that administrative professionals will not be displaced as a result of technological advancement resulting from 4IR. However, there will be significant changes to the job specifications on these workers, with increased responsibility and greater task variety. Workplaces must put emphasis on the development of both hard and soft skills in the near future and current L&D initiatives must be re-evaluated in order to ensure future employability for these workers.

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List of Abbreviations

4IR – The Fourth Industrial Revolution

CIPD – Chartered Institute of Professional Development

ESRI - The Economic and Social Research Institute

L&D – Learning and Development

SEO – Search Engine Optimisation

SIA – Staffing Industry Analysts

WEF – World Economic Forum

Chapter 1. Introduction

1.1 Introduction

This research explores the impact of the Fourth Industrial Revolution (4IR) on administration professionals within an Irish context. 4IR is the modernisation and improvement of manufacturing and work processes as a result of automation and technology. When discussing 4IR Schwab (2016, p. 8), observes that “*Of the many diverse and fascinating challenges we face today, the most intense and important is how to understand and shape the new technology revolution, which entails nothing less than a transformation of humankind*”. The consequences of 4IR span economic and societal impacts, however, the effects specific to the labour market will be the primary focus of this research. The history of previous industrial revolutions has evidenced major disruptions to the labour market and job specifications, and the research of Peters (2017), indicates that this revolution will be no different. This study will focus specifically on the impact 4IR on administrative workers in Irish businesses. While there has been copious research on the overall impact to work skills, such as that of The World Economic Forum (WEF, 2018), and research regarding skills implications for administrators in an international context (Venter, Herbst and Iwu, 2019), research in regard to administrative workers in Ireland is limited.

1.2 Context

The influence of automation and technology is expected to impact workers across three waves (PwC, 2018). The “augmentation wave” is most likely to impact administrative workers by 2030, due to the routine based nature of certain tasks. Therefore it is imperative that these workers prepare for the implications of automation in order to ensure their survival in workplaces going forward. Technological advancements are predicted to impact workers through job displacement, job evolution, changes to work processes and changes to working conditions (de Ruyter, Brown and Burgess, 2019). These changes are expected to

cause a skills shift, requiring workers to quickly learn and adapt to new ways of working. In order to sustain a competitive advantage over technological developments, it is imperative to be prepared for the changing nature of work and the necessary work skills of the future.

However, it is not enough to explore the future work skills required for administrative professionals in order to compete against automation and technology. These workers must also engage in relevant learning and development (L&D) initiatives in order to ensure continual upskilling, so that they are not left behind. With educational requirements continually increasing, and significantly low levels of adult learning reported in Ireland, administrative workers need to partner with employers in order avoid a skills shortage going forward (Solas, 2018). This research will look to explore these issues in more detail with a focus on employer perspectives on L&D and an assessment of their current practices.

1.3 Research Objective

As highlighted, this research will explore the impact of automation and technology on administrative professionals in an Irish context. This study will investigate this topic in respect of job impact, skills impact and educational implications. This research objective will be analysed through five separate research questions, in order to gain a more thorough understanding of the subject:

Objective 1: What is the impact of automation and the GIG Economy on the work profile of administration professionals in an Irish context?

Objective 2: Will hard or soft skills be of greater importance for administrative workers going forward, as a result of the impact of automation and technology and the GIG Economy?

Objective 3: Is there a skills gap between necessary future works skills and the current skills profile of administration professionals in Ireland?

Objective 4: What are the key future work skills necessary for administration professionals in Ireland?

Objective 5: What is the impact of changing skill requirements, in the context of administration workers in Ireland, on educational requirements and learning and development initiatives?

1.4 Significance of the Research

Due to gaps in existing literature, the implications of automation and technology on administrative workers is still unknown in an Irish context. This research seeks to prepare these professionals for the effects of 4IR in their workplaces and shape future L&D initiatives. Despite the unprecedented rate of change as a result of technology over the last number of years, many organisation are not equipped to deal with a skills shift and have yet to align their internal learning initiatives appropriately (CIPD, 2019). The results of this study seek to support organisations in the review of their own policies and procedures, by offering an insight into the critical work skills for administrators in the near future.

1.5 Dissertation Structure

Chapter one, the introduction, outlines key issues relating to the research topic. Providing a background on 4IR as well as its implications for the workforce, this chapter introduces the topic and key themes of the research.

Chapter two explores the key literature pertaining to 4IR, automation and the GIG Economy. It also analyses the impacts of these factors on Irish administrators in terms of job specification, key skills and L&D.

Chapter three examines the research objectives and purpose of the research, while also highlighting the significance of the study.

Chapter four presents the authors research philosophy, while also outlining justifications for the chosen research methodology, design, instrument and analysis. This section of the research also explores the ethical considerations and limitations of the investigation.

Chapter five explores the research philosophy, design and methods of study while also giving an insight into the analysis of the data and ethical considerations.

Chapter six provides an analysis of the key research findings, while also highlighting the implications and inferences of these findings, drawing on the literature for conclusion.

Chapter seven concludes the discussion of the research while also outlining the limitations and recommendations of the study.

Chapter 2. Literature Review

2.1 Introduction

This chapter explores the existing literature relating to 4IR and its impacts on the labour market. With a specific focus on the effects of automation and technology and the rise of the GIG economy, the author will outline key issues facing administrative workers in the labour market. This seeks to gain insight into the future of administrative professionals in the context of job displacement, job evolution, work skills and L&D. From review of the existing literature, the author will highlight key gaps in the research pertaining to Irish administrative professionals, with a view to exploring this in more detail through further study.

2.2 The Fourth Industrial Revolution

Over the last three centuries, the way in which we do work has evolved, as a result of a number of ‘industrial revolutions’. These industrial revolutions, starting in the 18th century, have seen the impact of manufacturing processes, the mass production of steel and automobiles, and the introduction and rise of new technologies, improve efficiencies across the globe (Hirschi, 2018). In recent years, technological advancements have been increasing at an exponential rate. This is impacting the way in which we work, the way our economy operates and the way our communities interact (Schwab, 2017). Klaus Schwab, of the World Economic Forum (WEF), purports these global changes to be the result of 4IR, also commonly referred to as Industry 4.0 (Maisiri and van Dyk, 2019).

The coinage of the term; “The Fourth Industrial Revolution” has been criticised by many academics. Arguments propose that this new revolution is merely building on the developments of existing innovations, and the impacts of these changes are not significant enough to warrant this revolutionary status. One of biggest sceptics on 4IR, Robert Gordon, argues that most influential technologies from this era are already in the past, and that future will not bring major changes to

the way in which we live our lives (Burke-Kennedy, 2018). Klaus, however, argues that there are three undeniable facts that underpin his theory and unequivocally support the notion of 4IR; velocity, breadth and depth, and systems impact (Klaus, 2017). Klaus highlights that the exponential development of more advanced technology, the multi-faceted impacts of these developments and the unprecedented impact on global systems, merit the recognition of a new revolution.

4IR can be attributed to three major drivers of changes, which Klaus categorises as; physical, digital and biological. The physical cluster encapsulates tangible developments such as advanced robotics and autonomous vehicles. The digital cluster highlights the impact of the Internet of Things (IoT), in integrating people, actions, objects and services through online platforms and devices. This in turn has led to the development of RFID tags, Bitcoin and technological platforms such as Uber (Murofushi and Tavares, 2017). Finally, Klaus explores the biological trends driving the revolution, including breakthroughs in genetics, genetic engineering and healthcare, arguably one of the most controversial implications of recent technological advancements (Klaus, 2017).

Klaus argues that these agents of change, have led to a number of significant implications for the global economy, businesses, as well as wider societal and government operations. This research will focus specifically on the implications of 4IR on businesses, and the repercussions for employment, labour substitution and skills. The author will then analyse these implications in the context of administration workers in Irish businesses, in order to gain insight into the future challenges and opportunities facing these workers, as well as the potential evolution of administrative roles, with a view to “future-proofing” their skillsets.

2.3 History and Development of Administration Professionals

The role of the administrator dates back to the first industrial revolution and has evolved significantly over the last 250 years. Administrators were initially introduced due to the high volume of paperwork associated with business expansion

from the first revolution (Adecco, 2018). Commonly referred to as secretaries, the profession began as a highly confidential role requiring excellent typing and attention to detail. Unfortunately, the role of the secretary was not always well respected, and despite the integral part these workers played in the overall running and efficiency of the office, they were often undervalued and taken for granted in their tenure.

In more recent times the administrative professional encompasses a much broader scope of worker that includes executive assistants, receptionists, office managers and secretaries. The term now refers to any role that is a support function within a business. The skills and competencies required of administrative professionals over the last number of years have also drastically changed, with expectations of these workers continually increasing (Dierkes, 2007). Administrators are often expected to undertake non-traditional duties such as marketing, HR and ICT in their job description, putting pressure on these individuals to continually upskill in order to stay relevant in the profession.

There are a number of factors which have supported the evolution of administrative professionals over the last number of years, one of the most influential being the global economy. The downsizing of larger firms left administrators with the task support more managers as well as undertaking work at a more senior level (Dierkes, 2007). Increasing educational standards have also greatly impacted the job specification of administrators. Once a role accessible to those without a Leaving Certificate qualification, employers are now placing more emphasis on education requirements and seeking applicants with specialist software knowledge. This is leading to an uptake in the these workers engaging in formal education and professional training courses due to the increasing demands of the profession.

The impact of technology is undoubtedly one of the most influential factors on the development of the administrative profession. Technology is not only changing the way that these individual work but also evolving the skills and

competencies required to ensure they remain an integral part of the business. This research will look to further explore the impact of automation and technology on administration professionals with a view to ascertaining the key future work skills required for the profession.

2.4 Impacts of Fourth Industrial Revolution on Work

According to the World Economic Forum (WEF, 2018), the impacts of 4IR are having a profound impact on the future of work. The emergence of new technologies and the rise of digitisation are igniting an unrelenting change in the way that we do work. While these new developments appear threatening, the WEF argues that this new reality is a positive opportunity in terms of economic growth, if leveraged correctly. By identifying key drivers of change, organisations can analyse how these factors may impact the evolution of jobs roles, and in turn identify key future skills to foster in employees (Connolly-Barker, 2018).

While the research suggests there are a number of positive opportunities linked to the impacts of 4IR, it is clear that there uncertainty associated with job displacements, changes in the way work is conducted and the implementation of new technologies (de Ruyter, Brown and Burgess, 2018). One key concern for workers, is the rise of precarious employment and the growth of the GIG economy, as a result of automation (Orellana et al, 2019). The GIG economy is defined as “*an emerging labor market wherein organizations engage independent workers for short-term contracts (“gigs”) to create virtual jobs, often by connecting workers to customers via a platform-enabled digital marketplace*” (Jabagi et al., 2019, p. 192-193). Traditional workers are concerned with the implications of this more precarious approach to work in terms of employment stability and income adequacy (Orellana et al, 2019).

While opinions differ on the benefits, opportunities and threats of 4IR, analysis of this topic with regard to Irish administrative professionals is limited. This

research will look to explore the impact of these issue on the profession in more detail, with a view to identifying key trends to support the evolution of critical skills.

The Staffing Industry Analysts (SIA) (SIA, 2019a) conducted a growth assessment update on the office and clerical staffing sector, which looks to forecast market size in 2020. In contrast to other industries, the office and clerical segment is in steady decline. With a 4.8% downturn in employment since 2000, SIA predicts a 1% decline year on year to this staffing market segment over the next two years. This is attributable to a reduction in jobs in this area, as a result of factors such as automation. Further proof that the impacts of 4IR are already upon us, professionals in this area quickly need to future-proof their skillset in order to maintain a competitive advantage, a key issues this research will look explore in more detail.

2.5 Skills Gap, Skills Shortage or Skills Mismatch – The Skills Problem

When discussing labour market issues such as the supply of skills, the problem is commonly referred to as a skills gap. However, research shows these problems can be categorised in order to better diagnose the issue. Capelli (2015) describes a skill shortage as a problem that occurs when basic skill requirements are not prevalent in the future workforce, often associated with inadequacies in a countries educational system. By contrast, a skills shortage refers to a scarcity of particular skills, paramount to a given profession (Richardson, 2009). In the context of administration professionals this could refer to administrators lacking database knowledge. Finally, Capelli (2015) outlines the parameters of a skills mismatch. This is described as a supply issue within the labour market, when either the supply or demand for certain skill are out of harmony, often occurring at country level (Taylor, 2016). Collectively these issues may be referred to as a skills problem.

When discussing the issue of skills, the researcher must identify the key skills problem that is prevalent, in order explore the problem further. In his research, Capelli (2015) found that one of the roles employers list as hardest to fill, is that of administrative workers. One third of the respondents highlighting the issue

attributed this to applicants with a lack of necessary hard skills for the role. Capelli argues this as negligible to the issue of a skills gap, due to the majority of hard skill requirements presenting at school leaver level. However, as previously highlighted there increasing emphasis on educational requirements for administration professionals, which indicates a narrow assumption of skill requirements for administrative workers on the part of Capelli (Dierkes, 2007). However, Capelli does go on to highlight that hiring issues may be better attributed to a shortage of soft skills such as communication and leadership, in these applicants.

2.6 Soft Skills Vs. Hard Skills

The work of Capelli (2015) and that of The McKinsey Global Institute (2018) highlight the importance of differentiating between hard and soft skills when discussing skills shortages. Hard skills are tangible technical skills that are more easily measured, such as IT skills or technical skills. By contrast, soft skills are intangible and encompass traits such as communication skills and emotional intelligence. The work of Jones et al. (2016), corroborates the suggestion that employers are placing more emphasis on soft skills in their recruitment processes. Their research outlines the top traits recruiters look for in business graduates. The results show that while recruiters, often seek candidates educated to degree level, they rank soft skills such as negotiation and communications as top preferences when sourcing recruits. However, the efficacy of the study may be impacted by the formal education of the candidates, and the assumption of a strong technical base.

A recent study by the OECD (2020), explored key skills currently lacking in the Irish employment market. The study looked at the professions most impacted by these skills shortages. Despite evidence that employers are placing less emphasis on traditional hard skills, the study suggests the administration profession is impacted by a shortage of both hard and soft skills. Administration was the profession most impacted by shortages of workers with Quantitative Abilities and Business and Management skills. It was the profession second most effected by a lack of systems skills and the professional third most impacted by a lack of verbal abilities, complex

problem solving abilities and basic content skills amongst workers. This indicates a great need for hard, technical skills amongst workers at present, perhaps a factor of the role evolution that has been discussed and the increasing expectations on workers in these positions (Stoepfgeshoff, 2018). While employers still seek workers with strong communication skills, the lack of definitive research on skills shortages within the administration sector, highlights a clear knowledge gap regarding this key issue.

2.7 Automation as a Driver of Change

The SIA (2019b), indicated that technological advancements and automation are two of the biggest trends threatening the staffing industry. The effects of automation are already evident with McKinsey Global Institute (2018) purporting a “skills shift” occurring as organisations strive to integrate new technologies within their business. This survey, which explored the impacts of automation and technology from the viewpoint of organisation leaders, highlighted a strong growth in demand for technological skills and also strongly influenced the development of the authors own research instrument. While ‘skills shifts’ are not a new challenge, until a more proactive approach is adopted by employers and educational bodies, Ireland is at risk of a skills shortage due to the current rate of change and adaption.

A large concern for the labour market is the replacement of certain professions with automated technology (Man and Man, 2018). The work of Frey and Osborne (2017), argues that certain jobs will be lost completely due to the improved efficiencies and cost-cuttings associated with automation. However one positive implication of automation and technology is the creation of new roles. The research shows that 65% of today’s youth will find future employments in roles that have yet to exist, evidencing new employment prospects in the future.

PwC (2019) predicts the impact of automation across three waves; algorithmic, augmentation and autonomy. The augmentation wave is currently the most disconcerting for positions within the administration sector. Predicating

displacements of up to 30% of jobs by the end of 2030, the report suggests that almost 20% of administration positions may be affected. Administrative roles are the fourth most “at risk” details the report, due to the repetition and manual elements of administrative work. This is reiterated by the work of Mfanafuthi, Nyawo and Mashau, (2019) whose research shows administration work to be one of the most at risk professions as a result of automation. Similarly, De Bruyne and Gerriste (2018) outline the routine based work associated with administrative tasks is high risk to automation.

However, the literature argues certain tasks that will prove more difficult to automate. It is also argued that as well as creating new roles, automation and technology will result in an evolution of many traditional job roles, with a requirement for increased innovative and problem-solving capabilities (Fareri et al., 2020). As opposed to viewing automation as a threat, it should be considered a compliment to existing job profiles, allowing workers to add values in new ways and invest time in harder to automate tasks (Autor, 2015). This highlights a key question pertaining to technological advancements and 4IR; how will the skills profiles of working professionals evolve in order to compete with and compliment automation?

With the emergence of new jobs on the horizon, and automation of more routine based roles, it is evident that skills requirements are changing. Employees are facing the prospect of utilising technologies that have yet to be designed, while employers must consider the importance of talent planning as roles evolve and develop. This is resulting in fear and uncertainty amongst certain organisations that their current workforce lack the required skills to leverage new technologies and the soft skills to ensure a sustainable competitive advantage (Sousa and Rocha, 2019).

The WEF (2016) argues that the biggest challenge facing organisations at present is not the rate of technological advancement, but organisations capability to upskill their staff in relation to this. This poses an important question for administrators in terms of how these roles will look in the future and the necessary

skills to conduct these roles. These are important issues to fully identify in order to prevent chronic unemployment and detrimental skills shortages in the near future.

2.8 Impact of the GIG Economy

Technological advancements are expected to impact more than just how work and job specifications will look but also how work is conducted. These changes are expected to make more flexible working arrangements the norm and also encourage the development of the GIG economy.

Technological disruptions have seen an increase in flexible working arrangements with employees opting to utilise remote working arrangements and alternative office spaces. Digitisation has allowed for more open lines of communication amongst employees and employers, with remote access no longer a major challenge (De Bruyne and Gerriste, 2018). Businesses are no longer limited by ICT infrastructure to adhere to a typical office environment, with the rise of telecommuting, replacing face to face interaction (Man and Man, 2019). Some larger multinational organisation have reaped the benefits of these technological advancements in allowing workers to operate from different continents. However, these changes and trends pose challenges of their own. Employees are required to be more autonomous, while organisations struggle to foster collaboration and innovation amongst staff due to the disruption of the traditional team. This change to how work is conducted is contributing to the evolution of employee skillsets and the increasing needed for flexibility amongst workers.

Technology is forcing organisations to become more agile in their approach, with an increasing emphasis on instant customer and product solutions. Organisations need to streamline their supply chain, perform at an international scale and interchange between various projects instantaneously. This monumental change in the way organisations conduct work is creating a skills challenge, with organisations struggling to balance the L&D profiles of their employees and the

needs of the organisations. This is leading to an increased demand for alternative or precarious workers to maintain organisational agility (Hirschi, 2018).

Commonly known as “platform workers”, there is a strong increase in the number of individuals participating in temporary or freelance employment arrangements (Sutherland et al., 2020; Deloitte, 2019). In the past this casual approach to employment was cause for uncertainty, due to the introduction of zero hour contracts, and decreasing stability in terms of hours and wages. However recent trends indicate employees will have to embrace the opportunity to engage in more flexible and dynamic work arrangements. This can be attributed to the opportunities afforded to develop new skills and participate in exciting projects work, the demand for work-life balance and other personal factors.

2.9 Technology and the Impact on Office and Administration Professionals

These trends are impacting the overall work profile of administrative professionals. The traditional receptionist is at risk due to the development of chatbots and virtual assistants are replacing more repetitive secretarial tasks with audio-typing duties being outsourced (SIA, 2019a). As a result, the role of the administrative professional is evolving, as evidenced in the work of Venter, Herbst and Iwu (2019), another key influence on the research methodology of the author. Administrative job specifications are changing to include a more diverse skillset with these individuals expected to become subject matter experts across a wider range of topics and processes.

The contemporary administrative professional is no longer a one-dimensional role, and now often encompass three positions in one. For example, the role of an office manager may also include elements of human resource management or accountancy duties. There is a demand for these professionals to master technical competencies more advanced than before, while also demonstrating personal agility and effectiveness. This is again evidenced by the increasingly stringent educational requirements of administrative professionals. The most common professional

qualification at this level once being a Diploma, there is a rise in the number of job adverts looking for a minimum of a Bachelor Degree, indicating and evolution of these job roles over the last number of years (Venter, Herbst and Iwu, 2019).

McKinsey Global Institute (2018) argue that these role developments are a positive change. This reallocation of work allows organisations to place emphasis on tasks of higher value. By delegating work previously carried out by highly skilled workers to those at mid-level, senior management will have the resources to focus on more strategic and innovative problems within the business. Mid-level employees will also have more time to focus on customer solutions and leveraging a competitive advantage by utilising their soft skills. Interestingly, the LinkedIn Global Trends Talent Report (2019) suggests that organisations now purport the development of soft skills amongst employees to be the key to future business success, due to the value added through softer employee competencies.

It is clear from the literature that there is a considerable skills shift occurring as a result of automation, technology and the rise of the GIG economy. While there is extensive research from professional bodies regarding future work skills, there is little literature regarding the future of administrative professionals in Ireland. This poses a number of important questions in order to ensure the survival of this line of work, most importantly; what are the future work skills necessary for administration professionals in Ireland and how can employers foster these skills in order to combat a skills shortage? This research will look to explore these questions in more detail and prepare administrators for the work places of the future.

2.10 Impact of Automation and Technology on Irish Labour Market

Chinoracký, Turská and Madlenáková (2019), look at the impact of 4IR across various employment sectors and labour markets. Supporting the research of De Bruyne and Gerriste (2018) they argue that administrative professionals are high risk due to the automation of these routine-based roles. The research also touches on the evolution of some administrative positions, highlighting that executive assistants

and data administrators are constantly evolving, with the specification of these roles developing due to artificial intelligence and digitisation. However one of the most interesting aspects of their research is the analysis of countries most susceptible to unemployment as a result of automation (Table 1).

Table 1. Percentage of Jobs Threatened By Automation in Selected Countries
(Chinoracký, Turská and Madlenáková, 2019)

Country	Jobs at high risk of automation (%)	Employment (%)		
		Agriculture	Services	Industry
Chile (CHL)	21.6	9.5	66.7	23.9
Lithuania (LTU)	21.1	8.4	66.1	25.5
Israel (ISR)	16.8	1.3	80.8	17.9
Turkey (TUR)	16.4	22.9	50.7	26.4
Japan (JPN)	15.1	3.8	70.1	26.2
Canada (CAN)	13.5	2.1	78.1	19.8
Korea (KOR)	10.4	6.1	69.5	24.4
United States (USA)	10.2	1.5	79.7	18.8
New Zealand (NZL)	10.0	6.4	73.3	20.3
Finland (FIN)	7.2	4.1	73.0	22.9
Estonia (EST)	12.2	4.3	65.5	30.3
Belgium (BEL)	14.0	1.4	76.9	21.7
France (FRA)	16.4	3.1	75.6	21.3
Sweden (SWE)	8.0	2.0	78.8	19.2
Ireland (IRL)	15.9	5.7	76.1	18.2
Denmark (DNK)	10.7	2.5	78.0	19.5
Norway (NOR)	5.7	2.2	77.5	20.3
Spain (ESP)	21.7	4.3	76.0	19.8
United Kingdom (GBR)	11.7	1.1	80.1	18.9
Netherlands (NLD)	11.4	2.1	81.4	16.5
Poland (POL)	19.8	12.0	57.5	30.5
Slovenia (SVN)	25.7	8.5	60.5	31.0
Greece (GRC)	23.4	13.7	70.8	15.6
Austria (AUT)	16.6	4.6	69.5	25.9
Germany (DEU)	18.4	1.5	70.8	27.8
Italy (ITA)	15.2	3.6	69.4	27.1
Czech Republic (CZE)	15.5	3.0	59.5	37.5
Slovak Republic (SVK)	33.6	3.3	60.9	35.8

By analysing the percentage of a countries employment in sectors deemed at risk, the study looks to estimate what labour markets will face potential difficulty. The risk to employment is not merely calculated from percentage of employment in a specific sector, but also how work is organised in that sector, and therefore how

large an impact automation may have. Interestingly, the percentage of Irish jobs at due to automation was estimated at 15.9%, (Chinoracký, Turská and Madlenáková, 2019). This positive statistic may be attributed to high levels of employment in the services sector which can be more difficult to automate. This research indicates the demand for further analysis on the impact of automation on Irish administrative professionals, due to indications that Ireland is not a high risk country for job loss due to automation.

2.11 Protean and Boundaryless Career Models

The implications of 4IR will play a pivotal role in the developing career profiles of administration professionals in Ireland. It is important to consider the larger impacts on career development in this area and the challenge to traditional career frameworks, in order to support administrative workers in their future career development. The continually evolving specifications of work, as highlighted by Autor (2015), combined with the potential career uncertainty due to the rise of GIG workers, mean that administration professional of the future must be increasing flexible (Hirschi, 2018). It is up to the individual to take responsibility for their own career development and management.

The Protean and Boundaryless Career Frameworks are two similar models that may prove fundamental in addressing the ongoing changes occurring in the world of work. The two models are subscribed to the notion that workers must offer high levels of flexibility to organisations, while also undertaking a self-managed approach to career development. They also highlights the idea of flexibility between organisations, which is the antithesis of current employment practices, where stability and permanency are core values (Hirschi, 2018). These frameworks support the precedent that many administration professionals will engage GIG work in the future while also engaging in project work within organisations, requiring high degrees of personal flexibility. Administrators subscribing to these model will see the value in engaging in a wider task portfolio over their career span. The boundaryless career model in particular, explores the value of working across a number of

employers, as opposed to focusing on career progression within one specific organisation.

The two models place emphasis on the employee taking responsibility for their own career management. However rise of online recruitment platforms and applications may challenge employees to take ownership of their career development, highlighting one of the limitations of subscribing to the models. Despite this, the importance of contemporary and non-traditional career models, cannot be understated. By challenging traditional career frameworks, administrative professional will ensure a more up to date skills profile, where they are the drivers of their own professional development.

2.12 Learning and Development

While the Protean and Boundaryless Career Models, highlight that workers should take ownership of their own L&D, it is evident that employers still have a role to play. It is clear from the research pertaining to administration professionals, the future evolution of roles and the implementation of new technology, poses two major threats. Employees will require more finessed soft skills in order to communicate with a wider range of stakeholders, in more diverse working environments, and more specified hard skills in order to meet increasing expectations and technological advancements.

As highlighted, there is a growing emphasis on educational requirements for administration workers. However, there is concern that current educational programmes and institutions are not equipping workers with the necessary skill sets to thrive in the workplaces of 4IR. Ra et al., (2019), highlights the importance of firms taking responsibility for the L&D of workers, through the implementation of work based learning programmes. Fostering both hard and soft skills in an individualised and blended approach, and the creation of a learning society by partnering with the relevant educational bodies, will allow workers to increase their own learning abilities and overall skillsets. However while the research is clear on the importance

of work based learning programmes, the literature with regard to evidence of these programmes for administration workers in Ireland is negligible, leading to concern for the future of these professionals.

2.13 Conclusion

It is clear that 4IR is impacting the labour market in a number of ways. Although the literature indicates the elimination of jobs is not the most concerning issue facing workers, the changing skillsets as a result of role evolution, technological advancements and the rise of the GIG economy, is a major challenge still ahead. While the research shows that more emphasis may be placed on the development of soft skills in some professions, the literature relating to administration workers is limited in an Irish context and therefore this research will look to explore this issue in more detail. The impact of automation and technology on this profession is still uncertain and further analysis of the issues is required in order to ascertain the necessary future work for these workers. The increasing onus on employers to take action with L&D is also another challenge that must be considered, with a need for further exploration into the perspectives of Irish employers on L&D initiatives and their relevance and importance for administration workers.

Chapter 3. Research Question

3.1 Introduction

This research aims to investigate the implications of 4IR on administration professionals in an Irish context, specifically the effects of automation and technology on these workers. The research will first clarify if technological advancements have impacted Irish administrative workers. The research will then analyse if so, how has technology and automation impacted these workers, in the context of role specification, volume of work and nature of work. The research will then investigate if the implications of the GIG economy by ascertaining respondents opinions on the engagement of GIG workers and their value to the workforce. The research will then explore how these 4IR will affect the skillset of administrative professionals. Through analysing current and predicted skillsets of administrators, the author will gain insight into the necessary future work skills of these professionals, and in turn determine if there is risk of a skills shortage occurring. The research will also look to examine the value of hard versus soft skills to these workers. Finally the research will explore the issue of educational requirements in this sector to determine if there is an increasing emphasis on workers upskilling, and if, so are employers being proactive in preparing workers for necessary changes.

3.2 Research Gap

There is extensive literature on the subject of 4IR and its implications for the labour market. The work of Frey and Osborne (2017) and de Ruyter, Brown and Burgess (2019) investigates the effects of automation and the GIG economy on employment. Mfanafuthi, Nyawo and Mashau (2019) explore the impact of technology on administrative jobs, while Venter, Herbst and Iwu (2018) investigate the effect of automation on the skill requirements of administrators. However, there is a clear gap relating to the future of administrative professionals in an Irish context. While recent reports and literature have examined key future work skills across a variety of sectors, there is little emphasis on the specific impact to office and administration professionals in Ireland. While Chinoracký, Turská and Madlenáková

(2019) touch on the impacts of 4IR on the Irish labour market, their work gives limited insight into the connotations for workers in an administrative context. Existing studies also give little consideration to the implication of these issues on L&D for administrative professionals. This research looks to explore these gaps through detailed analysis of administrators in the Irish labour market.

3.3 Research Objectives

In order to explore these issues in more detail, the researcher has proposed five key research objectives to explore.

Objective 1: What is the impact of automation and the GIG economy on the work profile of administration professionals in an Irish context?

Objective 2: Will hard or soft skills be of greater importance for administrative workers going forward, as a result of the impact of automation and technology and the GIG economy?

Objective 3: Is there a skills gap between necessary future works skills and the current skills profile of administration professionals in Ireland?

Objective 4: What are the key future work skills necessary for administration professionals in Ireland?

Objective 5: What is the impact of changing skill requirements in the context of administration workers in Ireland, on educational requirements and learning and development initiatives?

The author intends to explore these objectives through a research survey targeted at HR and line managers for Irish administrative professionals. Drawing from the above research objectives to shape the survey questions, this investigation aims to gain insight into the evolution of administration professionals Irish workplaces and

the implications on L&D initiatives. The research seeks to prepare employers and employees for anticipated changes and shape L&D initiatives to meet the demand for these changing skills. In analysing the value placed on hard versus. soft skills, it will ensure training and development initiatives are moving in the right direction to correct issues. The threats of automation and technology and the growing demand for GIG workers are causing great uncertainty, but this research aims to highlight key trends that are emerging with a view to supporting administrative workers and their employers against future risks.

Chapter 4. Methodology

4.1 Introduction

This chapter will explore the research philosophy, design and methodology utilised in the examination of the authors research questions. Through justification of the chosen research philosophy the author will explore the rationale and limitations of the given approach. This chapter will also give consideration to sample size selection, data analysis techniques and ethical considerations of the research.

4.2 Research Philosophy

Saunders et al. (2009) advocates that the philosophy of any research must precede the method. The adoption of the correct research philosophy is paramount to the success of any study as it will fundamentally influence the overall research strategy. Saunders et al. outlines that research philosophy relates to the "*development of knowledge and the nature of that knowledge*" (2009: 107). While there is no superior research philosophy, in undertaking a pragmatic view and giving further consideration to the research question, the researcher proposes a primarily objectivist ontology. However the pragmatist view advises that mixed methodologies can be utilised when the exploration of the research question is supported by an ambiguous research philosophy (Saunders et al., 2009). By drawing from both schools of thought, the author can strengthen the integrity of the research as the viewpoints are not mutually exclusive.

The author is concerned with a primarily positivist epistemological philosophy. Epistemology refers to the theory of knowledge and associated rationale. This research lends to working with an "*observable social reality*" (Saunders et al., 2009: 113). The author is concerned with evidenced based, conceivable data. In contrast to interpretivism, positivism allows for a more impartial and factual interpretation of the results and does not place value on associated meanings and relationships. It is important to note that author objectivity is a challenge to any research study. Singh and Walwyn (2017) argue that one of the

fundamental flaws of any research methodology is the authors tendency to allow personal biases to impact methodological design. A lack of awareness on the part of authors has led to the utilisation of epistemologies inappropriate for the chosen subject matter. The author has endeavoured to overcome this through thorough analysis of the previous literature to ensure the research philosophy and method are aligned with the objectives.

Greener (2008), highlights that not only will the chosen research methodology impact the results and findings of the study, but so too will the authors person beliefs and interest. It is natural for the author to have assumptions underpinning the research questions, however, it is important not to allow this to filter findings when conducting an analysis of the results. To ensure personal bias does not impact the authors own work, the researcher will ensure to capture all survey responses in the analysis, regardless of how they may challenges underlying assumptions.

The basis for this chosen methodology arose from the study of similar research projects such as that of the McKinsey Global Institute Skills Shift Report (2018). It is clear that the future work skills of administration professionals is an observable phenomena, inconsequential of social interactions and actors. The impact of automation and the GIG economy on these professionals will be evidenced in their job profiles and work quality, allowing the author to draw observable conclusions.

4.3 Research Design

The definition of a strong research paradigm lends itself to a clear path in terms of the direction of the research method (Holden and Lynch, 2004). The objectivist perspective arouses a deductive approach in which the researcher postulates theory from existing research then test the theory through their own studies. Through evaluation of existing literature such as Frey and Osborne (2017) and Autor (2015), the researcher was able to determine the key trends impacting

workers as a result of 4IR. In highlighting gaps in these studies, the author raised a number of questions, the exploration of which will be the basis of this study. Those gaps pertain to the effects of automation, technology and the GIG Economy on administration workers in an Irish context and the implications for L&D initiatives.

This research will employ both a quantitative and qualitative approach. Quantitative research is best suited when exploring information from larger datasets, however it is possible to employ a mixed-methods approach if supported by the underpinning research paradigm. In line with a quantitative approach, the sections of the survey pertaining to skill, will be numeric and easily coded (Quinlan, 2011). The research will explore the relationship between variables in an objective manner. In contrast to qualitative research methods, a quantitative approach explores the datasets in order to determine causal effects with view to making further determinations (Gelo, Braakmann and Benetka, 2008). Dissimilarly, qualitative studies look to explore the data from various socially constructed viewpoints.

However, one of the most challenging limitations of quantitative research is that valuable information may be lost due to ambiguous coding of data. Gelo, Braakmann and Benetka (2008) argue that statistical interpretation of data may limit important theoretical observations. Therefore the author will look to include qualitative analysis to support findings in the context of job evolution for administrative professionals and in order to gain a deeper understanding of learning and development initiatives prevalent in Irish organisations. The author will also utilise comparative analysis in order to ascertain the key changes facing Irish administrative professionals in the near future.

4.4 Research Methods

The author will undertake a mixture of primary and secondary research, utilising existing literature to shape the primary research. For the purpose of the primary study a questionnaire has been selected as the most appropriate means of data collection. The author will conduct a cross-sectional study due to the time

restraints of academic research. Allowing the researcher to access a larger sample size, a questionnaire or survey, supports the positivist research methodology employed by the author (Quinlan, 2011). The chosen research instrument ensures consistency across the study and also allows the researcher to engage respondents in a clear and concise manner. While the research method allows for primarily closed and quantitative research questions to be examined, the author has included a small number of open-ended qualitative questions at the end. This will allow for a more unambiguous understanding of the results. One of the limitations of the survey is that while it may highlight patterns and trends, such as changes to role specifications and skills requirements for administrators, as referenced by Ra et al. (2019), it does not allow the researcher to explore these phenomena in more depth (McKim, 2017). The researcher elected to distribute the questionnaire via email to the respondents. The survey was compiled through Survey Monkey and totalled 65 questions. Respondents were given an introduction to the survey an outline of expectations in terms of time and effort in participating.

4.5 Questionnaire Design

The author has elected to utilise a self-deigned questionnaire, influenced by previous literature such as The McKinsey Global Institute (2018) and Venter, Herbst and Iwu (2019), in order to fully assess gaps in the existing research. The survey comprised of five key sections (Appendix 2). The first section gave insight into the demographics of participants. This includes background information pertaining to industry, job level, organisational size and number of administrators employed. Organisation size was a key determinant in the analysis of the skills section of the survey and allowed the researcher to assess how skill requirements were evolving in the context of small, medium and large organisations.

The second section of the survey analyses the impacts of automation and the GIG economy on organisations over the last five years. This provided insight into issues such as job displacement, changes to job specifications, working conditions and practices, key trends that emerged from the literature review (De Bruyne and

Gerritse, 2018). This linked into the third section of the survey, which posed similar questions, this time relating to foreseen impacts over the next five years. This allowed the author to explore upcoming changes for Irish administrative professionals. These questions were a mixture of multiple choice and open ended questions.

Section five of the survey focused on skills, and the threat of a potential skills gap resulting from 4IR (Mc Kinsey Global Institute, 2018). Questions 50 to 55 examine the importance of key skills for administrative professionals now, versus the importance of these skills in five years' time. These questions look to compare current staff abilities with skills of key importance in the future. These questions took the format of multiple choice questions, measured using a Likert scale which can be easily coded (Batterton and Hale, 2017). Finally the questionnaire examines educational requirements and programmes with a view to understanding the limitations of these initiatives through a series of multiple choice questions. At the end respondents were asked an open ended question pertaining to current L&D programmes to ascertain what is occurring in this perspective in Irish businesses.

4.6 Sample Size and Population

The questionnaire was sent to a sample population of 150 participants with a view to receiving a one third response rate of 50. The respondents were HR professionals or hiring managers working within organisations that employed office and administration professionals. Basic requirements for partaking in the survey were that the respondent must be involved in the hiring and oversight of office and administration professionals in their organisation and must also have a minimum of one office and administration professional working within their business.

The sample was chosen through non-probability convenience sampling due to the subject of access. The researcher had access to a database of HR professionals and hiring managers and engaged a proportion of these individual for the purposes of the survey. The individuals targeted worked across private and public sector and

organisational size included an equal mix of SME's and large multinational companies. This allowed insight into how the impacts of automation and technology may differ across a range of business profiles. There was an element of quota sampling involved in the selection of respondents so as to ensure a homogeneous mix of participants, due to the higher percentage of females employed in the sector.

4.7 Pilot Study

A major challenges to any research study, is the authors assumptions and bias as to how participants will respond to questions (Quinlan, 2011). Therefore, the researcher conducted a pilot study of the survey, utilising a sample size of five participants. Respondents were given 3-5 working days to complete the pilot survey and then asked for their feedback on the questionnaire. The purpose of the pilot study was to ensure that the survey was clear and coherent. Feedback from the initial pilot study included the length and number of questions. This was given great consideration, however the researcher felt that the number of questions were pertinent in order to effectively examine the impact of automation and the GIG economy on administrative work profiles, skills and education requirements. Therefore it was not advisable to cut sections of the questionnaire. Other feedback pertained to the wording of certain question. As outlined above, sections two and three (questions 11-42) explore the implications of technology and the GIG Economy, over the last five years and over the next five. Respondent from the sample survey highlighted that it may be useful to alter the sentence structure to clarify the difference in the two time frames, for ease in answering. This feedback was implemented before the final version of the questionnaire went live to improve the readability of the research instrument.

4.8 Data Interpretation

To analyse the results of the research, the author intends to employ a mix methodology compiling of both quantitative and qualitative data interpretation.

The researcher will conduct a comparative analysis to determine the inferences of automation and the GIG economy on administrative professionals in the context of job displacement, job evolution and skills. This is done through analysis of trends relating to the topics over the last five years versus perceived implications in the near future. Similarly, the author will employ this method to determine if there is a skills gap as a result of automation and the GIG economy for Irish administrative workers. This will allow the author to determine how technology is driving change for these professionals and what the future of work looks like.

One of the key research questions in this investigation pertains to future work skills for administrative professionals. The author examines skills of key importance for these workers now using multiple choice questions on a Likert Scale. The author will compare skills of current importance against skills of importance over the next five years. This is done by coding variables from the Likert Scale and analysing the data through SPSS (Bryman and Bell, 2019). In coding the response variables, the researcher is able to calculate the average mean in terms of skill importance for participants and highlight if there is a statistical difference between current and future skills using a student's t-test (Mishra, et al., 2019). In order to carry out the student's t-test the author first put forward a hypothesis that there is a significant difference between current skills of key importance versus skills of future importance. The null hypothesis then states that "there is no statistical difference between skills of current importance and skills of future importance". By comparing the average means between the two datasets the author obtains a p-value. To reject the null hypothesis, a p value of less than 0.05 is required, indicating a 95% confidence interval that there is a statistical difference between skills of importance now versus skills of future importance. Similarly, the author conducts the same analysis between current skill abilities of administrators versus the skills of future importance, to determine if there is a need for upskilling.

The Braun and Clarke (2006) thematic model of analysis is to be employed in order to analyse open ended questions asked throughout the survey. The researcher will study the collected data, in-depth and then attempt to code this information and

derive themes from patterns pertinent to the research questions. By examining responses pertaining to questions such as current L&D initiatives and expectations of administrators workers, the author will code key trends as they emerge in responses. These codes will be grouped into overall themes which will then be explored and developed in more detail.

4.9 Reliability and Validity

As the researcher has made the decision to utilise a “self-created” questionnaire, the issues of reliability and validity are of particular importance. The author had to give consideration to the content included within the questionnaire in terms of relevance to the research question and the overall the validity of the study (Quinlan, 2011). The author utilised standards scales such as the Likert scale to ensure a higher validity of the research. In order to analyse the internal reliability of these scales, the researcher conducted a Cronbach Alpha Test (Bryman and Bell, 2007). This is done on SPSS and the test produces “*the average of all possible split-half reliability coefficients*” (Bryman and Bell, 2007, p. 164). If the alpha coefficient is greater than 0.8, this is sufficient evidence that the internal reliability of the study is acceptable.

Skills and competencies were drawn from previous studies to ensure clarity for respondents. The author also utilised, simple and unambiguous language to avoid confusion and misinterpretation of questions. Due consideration was given to the structure and sequencing of the survey so as to avoid leading the respondents or imprinting the authors own bias. The research instrument also allowed respondents to skip any questions they did not feel comfortable answering. Finally, the questionnaire underwent a rigorous pilot study, the results and feedback of which were fully considered, to ensure a reliable and valid research instrument.

4.10 Ethical Considerations

Cooper and Schindler (2008, p.34) define ethics as the '*norms or standards of behaviour that guide moral choices about our behaviour and our relationships with others*'. This research follows the four ethical principles of business research as outline by Bryman and Bell (2007). The research will not harm, deceive or invade the privacy or any of the participants. There is also clear informed consent and the author has given due ethical consideration through open and transparent communication with all participants. All participants are to be volunteers of their own volition and fully aware of the research goals. All personal information will be treated in a highly confidential manner in line with GDPR regulation.

The information compiled and collected will also only be used for the purposes of the research study outlined in the initial consent form. Bryman and Bell (2019), highlight the limitations of a "tick the box" online consent form, and the possibility that participants may not give full attention to the implications of participating in the research. However the researcher has endeavoured to ensure the form is clear, concise and accessible. The author also employed the ethical principles of reciprocity and trust by inviting participants to gain access to the completed research so that they can benefit from their engagement in the study.

4.11 Limitations of Research Methodology

As with all research studies, this analysis is subject to a number of limitations. While the author endeavoured to ensure a homogenous mix of respondents in terms of job level and organisational size, the responses indicate a higher portion of participants were from a large organisation and at either intermediate or senior management level. The authors advises future research utilise a larger sample size in order to overcome this issue.

Secondly, the time restraints of academic literature meant qualitative analysis was limited to open-ended questions put forward to participants. The author

recommends future work on this topic consider the benefit of engaging in semi-structured interviews with a sample of participants, in order to better explore implication on learning and development and evolution of administrative job profiles.

Chapter 5. Analysis, Findings and Discussion

5.1 Introduction

This chapter explores the key findings of the survey conducted. Through examination of the survey results, the author demonstrates the impacts of 4IR on administration professionals in an Irish context. The research survey, comprising of 65 questions, yielded 42 responses. It is important to note, not all participants answered all questions, which is evident by response numbers in some of the tables below. The responses and findings of the survey are analysed under the context of each research objective. This is achieved through a comparative analysis of key issues and trends over the last five years against perceptions about the next five. Participants were also engaged in open ended questions, which were analysed using the Braun and Clarke thematic model of analysis. In order to effectively investigate the impact of 4IR on skills, the author broke down the responses based on organisational size and used inferential statistics including the student's t-test to assess the changing demand for skills and the need for upskilling. The key objective of the research is to identify important trends related to necessary future work skills for these professionals, with a view to shaping L&D initiatives going forward.

5.2 Limitations

This study is subject to two key limitations which should be considered for future research. Firstly, the sample size of the study was 42 respondents. Were future analysis to be conducted on this topic, the author advises utilising a larger sample in order to ensure a more detailed study. Secondly, research pertaining to the L&D initiatives within participants organisations would be improved by further qualitative analysis on the subject, such as semi-structured interviews to gain more insight into challenges and innovations evident across organisations.

5.3 Demographics

In order to gain insight into the demographics of the respondents, the researcher conducted a number of frequency analysis tests. The first test examined the job level of respondents, with the two most common responses being intermediate and senior manager, with each category totalling 28.57% of the results (Table 2).

Table 2. Frequency of Response by Job Level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Owner/Executive/C-Level	7	16.7	16.7	16.7
	Seinor Management	12	28.6	28.6	45.2
	Middle Management	10	23.8	23.8	69.0
	Intermediate	12	28.6	28.6	97.6
	Entry Level	1	2.4	2.4	100.0
	Total	42	100.0	100.0	

The researcher then analysed the principal industries of respondents to ensure a homogenous mix was captured. Were all respondents to come from a similar background, then this would risk the results being impacted by trends effecting one particular industry, as opposed administrative professionals as a whole. The highest response category was from participants working in the busines support and logistics sector, totally 17.07% of the sample population (Table 3).

Table 3. Frequency of Response by Principal Industry

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Advertising & Marketing	2	4.8	4.9	4.9
	Airlines & Aerospace (including Defense)	1	2.4	2.4	7.3
	Business Support & Logistics	7	16.7	17.1	24.4
	Construction, Machinery, and Homes	1	2.4	2.4	26.8
	Education	6	14.3	14.6	41.5
	Finance & Financial Services	4	9.5	9.8	51.2
	Government	4	9.5	9.8	61.0
	Healthcare & Pharmaceuticals	2	4.8	4.9	65.9
	Insurance	1	2.4	2.4	68.3
	Manufacturing	1	2.4	2.4	70.7
	Nonprofit	5	11.9	12.2	82.9
	Retail & Consumer Durables	2	4.8	4.9	87.8
	Real Estate	3	7.1	7.3	95.1
	Telecommunications, Technology, Internet & Electronics	1	2.4	2.4	97.6
	Utilities, Energy, and Extraction	1	2.4	2.4	100.0
Total		41	97.6	100.0	
Missing	System	1	2.4		
Total		42	100.0		

In Table 4, the sample were asked about organisation size, a key determinant for analysing the skills section of the survey. A high proportion (54.76%) of respondents work for an organisation that employed 51+ workers. Theoretically, these larger organisations will have a higher proportion of administrators employed which may impact training budgets available when analysing L&D initiatives.

Table 4. Frequency of Response by Organisation Size

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-15	11	26.2	26.2	26.2
	16-50	8	19.0	19.0	45.2
	51+	23	54.8	54.8	100.0
	Total	42	100.0	100.0	

The author then analysed the number of administrative professionals employed within respondents organisation. Table 5 outlines that 34.71% of respondents employ between 4-10 administrative professionals, while 16.67% employ over 51. This will give important insights into how automation impacts these workers on a larger versus a small scale when analysing skills.

Table 5. Frequency of Response by Administrative Professionals Employed

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3 or less	11	26.2	26.2
	4-10	15	35.7	61.9
	11-25	6	14.3	76.2
	26-50	3	7.1	83.3
	51+	7	16.7	100.0
	Total	42	100.0	100.0

Finally, the survey looked at employment trends pertaining to administrators over the last 12 months. Table 6 outlines the frequency at which administrative professionals were employed over the last year. Interesting, 76.19% of those surveyed indicated that they had employed an administrator in the last 12 months, illustrating that there is still need for administrators in Irish workplaces.

Table 6. Frequency of Respondents that Employed Administrative Professionals in the Last 12 Months

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	32	76.2	76.2
	No	10	23.8	23.8
	Total	42	100.0	100.0

Furthermore, 59.52% of respondents indicated that they had employed a GIG worker over the last 12 months in an office and administration context (Table 7). This again highlights high demand for these workers in the Irish labour market.

Table 7. Frequency of Respondents by GIG Workers Engaged

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	25	59.5	59.5	59.5
	No	17	40.5	40.5	100.0
	Total	42	100.0	100.0	

5.4 Impact of Automation and the GIG Economy on the Work Profile of Administration Professionals in an Irish Context

The objective of this research is to explore the impact of automation and the GIG Economy on administrative professionals in an Irish context. This was examined through a comparison of current viewpoints on a number of topics, with opinions about the future. The researcher seeks to gain insight into participants changing viewpoints on key issues, with the goal of highlighting important trends going forward.

5.4.1 Automation and Technology

The researcher initially explored if automation and technology was, in fact, impacting Irish business. Table 8, outlines the factors impacting respondents businesses over the last five years, and those they believed would impact their business over the next five.

Table 8. Factors Impacting Irish Business

Factors Impacting Irish Businesses	Over the Last Five Years	Percent (%)	In Five Years' Time	Percent (%)
Automation and Technology	13	36.11%	8	22.86%
Economy	7	19.44%	17	48.57%
Legislation	9	25.00%	5	14.29%
Globalisation	2	5.56%	0	0%
Political Landscape	0	0%	1	2.86%
GIG Economy	1	2.78%	0	0%
Other	4	11.11%	4	11.43%
Total Number of Respondents	36	100%	35	100%

The results show automation and technology has the most impact on Irish businesses over the last five years, with 36.11% of the response. Interestingly, the economy was the biggest concern for business going forward, with 48.57% of the response. This may be attributed to the current Coronavirus pandemic that is impacting the economy at present. A report conducted by The Economic and Social Research Institute (ESRI) (2020a) indicated that Gross Domestic Product (GDP) may decline by up to 13% depending on the length of the pandemic.

The author then explored how strongly respondents felt about the impacts of automation and technology on their business. Using a Likert scale, participants were asked to rate from strongly agree to disagree, if automation and technology had a large impact on their business. They were then asked the same question again, however this time with a view to considering the impact in five years' time.

Table 9. Impact of Automation and Technology on Organisation

Impact of Automation and Technology on Businesses	Over the Last Five Years	Percent (%)	In Five Years' Time	Percent (%)
Strongly Agree	10	27.78%	15	42.86%
Agree	18	50.00%	16	45.71%
Neither Agree Nor Disagree	7	19.44%	4	11.43%
Disagree	1	2.78%	0	0%
Strong Disagree	0	0%	0	0%
Total Number of Respondents	36	100%	35	100%

Table 9 shows participants felt that automation and technology has largely impacted their business, with over one quarter of respondents indicating either strongly agree or agree on the scale. This increased to 88.57% of respondents when they were questioned about their viewpoint on this factor over the next five years (Table 9).

This indicates the automation impacted Irish businesses and is expected to have a further impact over the next five years. This implication of 4IR, is of great concern for Irish employers and workers with the overall impacts on administrative professionals still uncertain. The rate of technological advancements and the computerisation of routine based tasks has compelled the researcher to explore this trend in more detail (Frey and Osborne, 2017). This was achieved by asking respondents a series of questions regarding how automation and technology has and will impact administration professionals within their business. These questions look at issues such as volume of work, expectations and skillsets.

Table 10. Impact of Automation and Technology on Volume of Work

Impact of Automation and Technology of Volume of Office and Administration Work	Over Last Five Years	Percent (%)	In Five Years' Time	Percent (%)
Increased Volume of Office and Administration Work	6	16.67%	7	20.00%
Decreased Volume of Office and Administration work	19	52.78%	22	62.86%
Made No Change to Volume of Office and Administration Work	11	30.56%	6	17.14%
Total Number of Respondents	36	100.00%	35	100.00%

Table 10 analyses the impact of automation and technology on the work volume of administration professionals. Respondents indicated that administrative work volumes are decreasing (52.78%). This trend looks set to increase 62.86% of respondents indicating rising work volumes in the next five years.

Table 11. Impact of Automation and Technology on Demand for Administrative Workers

Demand for Office and Administration Workers	Over Last Five Years	Percent (%)	In Five Years' Time	Percent (%)
Increased Organisations Demand for Office and Administration Workers	5	13.89%	3	8.57%
Decreased Organisations Demand for Office and Administration Workers	10	27.78%	17	48.57%
Led to the Redeployment of Office and Administration Workers	8	22.22%	11	31.43%
Made No Change to Organisations Demand for Office and Administration Workers	13	36.11%	4	11.43%
Total Number of Respondents	36	100.00%	35	100.00%

The study then examine the impacts of automation and technology on demand for office workers. As seen in Table 11, 27.78% of respondents indicated that they had seen a decrease in the demand for administrative workers due to new technologies, with 48.75% believing that they would again see further decrease in

demand for workers over the next five years. Interestingly, over one third of respondents believe technological advancements would lead to a redeployment of their administrative staff into other areas. This is corroborated below in Table 12 when respondents were asked if they would have a need for office administration workers over the next five years, with a astounding 96.97% of participants indicating yes.

Table 12. Need for Administrative Workers in the Next Five Years

Do You Feel Your Business Will Have a Need for Office and Administration Workers in 5 Years?	Response	Percent (%)
Yes	32	96.97%
No	1	3.03%
Total Number of Respondents	33	100%

This raised the question of expectations of administrative professional. If the demand for these workers is decreasing and if new technologies are leading to the redeployment of these workers, then what does that mean for expectations of administrative staff? The survey posed this questions to respondents, with a 91.67% of participants indicating expectations had already increased and a further 82.86% of respondents believed expectations would increase over the next five years (Table 13).

Table 13. Expectations of Administrative Workers

Have Expectations of Office and Administration Staff Increased?	Over Last Five Years	Percent (%)	In Five Years' Time	Percent (%)
Yes	33	91.67%	29	82.86%
No	3	8.33%	6	17.14%
Total Number of Respondents	36	100%	35	100%

The researcher then examined how expectations have and would change for administrators. Respondents indicated administrative workers had to be more adaptable, adopt stronger technical capabilities and embrace more diverse role profiles (Fig. 1). These trends look set to continue over the next five years, with respondents re-iterating these key trends (Fig. 2).

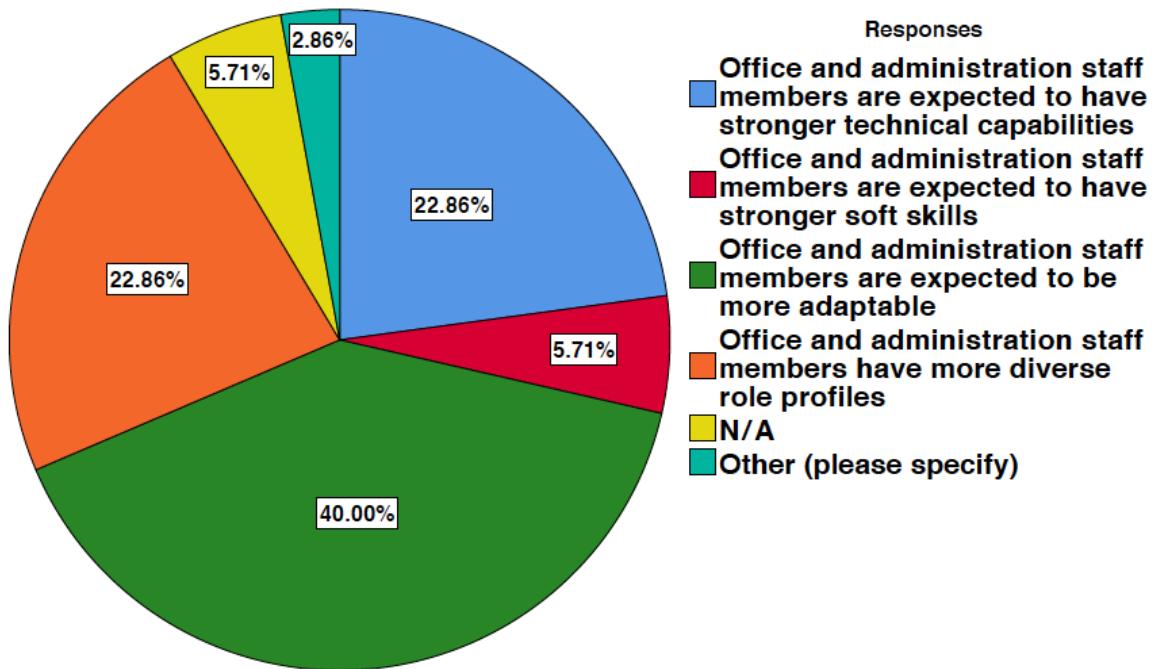


Figure 1. Changes in Expectations of Administrative Workers Over Last Five Years

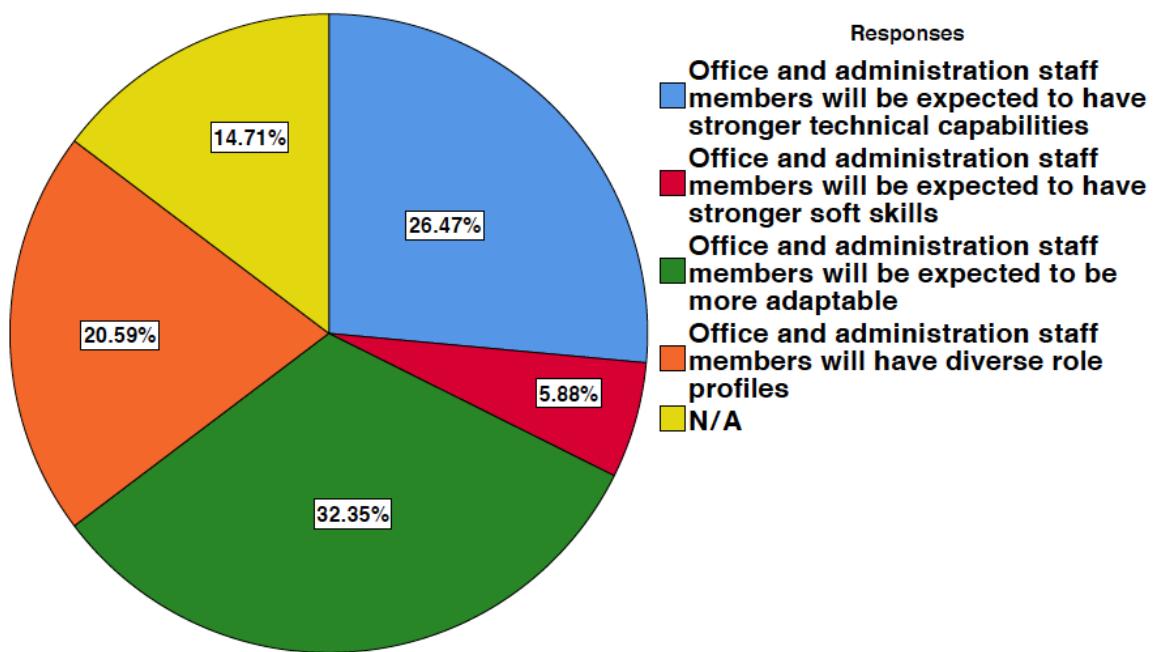


Figure 2. Changes in Expectations of Administrative Workers Over Next Five Years

The impact of automation and technology on work practices was then explored by the researcher (Table 14). 80.56% of participants felt the way in which they conducted work has changed due to technology, increasing to 94.29% over the next five years. However this result may be impacted by the Coronavirus pandemic that has resulted in the majority of employers forced to offer work from home opportunities over recent months (ESRI, 2020b). The report indicated the before the virus outbreak, just 14% of employees had work from home options.

Table 14. Impact of Automation and Technology on Work Practices for Administration Professionals

Has Automation and Technology Impacted the Way in Which Office and Administration Professionals Conduct Work?	Over Last Five Years	Percent (%)	In Five Years' Time	Percent (%)
Yes	29	80.56%	33	94.29%
No	7	19.44%	2	5.71%
Total Number of Respondents	36	100.00%	35	100%

When probed further on the impact of technology on work practices, 38.89% of respondents (Fig. 3), indicated administrative professionals had work from home options with the potential for this to rise to 65.71% over the next five years. 17.14% of respondents indicated that these employees would also be able to avail of flexible and shared work spaces (Fig. 4).

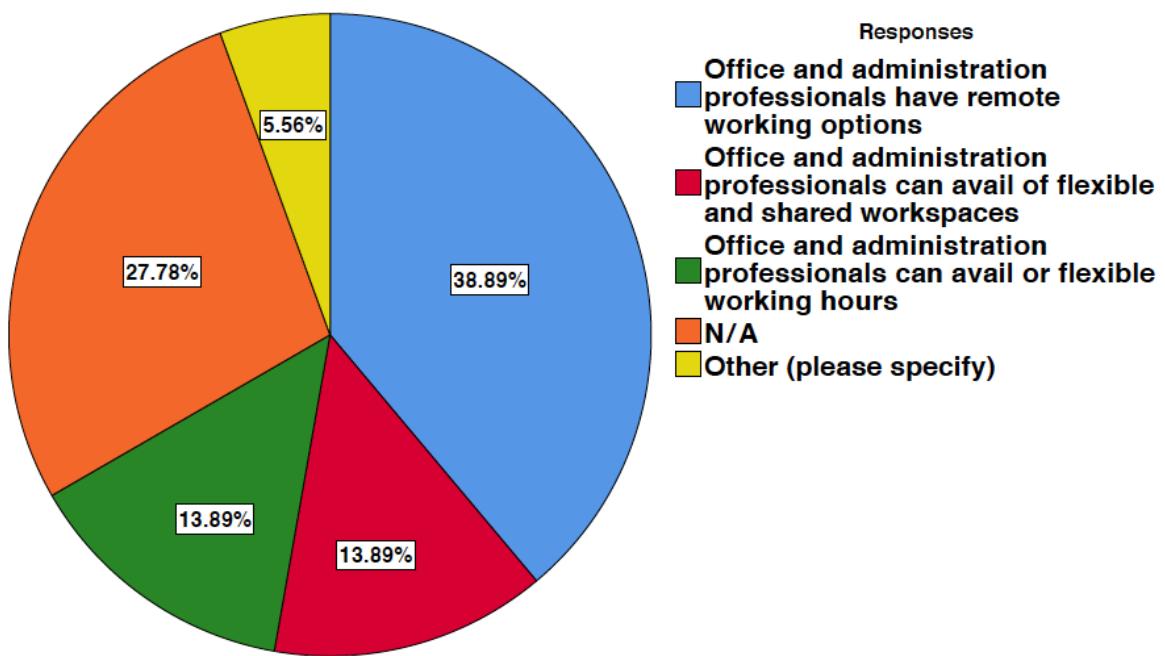


Figure 3. Changes in Work Practices for Administration Professionals Over Last Five Years

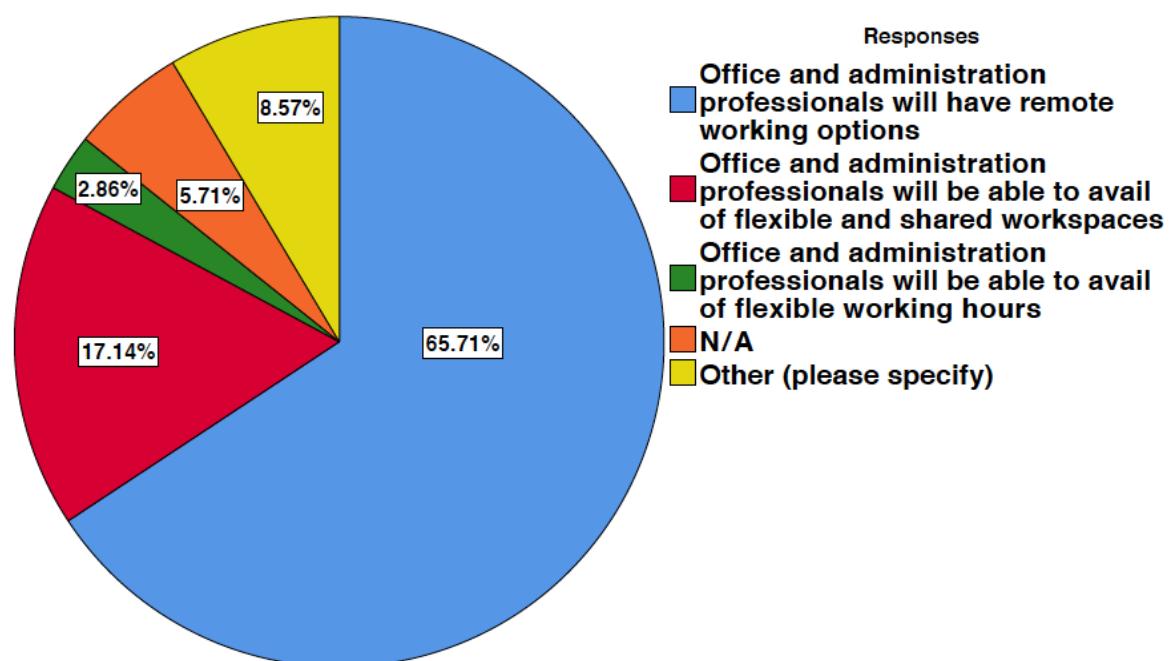


Figure 4. Changes in Work Practices for Administration Professionals Over Last Five Years

The survey investigated if demand for administration professionals was increasing or decreasing. The results showed that over 50 % of respondents did not feel there would be any change to administrative staffing requirements over the next five years. However nearly 20% of participants indicated both an increase and decrease in staffing requirements, highlighting mixed viewpoints on this subject (Table 15).

Table 15. Staffing Requirements for Administrative Professionals

Do You Feel Staffing Requirements For Office and Administration Professionals Within Your Business are:	Response	Percent (%)
Increasing	8	19.05%
Decreasing	9	21.43%
There is no change to staffing requirements	25	59.52%
Total Number of Respondents	42	100%

5.4.2 The GIG Economy

This researcher then examined if automation and technology has led to the development of the GIG economy in the opinion of respondents. The results showed less clarity on this issue, with 36.11% of respondents neither agreeing or disagreeing with the statement. 47.2% of participants agreed that automation and technology had led to the development of the GIG Economy, however only 37.14% believed it would lead to further growth over the next five years (Table 16).

Table 16. Automation and Technology and the Growth of the GIG Economy

Automation and Technology Has Led to the Development of the GIG Economy	Over the Last Five Years	Percent (%)	In Five Years' Time	Percent (%)
Strongly Agree	2	5.56%	3	8.57%
Agree	17	47.22%	13	37.14%
Neither Agree Nor Disagree	13	36.11%	17	48.57%
Disagree	4	11.11%	2	5.71%
Strong Disagree	0	0%	0	0%
Total Number of Respondents	36	100%	35	100%

The implications of the GIG economy were further explored with respondents asked if they have or would employ GIG workers in order to harness skills lacked by their own employees. 36.11% of participants agreed that they would employ GIG workers for this purpose, however 48.57% of respondents were not sure about the truth of this statement over the next five years, neither agreeing or disagreeing (Table 17). This shows a sense of uncertainty from an employer perspective regarding the implications and value of GIG workers in combatting automation and technological advancements.

Table 17. Use of GIG workers to Harness Skills Lacked by Administration Employees

My Organisation Employs GIG Workers to Harness Technical Skills Office and Administration Employees Lack?	Over the Last Five Years	Percent (%)	In Five Years' Time	Percent (%)
Strongly Agree	0	0%	0	0%
Agree	8	36.11%	8	22.86%
Neither Agree Nor Disagree	13	30.56%	17	48.57%
Disagree	11	11.11%	8	22.86%
Strong Disagree	4	4.00%	2	5.71%
Total Number of Respondents	36	100%	35	100.00%

Finally the survey asked a number of open ended questions, regarding automation and technology to respondents. While some of the responses were not significant enough to warrant thematic exploration, question 26 highlighted interesting insights. These insights were broken down using a Braun and Clarke thematic analysis, with four main themes emerging (Table 18).

Table 18. Impacts of Automation and Technology on Administrators

Biggest Impacts of Automation and Technology on Administrators Over Last Five Years	Total Number of Response Mentioning Factor (n=25)
Job Related Impacts	7
Skill Related Impacts	5
Market Related Impacts	2
Work Process Related Impact	11

Job related impacts included observations on administrative job specifications and further role evolution. One respondent noted that automation has given administrators *"more time to engage in other project work"*, while other respondents noted broader roles, increased responsibilities and less dependence on administrative workers. Respondents also referred to skills changes, expressing views that administrators were requiring greater technical capabilities. Market related implications related to increased organisational capabilities to compete at an international level due to technological advancements. Finally, work process implications, related to improving efficiencies, internal work processes and increasing the speed and effectiveness of administrators within their organisation.

5.4.3 Effects of Automation and The GIG Economy on Irish Administration

Workers

Through examination of the survey results, the author made a number of observations regarding the implications of automation and the GIG Economy on the work profile of administration professionals in an Irish context. Supporting the research of Autor (2015), the results indicate that automotive advancement will complement the role of the administrator. Technology is not expected to make this profession obsolete. While there may be a decrease in the overall demand for administrative workers, 97% of respondents still believe foresee a have a need for administrators over the next five years. Autor highlights how the role of the bank teller evolved due to the widespread ingratiation of ATM's, encompassing sales and relationship management. The survey responses indicate a similar case for administrative professionals, with the main impact of automation and technology being changes to expectations and changes to the way in which work is conducted.

Respondents highlight an increase in expectations for administrative professionals, with the open ended responses outlining opportunity to engage in more meaningful project work and work of a higher value. There is also a strong indication that administrators will be expected to be more efficient and yield a higher ability to multi-task. This supports the work of Nicholas and Sacco (2018) that

automation is the biggest detriment to workers when they fail to upskill appropriately and adapt to changing roles. Automation has the opportunity to further job creation and it is therefore important that administrative professionals are aware of the necessary future work skills that will ensure employability moving forward.

The research also highlight a number of advantages for administration workers resulting from automation and technology. It was strongly indicated that automation will lead to increased flexibility for workers, participants indicating that they will offer administrative employees work from home options over the next five years. Positive implications include improved work-life balance afforded from working from home initiatives are instrumental to employee wellbeing and motivation leading to increased productivity and efficiency in the workplace (Dizaho, Salleh, Abdullah, 2017). However there are challenges associated with work from home opportunities which employers should consider, including, mental health implications and anxiety resulting from prolonger isolation (Schieman, McBrier and Van Gundy, 2003).

In contrast, results regarding the implications of the GIG Economy were less conclusive. While almost half of those survey agreed that automation had led to the development of the GIG Economy, there was little evidence to suggest these workers would be utilised to harness skills lacked current staff members. While the GIG economy is often viewed a threat to traditional employment solutions, the belief that is will decrease the necessity of administrative workers going forward is unfounded (Hirschi, 2018).

Overall the author concludes that administrative workers are still an essential function within Irish businesses. While automation and technology may change administrative job specifications les going forward, these workers are still an integral part of most businesses and will continue to be so. The biggest challenge for these workers will be the development of their skillsets in line with future requirements. The impact of the GIG economy is also not an immediate threat for administrative

workers, however further research on this area to gain more insight would be beneficial due to the limited findings from responses.

5.5 Hard Vs. Soft Skills and The Importance for Administrative Professionals

The research then examined the skillsets of greatest importance to administrative professionals, as a result of automation and technology. The literature on this issue is mixed. While new technologies may require a more technical skillset, the job evolution associated with automation and technology is resulting in workers spending more time completing tasks that require utilisation of soft skills (McKinsey Global Institute, 2018). As highlighted, literature on this area in respect of administrative professionals is limited, and therefore this research seeks to explore the issue in more detail.

5.5.1 Current Staffing

Respondents were asked about the challenges they have faced in recruitment of administrative professionals over the last five years. While not all responses correlated to skills issues, the biggest concern facing these employers, with 21.43% of the overall result, was candidates lacked the appropriate soft skills for the role. Only 11.9% of respondents expressed a struggle due to the recruitment of technical or hard skills (Fig. 5).

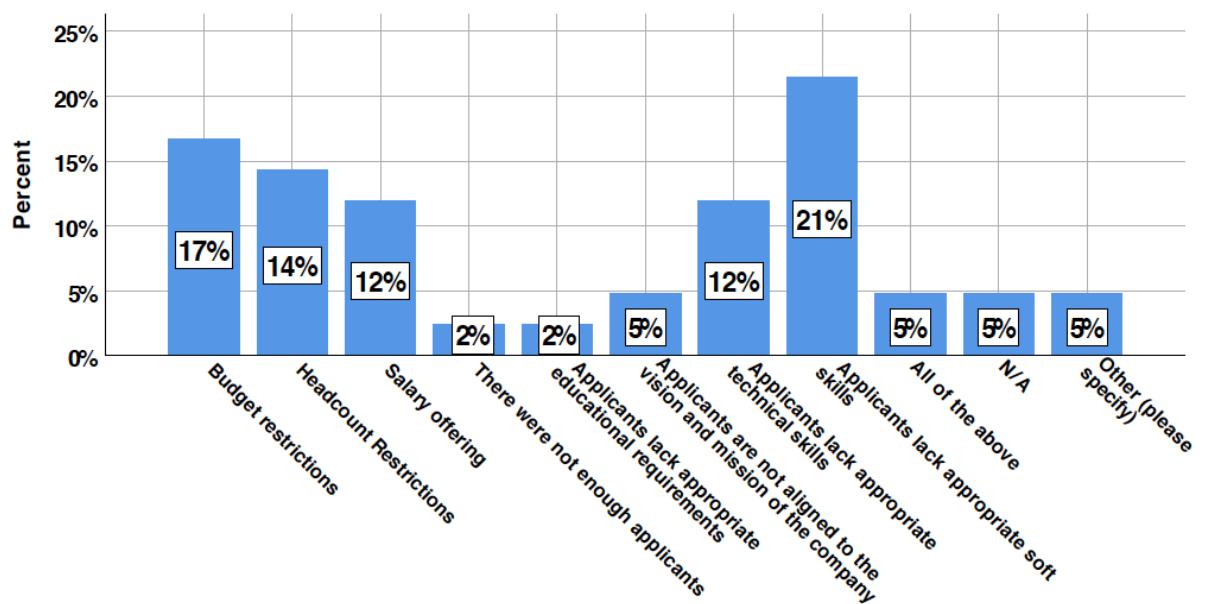


Figure 5. Challenges in Recruiting Administration Staff Over Last Five Years

When asked if they had lost any administrative staff over the last five years due to an inability to keep up with technology, the results indicated the majority of organisations had not. However when asked about future staff losses due to the same inabilities, the results were more varied. Only 54.29% of those surveyed were confident they would not lose administration staff for this reason over the next five years, with 28.57% fearful that they would (Fig. 6).

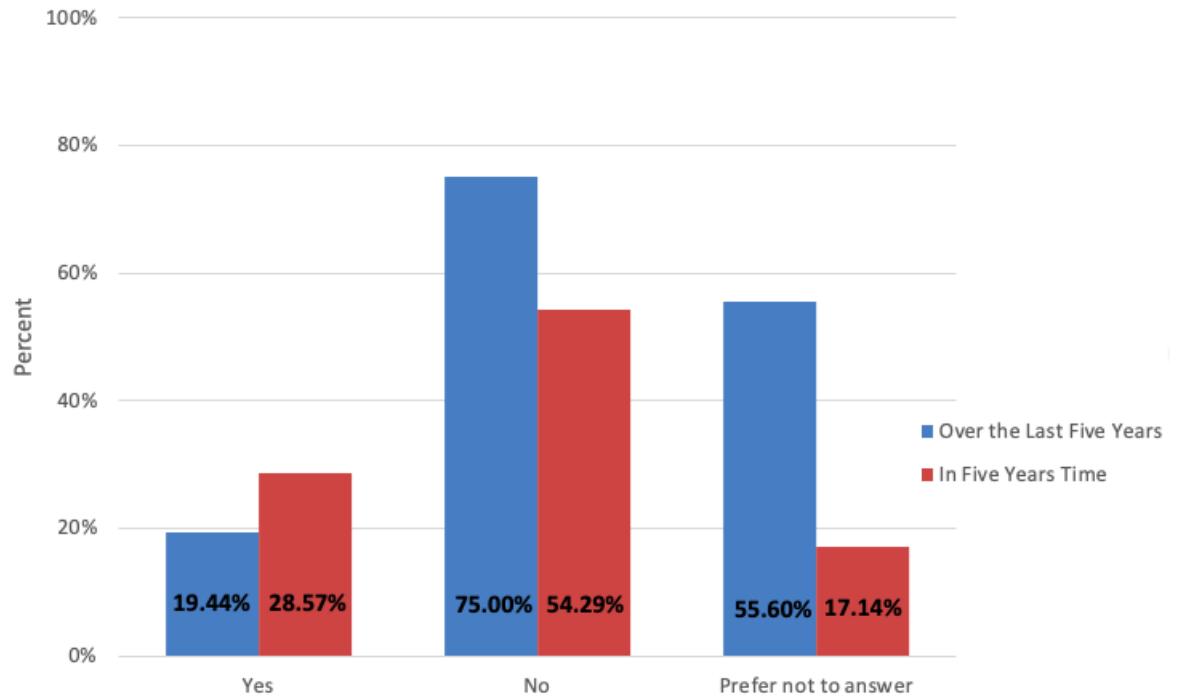


Figure 6. Loss of Administration Staff Over as a Result of Automation and Technology

5.5.2 Changing Demand for Skills

Respondents were then asked about the changing demand for skills as a result of automation and technology. Over the last five years 61.11% of participants, felt technological advancements has increased their demand for workers with strong hard skills. However when asked about the impacts over the next five years, there was only a marginal increase with 65.71% foreseeing a further increase in demand for these skills (Fig. 7).

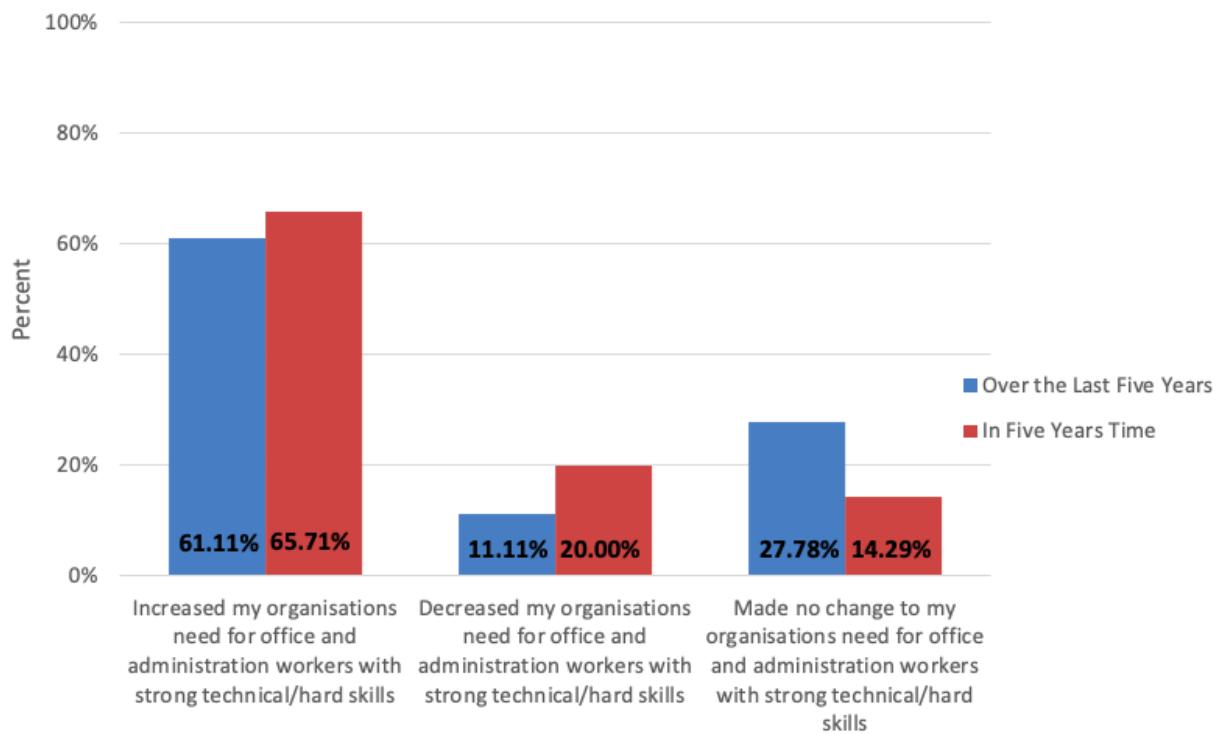


Figure 7. Automation and Technology and Demand for Technical Skills

In contrast to this, participants were asked a series of similar questions relating to need for soft skills. 52.78% of respondents agreed that they had seen an increase in the demand for workers with strong soft skills over the last five years, due to automation and technology. Furthermore, 60% believe over the next five years, that they will see an increase in demand for these workers (Fig. 8). This indicates that while hard skills are currently more in effect, the percentage increase in the importance for soft skills is more significant.

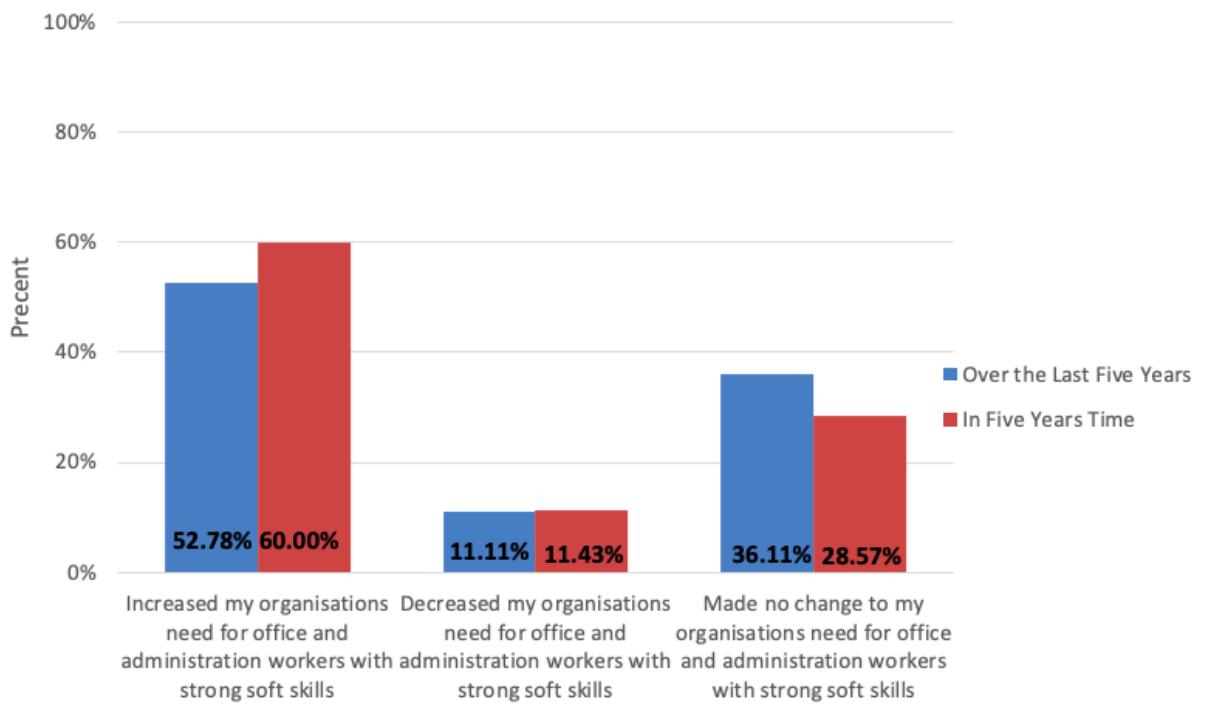


Figure 8. Automation and Technology and Demand for Soft Skills

Finally, respondents were asked what skill they feel is most pertinent when recruiting administration staff. Over 45% of participants indicated that they deemed soft skills (social and emotional skills) as the most important (Fig. 9). However, the combined importance of technical skills and cognitive abilities, often classified as hard skills, was 51.51%, highlighting that going forward, both hard and soft skills are integral for administration professionals.

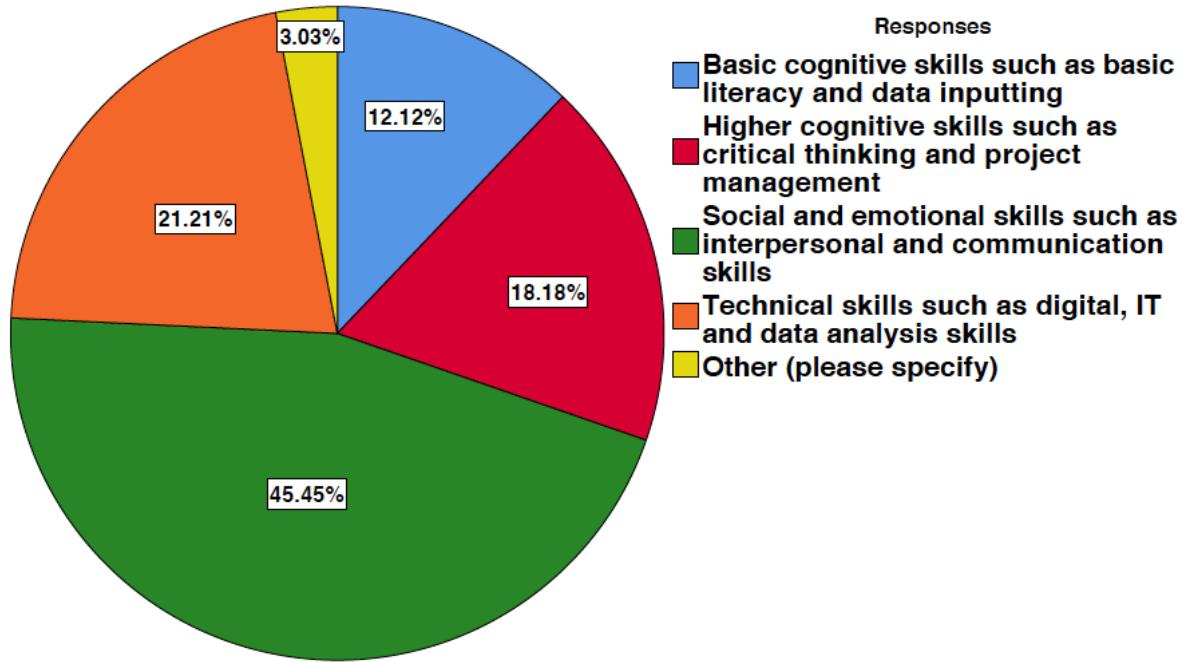


Figure 9. Skill Importance for Administration Professionals

5.5.3 Implications for Hard and Soft Skills

The importance of hard versus soft skills for administrative professionals is vital interest in the respect of L&D initiatives. Before organisations on the upskilling of workers, it is essential to ascertain what areas will be of most value. The results of this research indicate that both hard and soft skills will be of vital importance to administrators in the future.

While the recruitment of new staff member highlighted issues with soft skills as a challenging factor, this may be attributed to the role of skills such as interpersonal ability and relationship management on the overall organisational fit, as opposed to the ability to complete the role. According to Dale and Sheets (2020, p. 16), "*Culture is commonly defined as a way of life of groups of people, meaning the way they do things—their behaviors, beliefs, values, and symbols that they accept without even thinking about them, that are passed along by communication and imitation*". This may indicate that the struggle to recruit staff with the relevant soft

skills, is influenced by employers ambitions to sustain a strong organisational culture due to the impact of softer skills on culture evolution in workplaces.

When questioned about the impacts of automation and technology on specific skill requirements, participants highlighted a substantial need for both skillsets now, and going forward. Responses also indicated demand for hard and soft skills is increasing. Piercy and Steele (2016), highlight that as technology is replacing routine based work associated with hard skills, workers need to place more emphasis on the development of soft skills, particularly social and emotional skills, in order to cultivate future employability. However as administrative roles evolve due to automation and technology, and workers take on more complex and varied tasks, the demand for workers with strong technical skills lingers. Linking back to the work of Autor (2015), technology has created further job opportunity for this profession, that still retains a strong emphasis on computer based skills.

Respondents reiterated this trend when asked about the most pertinent skill requirement when recruiting administrative staff. While social and emotional skills were deemed of greater value, the combination of cognitive and technical skills had a mitigating factor on the importance of softer skills. This highlights that both skillsets will be of vital importance moving forward for office and administrative professionals.

5.6 The Skills Shortage Between Necessary Future Works Skills and the Current Skills Profile of Administration Professionals in Ireland

After examining the changing skillsets of administration professionals in an Irish context, the research then analysed if this would lead to a skills shortage going forward. Respondents were asked to explore administrative staff's ability to keep up with technological advancements over the last five years and over the next five. The study showed that 52.78% of participants agreed that their staff had kept abreast of technological advancements over the last five years. This held relatively similar, with 48.57% believing their staff would still be able to keep abreast of advancements in

the future. There was a large proportion of respondents who neither agreed or disagreed with the statement with 28.57% unsure (Fig. 10).

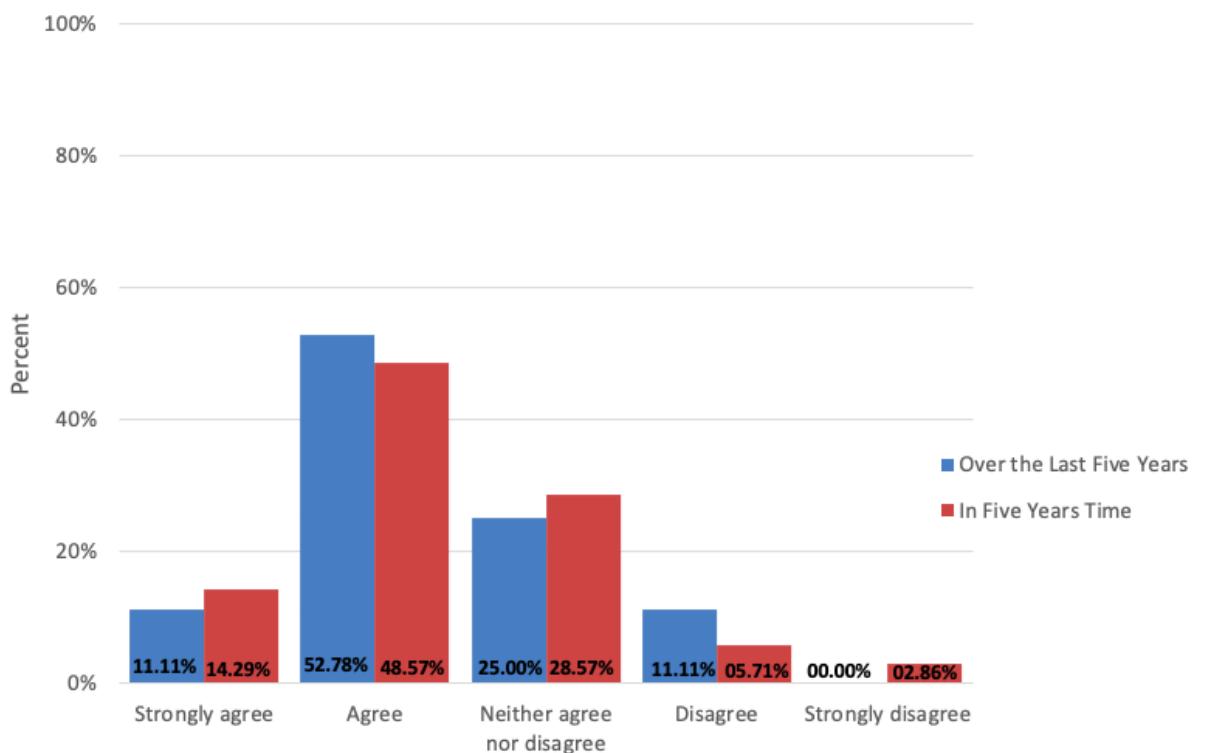


Figure 10. Administration Staff Had the Ability to Keep Abreast of Automation and Technology

Interestingly, when asked about the biggest challenges resulting from automation and technology, 30.30% indicated that hiring staff with relevant skillsets was their number one concern (Fig. 11). While current staff members may have the capabilities to keep up with the rate of change, hiring going forward may be more difficult as a result of technology.

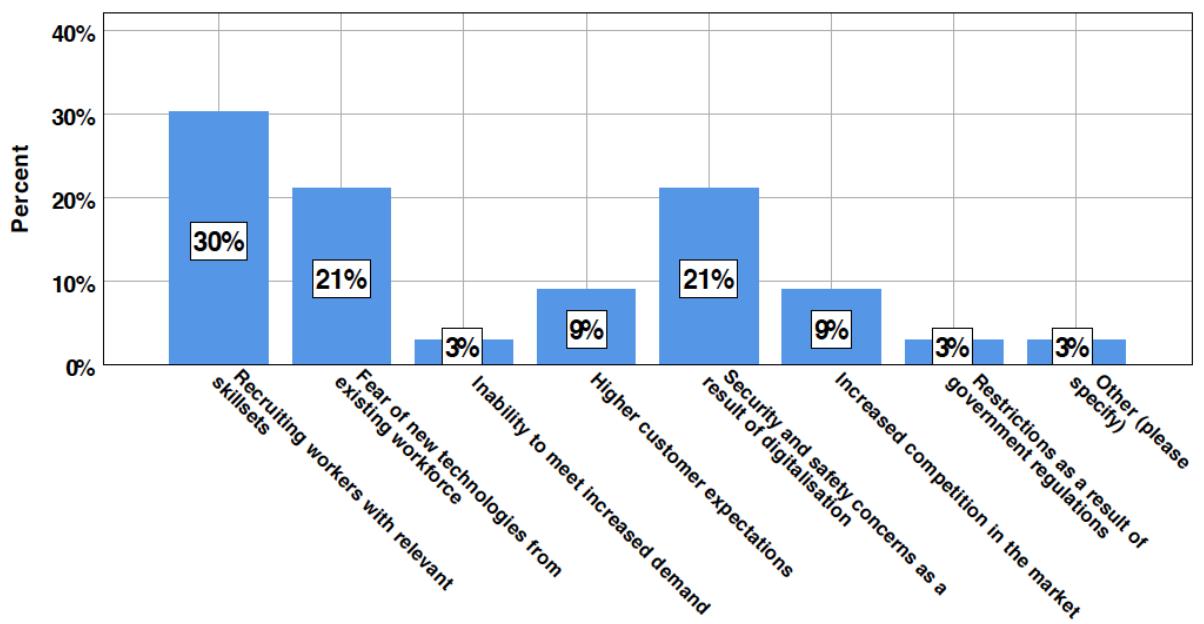


Figure 11. Business Challenges Due to Automation and Technology

5.6.1 Changing Skills Profiles/Requirements

Respondents were then asked if they skills profiles/requirements for administrative professionals would change over the next five years. 81.82% indicated that they foresee changes to administrative profiles. Participants were then presented with an open ended question, which gave the researcher opportunity to explore how they envisioned requirements would change (Table 19).

Table 19. Changes to Skill Profiles/Requirements of Administration Staff

Changes to Skill Profiles/Requirements of Administration Staff	Total Number of Responses Mentioning Factor (n=23)
Hard Skills	12
Soft Skills	4
Job Specification	6
Work Processes	1

By conducting a thematic analysis, the responses were broken down into 4 major themes; hard skills, soft skills, job specification and work processes. The majority of respondents indicated that they believe skills profile will change to reflect a greater need for hard skills going forward. One respondent highlighted staff will

need to be more adaptable to new technology as opposed to “*its the way its always been done*”. This indicates a resistance to technological change from some administrative staff which may see them left behind as organisations embrace new work processes. In the context of soft skills, one respondent highlighted that younger employees struggled with these less tangible abilities, “*Emotional intelligence - The new generation (Gen Z) shows a relevant lack of soft skills and creative thinking*”. Job specification, when analysed, saw respondents refer to the overall scope of the administrators role, with many set to take on more responsibilities and a wider function, support the idea of the changing role of the administrator (Venter, Herbst and Iwu, 2019). Finally one respondent noted they felt technology would see more flexibility afforded to administrators, with greater opportunities to avail of remote working.

5.6.2 The Skills Gap

Participants were then asked two questions regarding a gap skills pertaining to administrative workers. The survey looked to explore if there was a gap in skills for administrative professionals as a result of technological advancements (Fig. 12). 54.55% of respondents indicated that there was not a gap due to automation and technology, however when further probed as to whether there was a gap between necessary skills of administrators, and the skills possessed by these professionals within their business, 66.67% of respondents highlighted a gap (Fig. 13).

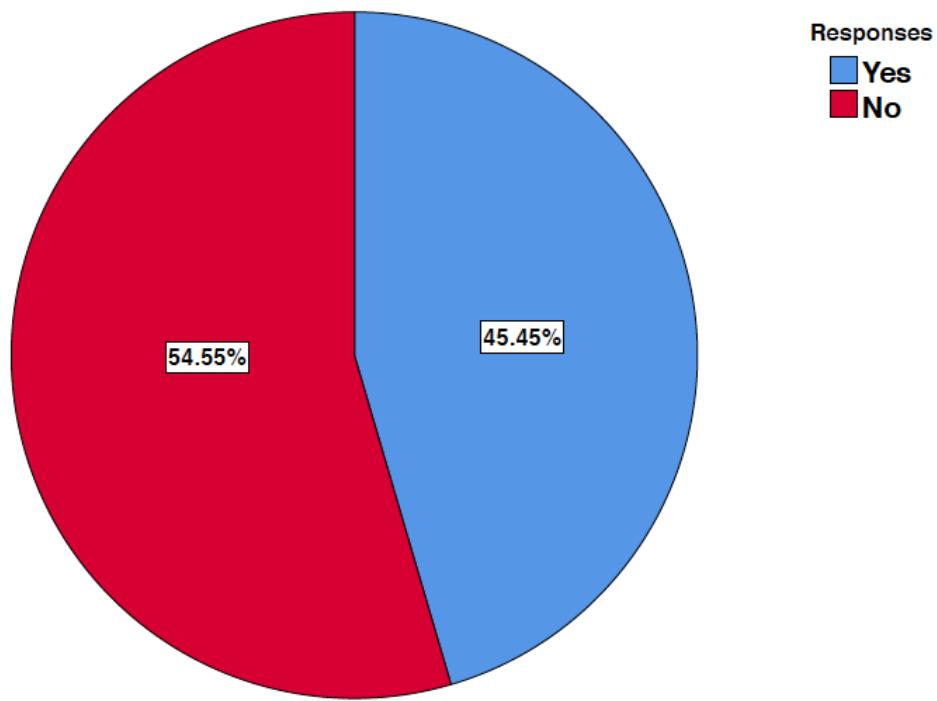


Figure 12. Is There a Gap In Skills For Administrative Professionals As a Result of Technological Advancements?

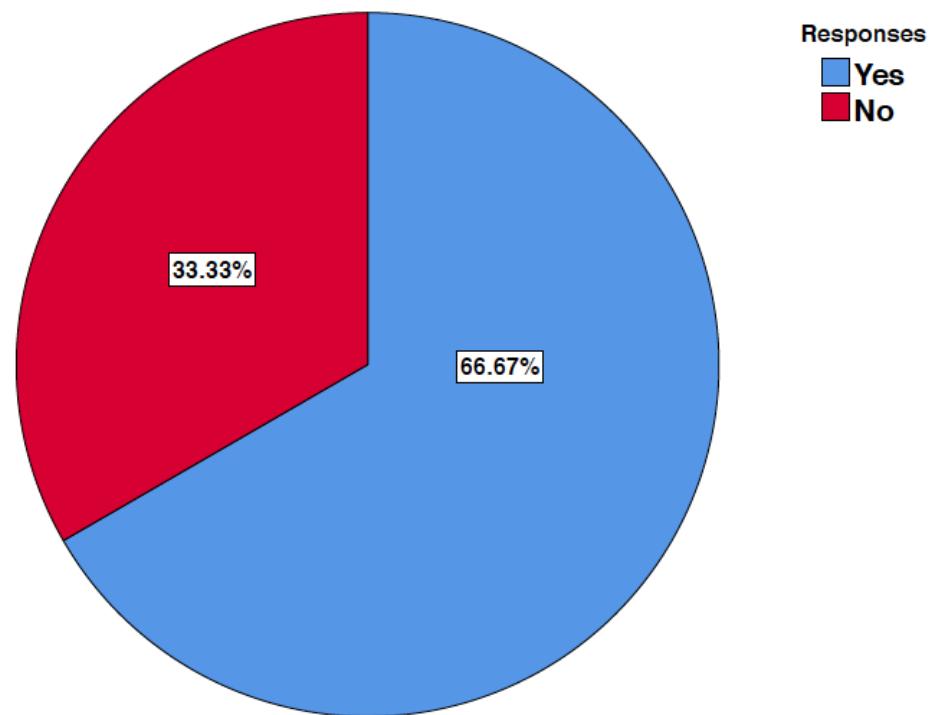


Figure 13. Is There a Skills Gap Between Necessary Work Skills For Administrators, and The Skills Possessed By These Professionals in Your Business?

This indicates that while employers recognise that there gap between necessary future work skills and current skills requirements, not all believe this is attributable to technological advancements. It is evident from the results that there is a strong indication that administrative professionals need to upskill in order to ensure relevance in workplaces of the future. The evolving role of the administrator is seeing increased demand for both hard and soft skills as highlighted previously, meaning that these professionals are under pressure in both areas to ensure future employability.

5.6.3 Implications for Administrators

While employers indicated mixed responses to the impacts of automation and technology on skills gaps within their business, the effects of technological advancements cannot be understated. Automation is not only resulting in new systems, processes and devices to master, but so too will education systems. As organisations strive to prepare workers with the relevant skillsets, it is important to note that technology is also being incorporated in L&D initiatives. The perception that technology will improve educational quality and further embed learnings is increasing, therefore, regardless of the impact of automation and technology on skills shortages for administrators, the effects on L&D initiatives cannot be understated (Cloete, 2019).

It is clear that there is a skills shortage developing amongst administration professionals. As previously highlighted in, the OECD (2020) have indicated that there is a shortage of both hard/technical and soft skills in this area. With the research indicating an increased demand in these skills in the Irish labour market, it is clear that Irish employers must tackle this issue quickly in order to avoid an outright skills gap occurring. The research will now look to explore, more specifically, what are the necessary future work skills for Irish administrative professionals.

5.7 Future Work Skills Necessary For Administration Professionals in Ireland

To ascertain the necessary future work skills for Irish administrative professionals, the researcher asked respondents a series of questions regarding hard and soft skills pertinent to these workers. Using a Likert Scale, participants were asked to rate how importance certain hard and soft skills were to them at present in the context of administrative employees. They were then asked to rate how important these skills would be over the next five years, to explore if there was an evolution in the skillset. Finally, respondents were asked to rate how their current administrative professionals abilities matched against these critical skills. This allowed the researcher to evaluate if these workers have the future work skills necessary for success.

5.7.1 Reliability

The scales used to evaluate the above were subjected to a Cronbach Alpha reliability test to ensure the accuracy of the questions. As highlighted in the methodology this was conducted on SPSS and relates to the internal reliability of the study. The individual alpha coefficients for each question relating to skills was obtained. The average Cronbach Alpha score for the questions was 0.955 (Table 20), with the lowest ranking being 0.868 and the highest ranking being 0.956. This indicates a strong reliability factor for the scales utilised and confirms the accuracy of the study. Participants who did not answer the full question set were excluded from the analysis, leaving a sample of 30-32 participants per questions.

Table 20. Cronbach Alpha on all Variables

Reliability Statistics

Cronbach's Alpha	N of Items
.955	86

The researcher assigned corresponding values to each variable in order to obtain a numerical value for skill importance. The values assigned ranged from 0-5, based on scales in the questions. The researcher then gathered the average rating of importance for each skill, breaking down the analysis into small, medium and large organisations. As outlined in the methodology, a student's t-test was then conducted to demonstrate if there was significant difference between variables. This allowed the researcher to explore the changing demand for skills and the gap between skills of administrative staff at present and what is needed in the future. The null hypothesis was that there was "no significant difference between skills of current importance and skills of future importance". To reject the null hypothesis a p value of <0.05 is required and will denote significant difference between the variables.

5.7.2 Skill Importance in Small Organisations

The researcher first examined which hard skills respondents felt were important to administrators in small organisations, against skills of perceived importance over the next five years. The same analysis was once again conducted in respect of soft skills (Table 21 and Table 22).

Table 21. Skill Important at Present Vs. Skills Importance in Five Years' Time for Hard Skills in Small Organisations

* denotes significance difference between variables, $p < 0.05$, between skills of the future against current skillset.

Hard Skills	Current Rating	Future Rating
MS Excel	4.3	4.6
MS Word	4.4	4.4
MS PowerPoint	3.0	3.5
MS Outlook	4.3	4.6
MS Access	2.3	2.4
Copy Typing	3.2	3.0
Audio Typing	2.5	2.6
CRM Software	3.7	3.9
Search Engine Optimisation	2.9	3.4
Email Marketing	3.1	3.8
Photoshop	1.9	3.0 *
Data Analytics	3.2	3.8
Programming	1.7	2.2
Technical Writing	2.0	2.0
Coding	1.8	2.6
Project Management	4.1	4.3
Basic accountancy	4.4	4.4
Accountancy & bookkeeping software	4.1	4.3

Table 22. Skill Important at Present Vs. Skills Importance in Five Years' Time for Soft Skills in Small Organisations

* denotes significance difference between variables, $p < 0.05$, between skills of the future against current skillset.

Soft Skills	Current Rating	Future Rating
Communication	4.7	4.8
Problem Solving	4.7	4.7
Teamwork	4.5	4.7
Adaptability	4.5	4.8
Interpersonal skills	4.7	4.8
Creativity	3.8	4.2
Work ethic	4.7	4.8
Time management	4.6	4.8
Emotional intelligence	4.5	4.7
Leadership	4.4	4.8
Attention to detail	4.7	4.8

The results highlight that the skillset of administrative professionals will not change in a statistically significant manner over the next five years in the context of small organisations. This may be attributed to the fact that these skills were already very in demand within these businesses due to the 'all hands on deck' approach of these organisations. Companies of a smaller size may also see less of an impact from automation and technology in the near future as they are limited by budgetary concerns. Interestingly, Photoshop was the one skills listed that denoted a significant increase in importance. This may again be linked back to the role evolution of the administrator, with these workers taking on more duties in the areas of marketing and communications (Fines, 2017).

5.7.3 Skill Importance in Medium Sized Organisations

In the context of medium organisations, the responses provided similar results. There was no notable statistical difference between important skills at present and skills of perceived importance in the future (Table 23 and Table 24). This may be indicative of the fact that employers are already aware of necessary future

work skills and their value in the workplace of today. The work skills of administrative professionals have already been impacted by automation and technology and therefore skills of current importance will continue to be so in the near future.

Table 23. Skill Important at Present Vs. Skills Importance in Five Years' Time of Hard Skills in Medium Sized Organisations

* denotes significance difference between variables, $p < 0.05$, between skills of the future against current skillset.

Hard Skills	Current Rating	Future Rating
MS Excel	4.5	4.8
MS Word	4.2	4.7
MS PowerPoint	4.2	4.2
MS Outlook	4.3	4.7
MS Access	1.8	2.0
Copy Typing	3.7	3.2
Audio Typing	2.8	2.5
CRM Software	4.2	4.5
Search Engine Optimisation	3.3	3.5
Email Marketing	3.7	4.2
Photoshop	2.7	2.2
Data Analytics	4.0	4.2
Programming	2.0	2.3
Technical Writing	1.7	2.0
Coding	1.8	1.8
Project Management	4.7	4.5
Basic accountancy	4.0	4.7
Accountancy & bookkeeping software	3.3	4.0

Table 24. Skill Important at Present Vs. Skills Importance in Five Years' Time of Soft Skills in Medium Sized Organisations

* denotes significance difference between variables, $p < 0.05$, between skills of the future against current skillset.

Soft Skills	Current Rating	Future Rating
Communication	4.8	4.7
Problem Solving	4.7	4.3
Teamwork	4.8	4.3
Adaptability	4.8	4.5
Interpersonal skills	4.8	4.3
Creativity	4.5	4.2
Work ethic	5.0	4.5
Time management	4.8	4.5
Emotional intelligence	4.7	4.3
Leadership	4.2	4.0
Attention to detail	4.8	4.7

5.7.4 Skill Importance in Large Organisations

Finally, the important work skills for administrative professionals today were compared against skills of perceived importance within the context of larger organisations. This yielded similar results, with respondents indicating no major shift in terms of skill importance over the next five years (Table 25 and 26). Interesting, the one skill that did note a significant statistical difference in terms of importance was work ethic. As highlighted by Vriens, Vosselman and Groß (2018), the growing demand for public professional accountability is placing increasing pressure on workers to perform to a higher standard. This would be particularly true of larger organisations where there is greater exposure to the public eye. Wolff and Booth (2017) outline the importance of work ethic to employers, highlighting it as an essential discipline for staff, particularly during challenging periods associated with the implementation of new technologies.

Table 25. Skill Important at Present Vs. Skills Importance in Five Years' Time for Hard Skills in Large Organisations

* denotes significance difference between variables, p < 0.05, between skills of the future against current skillset.

Hard Skills	Current Rating	Future Rating
MS Excel	4.4	4.6
MS Word	4.5	4.5
MS PowerPoint	3.7	3.8
MS Outlook	4.8	4.7
MS Access	2.4	2.5
Copy Typing	2.6	2.6
Audio Typing	2.1	2
CRM Software	3.9	3.5
Search Engine Optimisation	3.7	3.4
Email Marketing	3.5	3.6
Photoshop	2.9	3
Data Analytics	4.1	4.1
Programming	2.5	2.6
Technical Writing	2.6	2.6
Coding	2.3	2.7
Project Management	3.8	3.9
Basic accountancy	3.1	3
Accountancy & bookkeeping software	2.1	2.9

Table 26. Skill Important at Present Vs. Skills Importance in Five Years' Time for Soft Skills in Large Organisations

* denotes significance difference between variables, p < 0.05, between skills of the future against current skillset.

Soft Skills	Current Rating	Future Rating
Communication	4.9	4.9
Problem Solving	4.8	4.9
Teamwork	4.9	4.9
Adaptability	4.8	4.9
Interpersonal skills	4.9	4.9
Creativity	3.9	4.2
Work ethic	4.7	5.0*
Time management	4.7	4.8
Emotional intelligence	4.6	4.5
Leadership	3.8	4.2
Attention to detail	4.8	4.8

5.7.5 Administrative Skills Over the Next Five Years'

The results of the survey indicate that over the next five years, there will not be a significant shift in skills of perceived importance in the context of administration professionals across small, medium and large organisations. As highlighted in the Future Work Skills 2020 Report (2020) from the Institute for the Future for the University of Phoenix Research Institute, the impacts of automation are already upon us. Workplaces across the globe are seeing the effects of technology at an unprecedented rate (Lent, 2018). The displacement of routine based roles with robotics has already begun, evidenced by the implementation of Chatbots and Virtual Assistants. Technology is now impacting the way in which we conduct work, complimenting the roles it cannot replace and extending the specifications of these roles. However, employers are recognising the implications of these technological advancements and their connotations for skills. Therefore we should not anticipate major changes in the important work skills for administrators over the next five year. However, it must now be assessed how currently staff abilities compare against these important work skills.

5.7.6 Current Staff Ability Vs. Future Skill Importance in Small Organisations

The researcher analysed current staff capabilities in respect of hard and soft skills against work skills of perceived future importance (Table 27 and Table 28). To obtain if there was any significant difference between current staff abilities and skills of future importance, the researcher once again utilised a student's t-test. The null hypothesis used was that there is no significant difference between "current staff abilities and skills of future importance". Once again to reject the null hypothesis a p-value of <0.05 was required. Values were assigned to variables based on the question responses (0-5), with the mean of these variables then identified.

The analysis first looked at the significant statistical difference in the context of hard skills in small organisations. Table 27 indicates there was a notable difference between the abilities of current employers and the predicted need for staff with skills in Excel, Photoshop, data analytics, programming and technical writing. In contrast, all soft skills, with the exception of time management and work ethic, highlighted a significant difference. From this, it is clear that there a gap between the current skill abilities of administrators in small organisations and necessary future work skills.

Table 27. Current Staff Ability Vs. Future Skill Importance for Hard Skills in Small Organisations

* denotes significance difference between variables, $p < 0.05$, between skill ratings of current workers against skills of future importance.

Hard Skills	Current Rating	Future Rating
MS Excel	3.7	4.6*
MS Word	3.9	4.4
MS PowerPoint	3.3	3.5
MS Outlook	3.9	4.6
MS Access	2.0	2.4
Copy Typing	3.1	3.0
Audio Typing	2.3	2.6
CRM Software	2.9	3.9
Search Engine Optimisation	2.4	3.4
Email Marketing	2.7	3.8
Photoshop	1.7	3.0*
Data Analytics	2.4	3.8*
Programming	0.6	2.2*
Technical Writing	0.4	2.0*
Coding	2.8	2.6
Project Management	3.9	4.3
Basic accountancy	3.5	4.4
Accountancy & bookkeeping software	3.7	4.3

Table 28. Current Staff Ability Vs. Future Skill Importance for Soft Skills in Small Organisations

* denotes significance difference between variables, $p < 0.05$, between skill ratings of current workers against skills of future importance.

Soft Skills	Current Rating	Future Rating
Communication	3.7	4.8*
Problem Solving	3.7	4.7*
Teamwork	3.7	4.7*
Adaptability	3.8	4.8*
Interpersonal skills	3.7	4.8*
Creativity	3.4	4.2*
Work ethic	4.2	4.8
Time management	4.2	4.8
Emotional intelligence	3.9	4.7*
Leadership	3.6	4.8*
Attention to detail	4.0	4.8*

5.7.7 Current Staff Ability Vs. Future Skill Importance in Medium Sized Organisations

Similarly, there was strong indication of a gap between current skill ability and future work skills in the context of administrators in medium sized organisations in Ireland. In respect of hard skills, employer noted an increasing need for workers with stronger MS Office skills, with the exception of Access. Search Engine Optimisation (SEO) was also an indicated a skill in need of (Table 29). In line with their smaller counterparts, medium organisations also have a need for workers to upskill in the areas of Data Analytics, Programming and Technical Writing. There was also indication that administrators need to develop skills in the area of coding. In contrast however, in the context of soft skills, medium organisations highlighted throughout the survey that there current staff are lacking in the areas of leadership and attention to detail (Table 30). This may be a consequence of greater promotional opportunities available in medium sized companies, increasing the need for staff to set examples and take ownership of tasks in order to stand out and progress.

Table 29. Current Staff Ability Vs. Future Skill Importance for Hard Skills in Medium Sized Organisations

* denotes significance difference between variables, $p < 0.05$, between skill ratings of current workers against skills of future importance.

Hard Skills	Current Rating	Future Rating
MS Excel	3.2	4.8*
MS Word	3.8	4.7*
MS PowerPoint	3.0	4.2*
MS Outlook	3.2	4.7*
MS Access	0.8	2.0
Copy Typing	2.8	3.2
Audio Typing	2.0	2.5
CRM Software	3.8	4.5
Search Engine Optimisation	2.2	3.5*
Email Marketing	3.0	4.2
Photoshop	1.3	2.2
Data Analytics	2.7	4.2*
Programming	0.3	2.3*
Technical Writing	0.7	2.0*
Coding	2.5	3.8*
Project Management	3.3	4.5
Basic accountancy	3.0	4.7
Accountancy & bookkeeping software	3.8	4.0

Table 30. Current Staff Ability Vs. Future Skill Importance for Soft Skills in Medium Sized Organisations

* denotes significance difference between variables, $p < 0.05$, between skill ratings of current workers against skills of future importance.

Soft Skills	Current Rating	Future Rating
Communication	4.2	4.7
Problem Solving	3.5	4.3
Teamwork	3.8	4.3
Adaptability	3.8	4.5
Interpersonal skills	4.2	4.3
Creativity	3.5	4.2
Work ethic	4.7	4.5
Time management	3.8	4.5
Emotional intelligence	4.0	4.3
Leadership	2.7	4.0*
Attention to detail	3.3	4.7*

5.7.8 Current Staff Ability Vs. Future Skill Importance in Large Organisations

Finally, the research analysed the difference between current staff abilities and the necessary future work skills of administrators in large organisations. There was notable statistical difference between the majority of hard skills possessed and those required with the exception of PowerPoint, copy typing and audio typing (Table 31). As previously highlighted, typing duties impacted by technology with an increase in outsourcing in this area and development of new transcribing technologies. However all of the soft skills listed below indicated a significant gap between current staff abilities of skills of future importance (Table 32).

Table 31. Current Staff Ability Vs. Future Skill Importance for Hard Skills in Large Organisations

* denotes significance difference between variables, $p < 0.05$, between skill ratings of current workers against skills of future importance.

Hard Skills	Current Rating	Future Rating
MS Excel	3.2	4.6*
MS Word	3.6	4.5*
MS PowerPoint	3.2	3.8
MS Outlook	3.9	4.7*
MS Access	1.5	2.5*
Copy Typing	2.2	2.6
Audio Typing	1.5	2.0
CRM Software	2.4	3.5*
Search Engine Optimisation	1.9	3.4*
Email Marketing	2.3	3.6*
Photoshop	1.6	3.0*
Data Analytics	2.0	4.1*
Programming	0.6	2.6*
Technical Writing	1.3	2.6*
Coding	2.1	2.7*
Project Management	1.5	3.9*
Basic accountancy	1.6	3.0*
Accountancy & bookkeeping software	2.2	2.9*

Table 32. Current Staff Ability Vs. Future Skill Importance for Soft Skills in Large Organisations

* denotes significance difference between variables, $p < 0.05$, between skill ratings of current workers against skills of future importance.

Soft Skills	Current Rating	Future Rating
Communication	3.9	4.9*
Problem Solving	3.4	4.9*
Teamwork	3.9	4.9*
Adaptability	3.5	4.9*
Interpersonal skills	3.8	4.9*
Creativity	2.8	4.2*
Work ethic	3.9	5.0*
Time management	3.4	4.8*
Emotional intelligence	3.3	4.5*
Leadership	2.6	4.2*
Attention to detail	3.8	4.8*

5.7.9 The Need to Upskill

While the research shows that the work skills for administrative professional are not expected to drastically change over the next five years, it is clear from the analysis, that these professionals are lacking key hard and soft skills. The shortage of certain hard skills may be strongly attributed to technological advancements over the last number of years. As highlighted, employers have indicated a need for analytical and ICT skills linked to the evolving nature of these roles and the increased job responsibility (Stoepfgeshoff, 2018). There is a need for administrators to master new technologies and systems that have been implemented, and more must be done in order for them to successfully do so.

However, the research indicates that soft skill shortages are impacting Irish businesses the most. Large organisation in particular, are looking for stronger abilities across the areas of communications, leadership and creativity. Corroborating the work of Jones et al. (2016) and Sousa and Rocha (2019), the demand for soft skills is growing, which may be attributable to work reallocation as a result of technology, forcing administrators to gain competitive advantage through

leverage softer abilities to add value. Nonetheless, it is evident that upskilling is needed in the area of both hard and soft skills to ensure success for these workers going forward. While large organisations appear to be most impacted by the perceived skills shortage, it is important for all Irish businesses to ensure this problem is not exacerbated through strong L&D initiatives. This research will now look to explore L&D programmes in Irish organisations in more detail in order to ascertain the preparedness of employers for the work skills of the future.

5.8 The Impact of Changing Skill Requirements in the Context of Administration Workers in Ireland, on Educational Requirements and Learning and Development Initiatives

The research examined if changing skill requirements amongst administrative professionals in Ireland were impacting educational requirements and L&D initiatives within organisations. The purpose of this research was to ascertain if organisations are equipped to deal with changing skills profiles and if further investment in this area is needed.

5.8.1 Educational Requirements

The survey indicates that the most common educational attainment level for administrative professionals is a Bachelor's Degree (Fig. 14). However, 18.18% of respondents have expressed that the majority of their administration staff hold a Leaving Cert Qualification. The research suggests this is expected to change, with 63.64% of participants indicating that they foresee educational requirements within their business increasing over the next five years (Fig. 15).

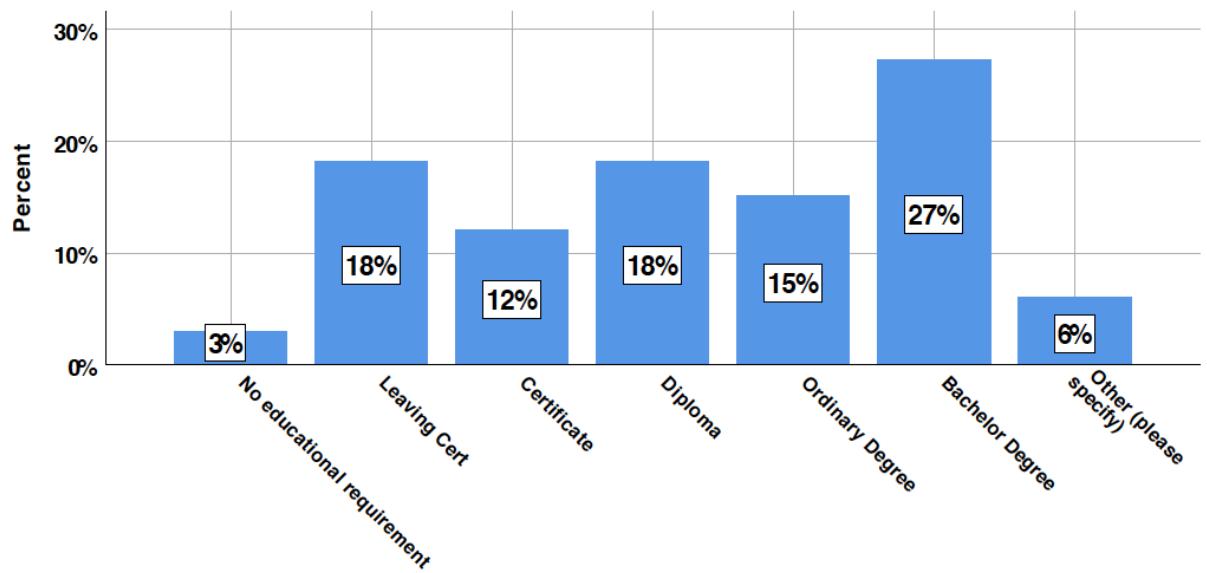


Figure 14. Most Common Educational Attainment for Administrative Staff

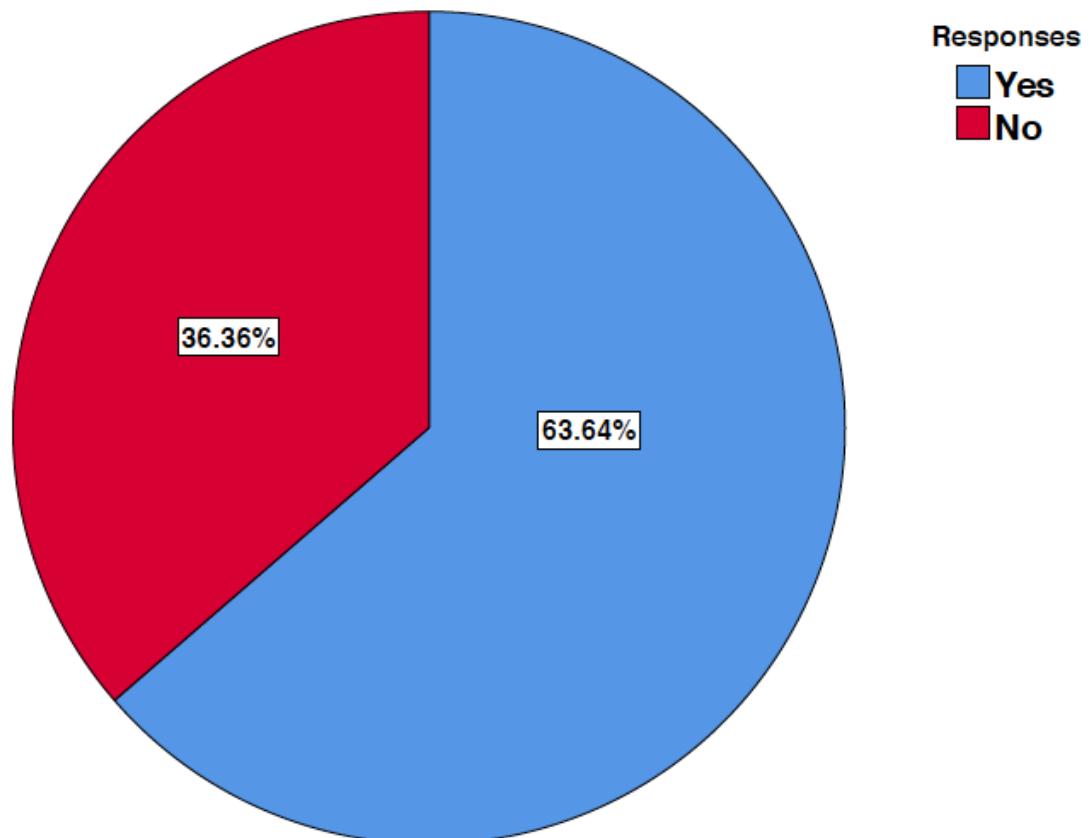


Figure 15. Will Educational Requirements for Administrative Staff Increase Over the Next Five Years?

5.8.2 Learning and Development

84.85% of participants indicated that they offer training and development opportunities to administrative staff, highlighting the increasing importance of L&D for this profession (Fig. 16), with 78.79% of respondents indicating they foresee training offerings increasing over the next five years. This indicates a willingness on the part of employers to upskill administration staff.

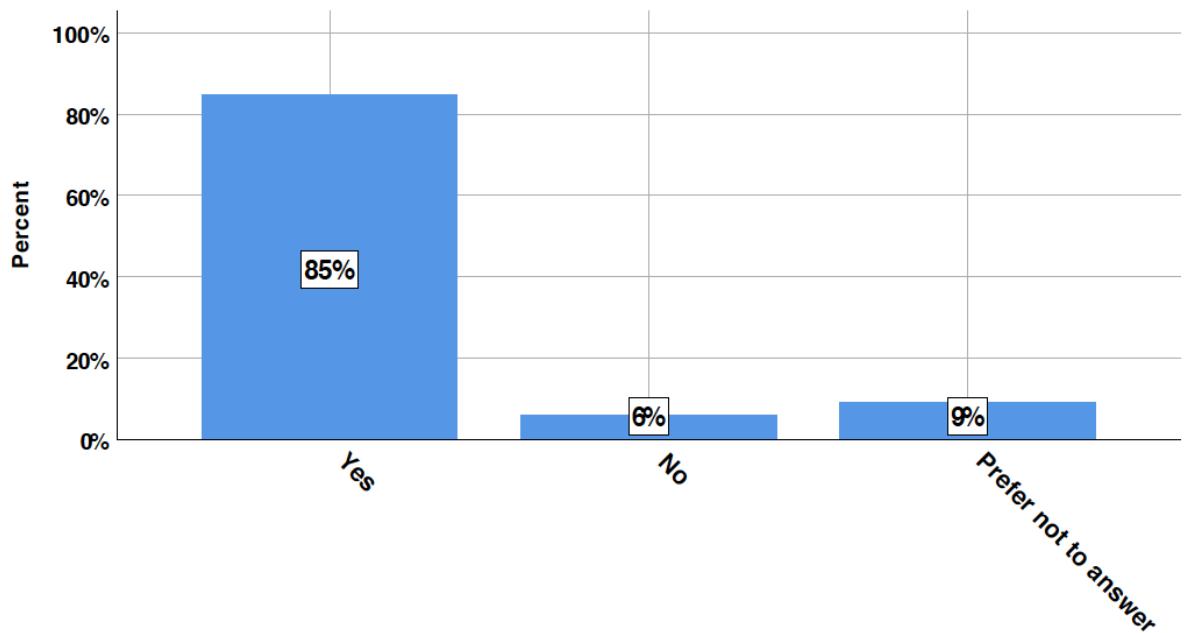


Figure 16. Training and Development for Administration Staff Members

The research then analysed how L&D initiatives were changing in order to keep up with evolving skills requirements. Table 33 highlights that the majority of organisations are focusing current training initiatives on both hard and soft skills, however, 27.27% of respondents just offer training initiatives for the development of hard skills. However, the research suggests a changing view on this matter, with employers seeing the benefit of investing in both hard and soft skills, as 66.67% of employers are looking to further develop their administrative staff in this area.

Table 33. Focus of Training and Development Initiatives for Administrative Staff

Focus of Training and Development Initiatives for Administrative Staff	Over Last Five Years	Percent (%)	In Five Years' Time	Percent (%)
The development of soft skills	3	9.09%	6	18.18%
The development of hard/technical skills	9	27.27%	4	12.12%
The development of both hard and soft skills	18	54.55%	22	66.67%
N/A	3	9.09%	1	3.03%
Other	0	0%	0	0%
Total Number of Respondents	33	100%	33	100%

However the response to skills shortages with regards to administrative staff appears to be somewhat limited. When presented with an open-ended question regarding how they proposed to combat skills issues within their businesses, six respondents indicated further investment in internal training and development, two indicated more formal training options and three indicated a blended approach that encompasses formal training and internal initiatives. Three respondents indicated that they were constrained in terms of L&D by budgetary issues.

5.8.3 Impacts for Education and Learning and Development

It is evident from the results that educational requirements are likely to increase for administration professionals. Again, this may be attributed to the evolving role of the administrator as a result of automation and technology. As specifications and expectations increase, organisations are looking for staff with the increasing technical capabilities associated with formal education (Cloete, 2019). This is despite limited evidence of this correlation, with technologies differing from organisation to organisation. A key concern regarding current investment in L&D initiatives, is the focus on the development of hard skills. A strong proportion of respondents highlight that their current offerings are limited to this area. This is despite research that suggests soft skills will play an integral role in future workplaces, and the concerns regarding a skills shortage in this area.

While employers are actively engaging in L&D initiatives there are two major observations that can be made from the results of the research. Firstly, employers must diversify their L&D offering to encompass the development of both hard and soft skills. It is not enough to focus initiatives on one area, and substantial investment must be made if employers are to combat the prospect of a skills shortage. Secondly, the concept of L&D programmes must be re-evaluated within the majority of organisations. While many employers indicate an engagement in this area, their offerings and approach are limited. L&D is not a tick the box exercise, but an integral part of an organisations strategy. As highlighted in the Protean and Boundary Career Model Frameworks, skill development should be a partnership between employees, employers (Hirschi, 2018). Employers must recognise the importance of working with staff to upskill and they long-term advantages of this strategy. However to do this effectively, L&D initiatives should be personalised, and multifaceted in order to reap the full rewards.

5.9 Conclusion

Overall, it is clear that automation and technology has had a significant impact on administrative workers in an Irish context. While there has been a decrease in demand, they undoubtedly still have a valuable role to play in the workplaces of the future. However, evolving job specifications and technological advancements have indicated a skills shortage may impact administrators going forward. With a growing demand for strong hard and soft skills, there is a significant difference between the abilities of Irish administration workers at present, and the necessary work skills over the next five years. Irish employers need to re-evaluate their internal L&D programmes and approaches, in order to ensure the development of both hard and soft skills in these workers, and prevent employment issues going forward. This will only be effectively achieved through personalised and strategic initiatives that partner with these professionals in order to help them achieve their full potential.

Chapter 7. Conclusion and Recommendations

7.1 Conclusion

The objective of this research was to explore the impact of 4IR on administrative professionals in an Irish Context. It examined the effects of automation and technology on job displacement, role revolution, future work skills, and L&D. Through review of the literature and analysis of the survey responses, the researcher investigated if administrative professionals have a role in the workplace of the future and if, so how must their skills evolve and develop to support this. Finally the author examined how L&D practices in Ireland are positioned in order to support administrators upskilling and if they are robust enough to do so.

Through utilisation of a mixed methodology of qualitative and quantitative analysis, the researcher concluded that automation and technology is having a clear impact on administration workers in Irish businesses. Despite initial concerns regarding job displacement in this sector administrative professionals will still be an integral function in Irish organisations in the future. The research showed the main implications for these workers concerned job specification and working conditions. Moving forward, administrators will be a more versatile and agile member of the workforce, with increase role responsibility. As automation and technology have removed the more repetitive elements of these positions, administrators have more time to partake in other projects and apply themselves to more complex and strategically important tasks. Administrators will also reap benefits as a result of automation and technology with streamlined work processes, work from home opportunities and flexible working conditions.

The results also highlight that despite the automation of routine based tasks in this profession, employers are still placing strong emphasis on hard and soft skills for administrators (Venter, Herbst and Iwu, 2019). The introduction of new technologies and systems requires administrators with competent technical abilities and this is not set to change. Furthermore, in line with increasing expectations for

administrative staff, the demand for soft skills is also set to grow. Employers need staff with strong social and emotional intelligence in order to effectively manage stakeholder relationships and problem solve (Jones et al., 2016). This indicates the need for administrators to possess a varied skillset, encompassing both hard and soft skills.

An investigation into skills shortages amongst administrative staff in Irish businesses highlighted concern amongst employers that there is a gap in terms of future skill requirements and the current skill level of administrative staff in their business. It is clear that the growth in demand for hard and soft skills compared with the skill levels of current staff is a large concern for Irish employers. When asked to explore the skills of the future in more detail, it became evident that demand for future work skills is already here. The majority of employers are aware of what they need from administrative staff and there will not be any major surprises in this respect. However, the gap between current skills ability and future requirements is substantial, meaning Irish businesses need to explore their L&D practices in order to avoid problems arising in the future.

Finally, the research explored employer perspectives on L&D. While a large proportion of respondents purport to engage in L&D activities, the focus of these initiatives needs to be broadened. With almost one third of participants indicating their internal programmes focus solely on the development of hard skills, this raises concerns regarding the implications of a soft skill shortage. The research also indicated employers were looking to increase their training. However while employers appear aware of the need to increase L&D in their businesses, it is clear that the approach of organisations to training needs to improve. A broader and more innovative mindset, that complements the technological advancements being implemented across businesses, should be considered, in order to effectively manage the skills issues facing these employers.

7.2 Limitations

One of the most important considerations of this research is the limitations of the sample size of 42 respondents. If this research was to be replicated, the author advises a larger sample size to obtain a more complete analysis and homogenous mix of respondents. It would also be valuable to gain more insight into L&D initiatives employed across Irish businesses, through semi-structure interviews, however this would be a large undertaking and was not suitable under the time constraints of this research.

7.3 Future Research

The results highlighted that the growth of The GIG Economy is not having a large impact on administrative professionals in an Irish context. However almost 60% of employers indicated that they had engaged a GIG worker over the last 12 months, with 47.22% agreeing that they believed automation and technology had led to the development of the GIG Economy. The researcher believes further investigation of this topic would be valuable in order to determine the benefit of GIG workers to employers. 16.67% of respondents also highlighted that developments in automation and technology has led to an increase in administration work in their business. Further examination of this trend in order to explore how work volume has increased would also be desirable.

7.4 Recommendations and Implications

It is evident that automation and technology will have a large impact of the job specifications and future work skills of administrative professionals in Ireland. As a results of the findings of this research, the below are an outline of recommendations for businesses and workers going forward:

1. Irish businesses should conduct a skills assessment for administrative staff members over the next 3-6 months, in order to ascertain capability and skill levels of current employees against future work skills.

2. L&D initiatives should be reviewed and emphasis placed on the development of a work place learning culture. As highlighted traditional career models are no longer sufficient frameworks and organisations need to rethink their approach to learning and consider this a partnership approach with employees (Hirschi, 2018). L&D initiatives should be complimented by appropriate learning technologies and offer a personalised and versatile approach. When developing L&D programmes, CIPD (2020), highlights that employers should give due considerations to cost in term of the training provider, delivery costs, technology and learner time. While investment in L&D is a substantial expense, this is more cost effective than investing in external hires. The average cost of L&D to an organisation is approximately 2.91% of payroll expenses (Irish Institute of Training and Development, 2017).
3. Organisations must educate managers on the importance of L&D for staff in order to garner their commitment in establishing a learning culture. This is a continuous project for organisations to undertake and L&D activities should be re-evaluated on frequently.

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Appendices

Appendix 1. Personal Learning Statement

Upon reflection, there are a number of key learnings which I will take forward from this research. This study initially seemed an insurmountable task, however I thoroughly enjoyed the research, due to my passion and interest in the topic. In hindsight, the most challenging section was the findings and analysis piece. The question styles and scales utilised meant that some of the statistical analysis was limited, and were I to undertake this research again, I would like to include more emphasis on the inferential and descriptive analysis of certain topics to add more breadth to the study. There were areas that I felt were not explored to their full potential and upon reflection I would make better use of the resources available to me.

This study aimed to explore the future work skills of administration workers in an Irish context. This is a topic very close to my heart, and I thoroughly enjoyed interpreting the results of the survey and analysing patterns and trends. Despite my initial concerns, I found SPSS to be user friendly. However I do wish, I had accessed a larger sample size to increase the significance of the research results. This research also gave me insight into my approach to time management. While waiting for survey results to come through, I could have better utilised my time, working on other pieces of research.

Overall this has been a thoroughly enjoyable piece of research. Despite the struggles of balancing work and college, I hope that value can be found in the work, supporting administrators to take ownership of their career development, and supporting organisations in their talent management strategies. More than anything, this research has taught me about the importance of self-motivation and lifelong learning, and I have no doubt these lessons will enhance my own future career development.

Appendix 2. Survey Email

Good Afternoon,

In Osborne we place a huge emphasis on our team's professional development. Presently we have a number of our colleagues working towards achieving their Masters through our Love to Learn programme. My name is Maisie Doyle, Team Lead with our Commercial and Office Team in Fitzwilliam Square and I am currently working towards my Masters in Human Resource Management through the National College of Ireland.

As part of the Master's programme, students undertake primary research to develop critical and independent thinking skills and specialist knowledge in an area they are passionate about. Having recruiting within the Office and Administration sector for a number of years, I have chosen to research '**The Impact of the Fourth Industrial Revolution on the Future Work Skills of Office & Administration**' for my Thesis, to investigate the impact of automation and other disruptive technologies such as the Internet of Things and robotics on the way in which we do work.

In order to undertake this research, I have developed a short survey to ascertain your thoughts, opinions and experiences regarding this subject. Please find below the link to the survey which will remain open for the next two weeks.

<https://www.surveymonkey.com/r/MVH3XF2>

I really appreciate you taking the time out from your already busy schedules to assist me in this process. If you have any questions, please do not hesitate to contact me.

Kind Regards,

MAISIE DOYLE

Appendix 3. Survey Introduction

Impact of the Fourth Industrial Revolution on the Future Work Skills of Office and Administration Professionals

1. Introduction

Participant Information

Project Title: The impact of the fourth industrial revolution on the future work skills of office and administration professionals in an Irish context.

I would like to invite you to take part in a research study. Before you decide you need to understand why the research is being conducted and what it would involve for you. Please take time to read the following information carefully. Feel free to ask questions if anything you read is not clear or if you would like more information. Take time to decide whether or not to take part.

Who I am and what this study is about?

My name is Maisie Doyle and I am currently working towards a Master's in Human Resource Management through the National College of Ireland. As part of the Master's programme, students undertake primary research to develop critical and independent thinking skills and specialist knowledge in an area they are passionate about.

This research study proposes to look at the impact of fourth industrial revolution on the future work skills of office and administration professionals in an Irish context.

According to Schwab (2016), the Fourth Industrial Revolution is the impact of automation and other disruptive technologies such as the Internet of Things and robotics on the way in which we do work.

Through the use of a questionnaire and by examining key drivers of change as result of this revolution, this research intends to explore the impact of automation and the emergence of the contingent workforce on the job profiles of these professionals and their future skill requirements.

The significance of this research is to gain insight into the evolution of office and administration professionals within the workplace and the implications of these changes on learning and development initiatives. The outcomes of this research will then look to shape current training and development practices for office and administration professionals in an Irish context.

The questionnaire should be completed based on your current or most recent employment experience.

What will taking part involve?

There are approximately 65 questions in the survey and it should take around 15 minutes to complete. You have been invited to participate in this questionnaire due to your experience hiring, managing or training office and administration professionals in Ireland.

Please note that any participation in this research study is completely voluntary. You can choose not to participate in this questionnaire at any point throughout without penalisation. All data collected is done so confidentially and anonymously and is stored in password protected, electronic format. However it is important to note that once survey responses are submitted it is impossible to omit any aforementioned responses due to the anonymous nature of submissions.

Your time and involvement in this research study is greatly appreciated.

Should you have any further questions regarding the study or to gain further clarification on any of the points listed above please contact me directly at maisie.doyle@osborne.ie or my supervisor Michelle Ahern at michelle.ahern@ncirl.ie.

Appendix 4. Survey Consent Form

Impact of the Fourth Industrial Revolution on the Future Work Skills of Office and Administration Professionals

2. Consent Form

By clicking yes, I understand that I am voluntarily agreeing to participate in this research study.

I understand that even if I agree to participate now, I can withdraw at any time throughout the questionnaire and can refuse to answer any question without any consequences of any kind.

I understand that once I submit my survey response I can not withdraw permission to use data from my questionnaire due to the confidential nature of the survey.

I understand that participation involves completing a questionnaire of approximately 60 questions which should take 15 minutes to complete.

I understand that I will not benefit directly from participating in this research.

I understand that all information I provide for this study will be treated confidentially.

I understand that in any report on the results of this research my identity will remain anonymous.

I understand that I am free to contact any of the people involved in the research to seek further clarification and information.

OK

* 1. I hereby consent to participate in this research survey of my own volition:

Yes

No

PREVIOUS

NEXT

Appendix 5. Survey Questions

Impact of the Fourth Industrial Revolution on the Future Work Skills of Office and Administration Professionals

3. Introduction and Hiring

This section of the questionnaire looks at current office and administration staffing trends.

Please note the following:

- GIG Economy workers refer to temporary, freelance, independent contract workers or online platform workers, engaged by organisations in an informal manner.
- Hard or Technical skills are easily defined skills that are part of a job description. Often acquired through formal education or training they may include computer, analytical or project management skills.
- Soft skills are more intangible skills that are harder to measure. They may include personality traits or attitudes such as people or social skills.

OK

2. Which of the following best describes your current job level?

- Owner/Executive/C-Level
- Senior Management
- Middle Management
- Intermediate
- Entry Level
- Other (please specify)

3. Which of the following best describes the principal industry of your organization?

4. How many staff members are employed by your organisation?

- 1-15
- 16-50
- 51+

5. How many office and administration professionals are employed by your organisation?

- 3 or less
- 26-50
- 4-10
- 51+
- 11-25

6. Have you recruited office and administration staff within the last 12 months?

- Yes
- No

7. If yes, how did you employ these staff members?

- Directly
- Through a recruitment agency
- Employee referral
- N/A
- Other (please specify)


8. Have you engaged any GIG workers within the last 12 months in an office and administration context? e.g. Freelance worker, temp worker or contractor.

Yes

No

9. What would you consider your greatest challenge when recruiting office and administration staff members over the last five years?

Budget restrictions

Applicants lack appropriate technical skills

Headcount restrictions

Applicants lack appropriate soft skills

Salary offering

Applicants did not like working conditions we can currently offer

There were not enough applicants

All of the above

Applicants lack appropriate educational requirements

N/A

Applicants are not aligned to the vision and mission of the company

Other (please specify)

10. Do you feel staffing requirements for office and administration professionals within your business are:

Increasing

Decreasing

There is no change to staffing requirements

Impact of the Fourth Industrial Revolution on the Future Work Skills of Office and Administration Professionals

4. Office and administration professionals over the last five years

This section of the questionnaire looks at the challenges, impacts and opportunities of automation and technology on office and administration professionals over the last five years.

Please note the following:

- GIG Economy workers refer to temporary, freelance, independent contract workers or online platform workers, engaged by organisations in an informal manner.
- Hard or Technical skills are easily defined skills that are part of a job description. Often acquired through formal education or training they may include computer, analytical or project management skills.
- Soft skills are more intangible skills that are harder to measure. They may include personality traits or attitudes such as people or social skills.

11. What do you feel has had the biggest impact on your business over the last five years?

- | | |
|---|---|
| <input type="radio"/> Automation and technology | <input type="radio"/> Globalisation |
| <input type="radio"/> Economy | <input type="radio"/> Political landscape |
| <input type="radio"/> Legislation | <input type="radio"/> GIG Economy |
| <input type="radio"/> Other (please specify) | |

12. Automation and technology have had a large impact on my organisations operations over the last five years:

- | | |
|--|---|
| <input type="radio"/> Strongly agree | <input type="radio"/> Disagree |
| <input type="radio"/> Agree | <input type="radio"/> Strongly disagree |
| <input type="radio"/> Neither agree nor disagree | |

13. Automation and technology has led to the development of the GIG Economy over the last 5 years:

- | | |
|--|---|
| <input type="radio"/> Strongly agree | <input type="radio"/> Disagree |
| <input type="radio"/> Agree | <input type="radio"/> Strongly disagree |
| <input type="radio"/> Neither agree nor disagree | |

14. Over the last five years, automation and technology has:

- | |
|---|
| <input type="radio"/> Improved internal communication within my organisation |
| <input type="radio"/> Diminished internal communication within my organisation |
| <input type="radio"/> Made no impact to internal communication with my organisation |

15. Over the last five years, automation and technology has:

- | |
|---|
| <input type="radio"/> Increased the volume of office and administration work within my organisation |
| <input type="radio"/> Decreased the volume of office and administration work within my organisation |
| <input type="radio"/> Made no change to the volume of work |

16. Over the last five years, automation and technology has:

- Increased my organisations demand for office and administration workers
- Decreased my organisations demand for office and administration workers
- Led to the redeployment of office and administration workers
- Made no change to office and administration workers within my organisation

17. Have you lost any office and administration employees over the last five years due to an inability to keep up with developments in automation and technology?

- Yes
- No
- Prefer not to answer

18. Over the last five years, automation and technology has:

- Increased my organisations need for office and administration workers with strong technical/hard skills
- Decreased my organisations need for office and administration workers with strong technical/hard skills
- Made no change to my organisations need for office and administration workers with strong technical/hard skills

19. Over the last five years, automation and technology has:

- Increased my organisations need for office and administration workers with strong soft skills
 - Decreased my organisations need for office and administration workers with strong soft skills
 - Made no change to my organisations need for office and administration workers with strong soft skills

20. Over the last five years, office and administration staff members within my organisation have kept abreast of automation and technological advancements that have impacted my organisation?

- Strongly agree Disagree
 Agree Strongly disagree
 Neither agree nor disagree

21. Over the last five years, my organisation has employed GIG workers to harness technical skills my own office and administration employees lack?

- Strongly agree Disagree

Agree Strongly disagree

Neither agree nor disagree

22. Over the last five years, my organisations expectations of office and administration staff members has increased:

- Yes

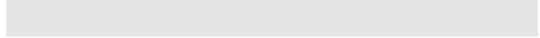
23. If yes, please how have expectations increased?

- Office and administration staff members are expected to have stronger technical capabilities
 - Office and administration staff members are expected to have more diverse role profiles
 - Office and administration staff members are expected to have stronger soft skills
 - N/A
 - Office and administration staff members are expected to be more adaptable
 - Other (please specify)

24. Over the last five years automation and technology has impacted the way in which my organisations office and administration professionals conduct work?

- Yes

25. If yes, how has the way in which work is conducted changed?

- Office and administration professionals have remote working options
- Office and administration professionals can avail of flexible and shared workspaces
- Office and administration professionals can avail or flexible working hours
- N/A
- Other (please specify)


26. What do you feel has been the biggest impact of automation and technology on office and administration professionals over the last five years?



Impact of the Fourth Industrial Revolution on the Future Work Skills of Office and Administration Professionals

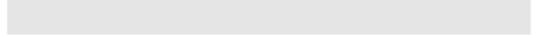
5. Office and administrational professionals over the next five years

This section of the questionnaire looks at the potential challenges, impacts and opportunities of automation and technology on office and administration professionals over the next five years.

Please note the following:

- GIG Economy workers refer to temporary, freelance, independent contract workers or online platform workers, engaged by organisations in an informal manner.
- Hard or Technical skills are easily defined skills that are part of a job description. Often acquired through formal education or training they may include computer, analytical or project management skills.
- Soft skills are more intangible skills that are harder to measure. They may include personality traits or attitudes such as people or social skills.

27. Over the next **five years**, what do you believe will have the biggest impact on your organisation?

- Automation and technology
- Globalisation
- Economy
- Political landscape
- Legislation
- GIG Economy
- Other (please specify)


28. Over the next **five years**, I believe automation and technology will have a large impact on my organisations operations:

- Strongly agree
- Disagree
- Agree
- Strongly disagree
- Neither agree nor disagree

29. Over the next **five years**, I believe automation and technology will lead to the further development of the GIG Economy:

- Strongly agree
- Disagree
- Agree
- Strongly disagree
- Neither agree nor disagree

30. Over the next **five years**, I believe automation and technology will:

- Improve internal communication within my organisation
- Diminish internal communication within my organisation
- Make no impact to internal communication with my organisation

31. Over the next **five years**, I believe automation and technology will:

- Increase my organisations demand for office and administration workers
- Decrease my organisations demand for office and administration workers
- Lead to the redeployment of office and administration workers
- Make no change to office and administration workers

32. Over the next **five years**, I believe automation and technology will:

- Increase the volume of office and administration work within my organisation
- Decreased the volume of office and administration work within my organisation
- Make no change to the volume of work

33. Over the next **five years**, I believe my organisation will lose office and administration employees due to an inability to keep up with automation and technology?

- Yes
- No
- Prefer not to answer

34. Over the next **five years**, I believe automation and technology will:

- Increase my organisations need for office and administration workers with strong technical/hard skills
- Decrease my organisations need for office and administration workers with strong technical/hard skills
- Make no change to my organisations need for office and administration workers with strong technical/hard skills

35. Over the next **five years**, I believe automation and technology will:

- Increase my organisations need for office and administration workers with strong soft skills
- Decrease my organisations need for office and administration workers with strong soft skills
- Make no change to my organisations need for office and administration workers with strong soft skills

36. I believe my current office and administration staff members have the ability to keep abreast of automation and technological advancements that will impact my organisation over the next **five years**?

- | | |
|--|---|
| <input type="radio"/> Strongly agree | <input type="radio"/> Disagree |
| <input type="radio"/> Agree | <input type="radio"/> Strongly disagree |
| <input type="radio"/> Neither agree nor disagree | |

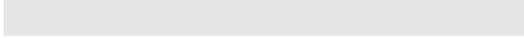
37. Over the next **five years**, I believe my organisation will employ GIG workers to harness technical skills my own office and administration employees lack?

- | | |
|--|---|
| <input type="radio"/> Strongly agree | <input type="radio"/> Disagree |
| <input type="radio"/> Agree | <input type="radio"/> Strongly disagree |
| <input type="radio"/> Neither agree nor disagree | |

38. Over the next **five years**, I believe my organisations expectations of office and administration staff members will increase:

- Yes
- No

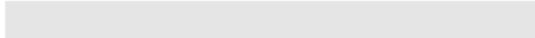
39. If yes, how do you foresee expectations increasing?

- Office and administration staff members will be expected to have stronger technical capabilities Office and administration staff members will have diverse role profiles
- Office and administration staff members will be expected N/A to have stronger soft skills
- Office and administration staff members will be expected to be more adaptable
- Other (please specify)


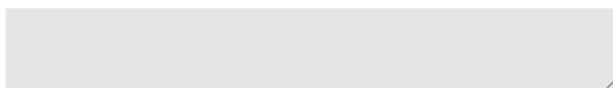
40. Over the next **five years**, I believe automation and technology will impact the way in which my organisations office and administration professionals conduct work?

- Yes
- No

41. If yes, how will the way in which work is conducted change?

- Office and administration professionals will have remote working options
- Office and administration professionals will be able to avail of flexible and shared workspaces
- Office and administration professionals will be able to avail of flexible working hours
- N/A
- Other (please specify)


42. Over the next **five years**, what do you feel will be the biggest impact of automation and technology on office and administration professionals?



Impact of the Fourth Industrial Revolution on the Future Work Skills of Office and Administration Professionals

6. Skill requirements and skills gaps

This section looks at the current and future skill requirements of office and administration.

43. What do you feel is the biggest challenge associated with automation and technology for your business?

- Recruiting workers with relevant skillsets
- Security and safety concerns as a result of digitalisation
- Fear of new technologies from existing workforce
- Increased competition in the market
- Inability to meet increased demand
- Restrictions as a result of government regulations
- Higher customer expectations
- Other (please specify)


44. What do you feel is the biggest advantage of leveraging automation and technology for your business?

- Cost reduction
- Increased collaboration
- Reduction of human error
- More efficient task management
- Higher quality customer service
- Increased productivity
- Other (please specify)


45. When recruiting for office and administration professionals, what do you feel is the most important skill?

- Physical/manual skills
- Social and emotional skills such as interpersonal and communication skills
- Basic cognitive skills such as basic literacy and data inputting
- Technical skills such as digital, IT and data analysis skills
- Higher cognitive skills such as critical thinking and project management
- Other (please specify)

46. Over the next **five years**, do you feel your business will have a need for office and administration workers?

- Yes
- No

47. Over the next **five years**, do you feel the current skills profile/requirements of office and administration professionals is going to change?

- Yes
- No

48. If yes, how?

49. Do you feel there is a skills gap in your business as a results of recent technological advancements?

- Yes
- No

50. On a scale of 1 to 5, with 1 being not at all important and five being very important, how would you rate the following hard/technical skills in terms of importance to your business in an office and administration context?

	1 - Not at all important	2 - Slightly important	3 - Important	4 - Fairly important	5 - Very important
MS Excel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MS Word	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MS PowerPoint	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MS Outlook	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MS Access	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Copy typing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Audio typing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRM software experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Search engine optimisation (SEO)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Email marketing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Photoshop	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Data analytics	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical writing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Project management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Basic accountancy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accountancy and bookkeeping software	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

51. On a scale of 1 to 5, with 1 being not at all important and five being very important, how would you rate the following soft skills in terms of importance to your business in an office and administration context?

	1 - Not at all important	2 - Slightly important	3 - Important	4 - Fairly important	5 - Very important
Communication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Problem Solving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teamwork	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adaptability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interpersonal skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creativity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work ethic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Emotional intelligence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leadership	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attention to detail	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

52. With one being a fundamental awareness and 5 being expert knowledge, how would you rate your current office and administration staff members abilities in terms of the following hard/technical skills?

	0 - N/A	1 - Fundamental Awareness	2 - Novice	3 - Intermediate	4 - Advanced	5 - Expert
MS Excel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MS Word	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MS Powerpoint	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MS Outlook	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MS Access	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Copy typing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Audio typing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRM software experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Search engine optimisation (SEO)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Email marketing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Photoshop	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Data analysis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical writing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Project management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Basic accountancy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accountancy and bookkeeping software	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

53. With one being a fundamental awareness and 5 being expert knowledge, how would you rate your current office and administration staff members abilities in terms of the following soft skills?

	0 - N/A	1 - Fundamental awareness	2 - Novice	3 - Intermediate	4 - Advanced	5 - Expert
Communication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Problem solving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teamwork	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adaptability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interpersonal skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creativity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work ethic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Emotional intelligence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leadership	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attention to detail	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

54. Over the next **five years**, on a scale of 1 to 5, with 1 being not at all important and five being very important, how would you rate the following hard/technical skills in terms of importance to your business in an office and administration context?

	1 - Not at all important	2 - Slightly important	3 - Important	4 - Fairly important	5 - Very important
MS Excel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MS Word	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MS PowerPoint	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MS Outlook	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MS Access	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Copy typing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Audio typing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CRM software experience	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Search engine optimisation (SEO)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Email marketing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Photoshop	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Data Analysis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technical Writing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Project Management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Basic accountancy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Accountancy and bookkeeping software	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

55. Over the next **five years**, on a scale of 1 to 5, with 1 being not at all important and five being very important, how would you rate the following soft skills in terms of importance to your business in an office and administration context?

	1 - Not at all important	2 - Slightly important	3 - Important	4 - Fairly important	5 - Very important
Communication	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Problem Solving	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teamwork	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adaptability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interpersonal skills	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creativity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work ethic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Time management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Emotional intelligence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leadership	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Attention to detail	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

56. Are there any skills, not listed above, which you deem important for office and administration professionals at present?

57. Are there any skills, not listed above, which you believe will be of importance to office and administration professionals over the next **five years**?

Impact of the Fourth Industrial Revolution on the Future Work Skills of Office and Administration Professionals

7. Education, Learning and Development

This section of the questionnaire looks at educational requirements and current learning and development initiatives for office and administration professionals.

58. What is the most common educational requirement for office and administration professionals within your business?

- | | |
|--|---------------------------------------|
| <input type="radio"/> No educational requirement | <input type="radio"/> Ordinary Degree |
| <input type="radio"/> Leaving Cert | <input type="radio"/> Bachelor Degree |
| <input type="radio"/> Certificate | <input type="radio"/> Master's Degree |
| <input type="radio"/> Diploma | <input type="radio"/> PhD |
| <input type="radio"/> Other (please specify) | |

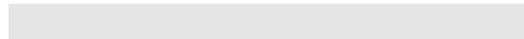
59. Over the next **five years**, do you foresee educational requirements for office and administration professionals in your business increasing?

- | |
|---------------------------|
| <input type="radio"/> Yes |
| <input type="radio"/> No |

60. Does your business currently offer training and development opportunities to office and administration staff members?

- Yes
- No
- Prefer not to answer

61. Over the next **five years**, I believe training and development opportunities for office and administration professionals will:

- Increase
- Decrease
- Not change
- N/a
- Other (please specify)


62. Current training and development initiatives for office and administration professionals within my organisation have more focus on:

- The development of soft skills
- The development of hard/technical skills
- The development of both hard and soft skills
- N/A
- Other (please specify)


63. Over the next **five years**, I believe training and development initiatives for office and administration professionals within my organisation will focus on:

- The development of hard/technical skills
- The development of soft skills
- The development of both hard and soft skills
- N/A
- Other (please specify)


64. Do you believe there is a gap between requirements of office administration professionals and the skills employees actually possess within your business?

- Yes
- No

65. If yes, what is being done to overcome the problem of skills gaps within your business?

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