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# **SALUTOGENESIS AND SENSE OF COHERENCE OF EMPLOYEES IN THE FOURTH INDUSTRIAL REVOLUTION**

by

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of  
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in  
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## DECLARATION

I certify that the *minor dissertation/dissertation/thesis* submitted by me for the degree *Master's of Commerce (Industrial Psychology)* at the University of Johannesburg is my independent work and has not been submitted by me for a degree at another university.

\_Cemonn Wegerle\_\_\_\_\_

(Name in block letters – no signature)



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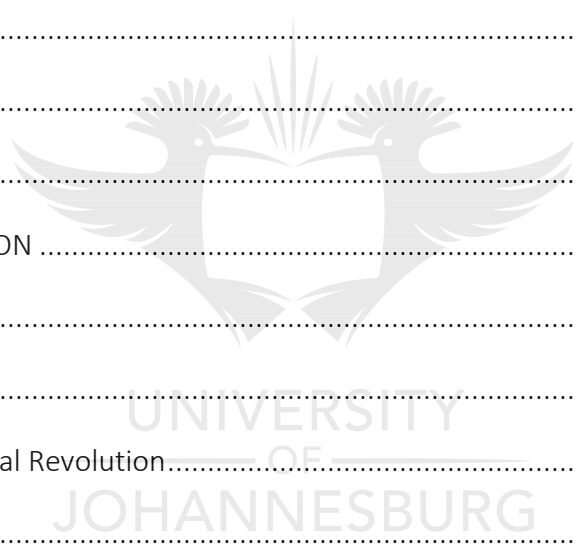
## ABSTRACT

The Fourth Industrial Revolution is disrupting societies, economies and the world of work. Therefore, these new technologies will change the nature of individuals' work and their tasks, hence it is necessary to determine how employees cope with these changes, specifically relating to their salutogenesis. The purpose of this study is to investigate the level of managerial employees' sense of coherence in terms of the adjustments and developments of the 4IR, and their in-depth understanding of the three SOC components. A mixed method approach was implemented through using a semi-structured interview and the SOC-29 Questionnaire. The method used to analyse the data was content analysis and descriptive statistics. The findings indicate that most of the managers tend to have an understanding of the 4IR and what implications of the 4IR will have on the world of work and their job description, the necessary resources to cope with the 4IR, and find meaning during the 4IR, therefore, most of managers have a strong SOC level during the 4IR. The recommendations for future studies suggest that research studies could be conducted on how managers and lower-level employees' Sense of Coherence differ, which will provide insight into what different preparation methods are required for the different level of employees.



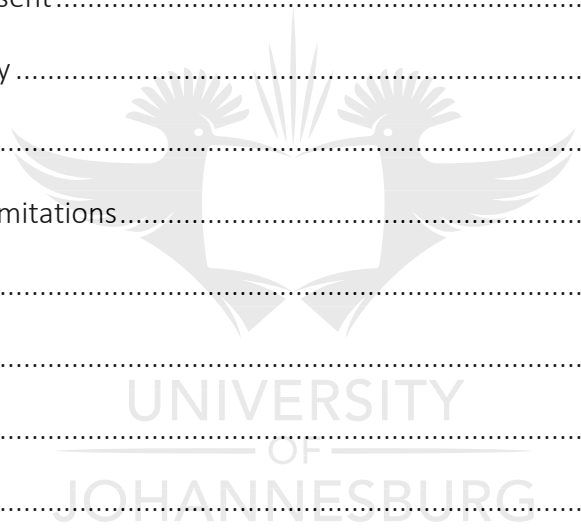
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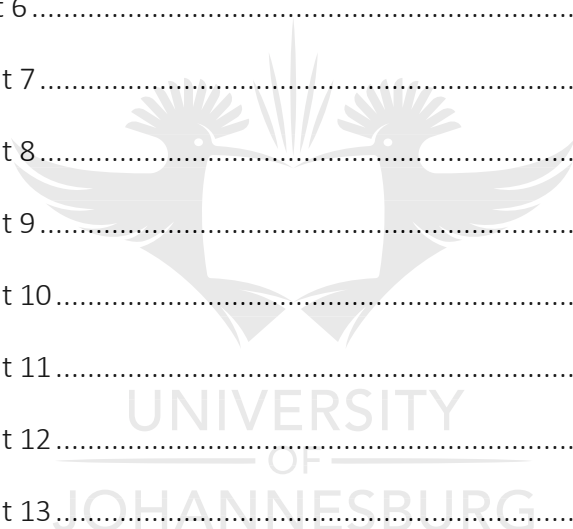
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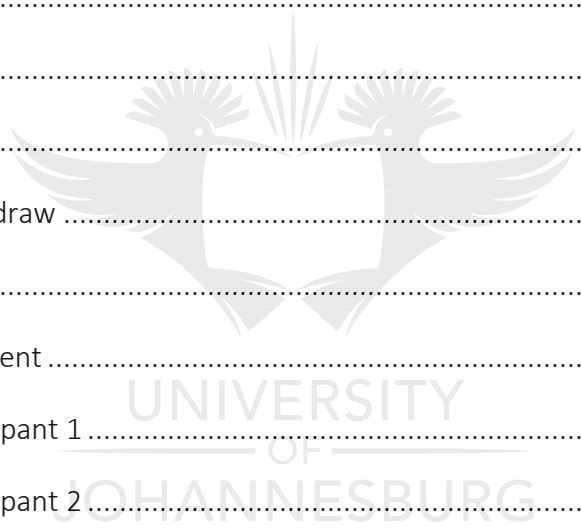
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# CHAPTER 1: INTRODUCTION

## 1.1. Introduction

Technological advances have been witnessed throughout history, with humans implementing technology to address the limitations of human practices (Skilton & Hovsepian, 2017). Technology is described as the practice of scientific knowledge to produce goods and services or utilise tools and techniques to obtain a competitive advantage in the market (Skilton & Hovsepian, 2017). According to Skilton and Hovsepian (2017), technology is utilised to build machines that aid in the achievement of specific tasks or taking over work done by people. Several industrial revolutions have reshaped the production of goods and services using innovative techniques and or technology.

The Fourth Industrial Revolution (4IR) is an era of evolving technology, which is known to be the integration of the physical and biological worlds (Skilton & Hovsepian, 2017). In addition, in the 4IR is technology implies rapid innovation and technological transformation (Griffiths & Ooi, 2018), because, 4IR is characterised by automation, cybernation, high-tech applications, cloud computing, nanotechnology, biotechnology, artificial intelligence, 3D printing and IT systems (Griffiths & Ooi, 2018; Hirschi, 2018; Lasi et al., 2014; Lombard, 2017).

## 1.2 Background

### 1.2.1 Fourth Industrial Revolution

Before the 4IR manifested itself, the world had experienced three industrial revolutions namely, the first, second and third industrial revolutions. The first industrial revolution is known as the period of mechanical production using water and steam in the 18th century (Hirschi, 2018). The second industrial revolution (technical revolution) was conceptualised in the 19th century, which brought mass production into the industrial industry (Hirschi, 2018). As a result of technology advances, the third industrial revolution became evident in the 1960s. This revolution consisted of the internet and personal computers (Frey & Osborne, 2013; Hirschi, 2018).



It is evident that the 4IR has prompted disruption in various industries by reshaping the nature of work, systems, management, manufacturing, production, governance and education (Xu et al., 2018; Hattingh, 2018). This revolution has had a significant impact not only on the work processes, but also on the individual. Hattingh (2018, p. 8) maintains that due to the rapid velocity change and new disruptive technology, namely the 4IR, the working environment has become “unknown and unpredictable”. Hattingh (2018) further states that the changes of the 4IR have led to substantial job losses among unskilled employees, personal trauma, and political turmoil as workers battle to cope with the vulnerability and precarious nature of the new world of work. Currently, 67% of South African jobs are at risk of being automated (Hattingh, 2018). Ghislieri et al. (2018) state that it is necessary for managers to acquire new skills, training and leadership styles to lead employees in the new world of work effectively. Hattingh (2018) cites the following skills required in the new world of work: reasoning, communication skills, innovative and adaptive thinking, cross-cultural competency, computer literacy, interdisciplinary knowledge, cognitive management and virtual collaboration. In addition, the 4IR technology could affect employees’ wellbeing (Ghislieri et al., 2018).

Coldwell (2019) opines that the 4IR has a negative effect on the mental health of employees. At this time there is no reliable literature on the effect of 4IR on the mental health of the workforce because this topic has not yet been studied extensively. A question that arises is whether the workforce is confident and prepared to deal with the changes brought about by the 4IR. This implies that, research on the mental health of employees, with specific focus on salutogenesis, is necessary to fill this gap.

### *1.2.2 Salutogenesis*

Although Antonovsky’s (1979) theory of salutogenesis (the theory on the development of health) has been extensively studied throughout the years, there has been no research relating to the 4IR. Antonovsky’s (1979) theory of salutogenesis focuses on the sense of coherence (SOC) of individuals. Sense of coherence is defined as: “a global orientation that expresses the extent to which one has a pervasive, enduring though dynamic feeling of confidence that one’s environment is predictable and that things will work out as well as can reasonably be expected” (Antonovsky, 1996, p. 11). To this end, Antonovsky (1996) developed an instrument to measure the SOC of

individuals, namely a Sense of Coherence Questionnaire (SOC-29), which measures the comprehensibility, manageability and meaningfulness of individuals (Januszewski, 2011). It is necessary to measure the employee's SOC in times of the 4IR to provide meaningful assistance throughout the period of change. Measuring employees' SOC will determine their mental health, which in turn gives an indication of the preparedness of employees to deal with change.

### *1.2.3 Methodology*

This study employs a hermeneutical design (Prasad, 2002), which uses qualitative and quantitative methods. The data collection comprises a semi-structured interview and an SOC questionnaire, with the data obtained being analysed using content analysis. For further discussion on the methodology of the study, refer to chapter 3.

## **1.3 Problem statement**

The 4IR entails various technological changes that will impact on how a business operates and generates value, as well as the way in which people work and live (Hattingh, 2018; Ghislieri et al., 2018). Without a doubt, the 4IR will change the nature of society and the economies (Hirschi, 2018). This industrial revolution will alter the nature of individuals' work and their tasks (Hirschi, 2018), therefore, it is necessary to determine how employees will cope with these changes, specifically relating to their salutogenesis. A lack of research conducted on the salutogenesis of employees in times of the 4IR is evident. Furthermore, to manage change and meet the challenges one needs to have a strong salutogenesis to comprehend and manage it in a resourceful manner and appreciate the meaningfulness of that change and the new job requirements. Salutogenesis is measured in terms of an individual's sense of coherence (SOC), while the SOC measures the confidence level and the preparedness to manage change. The SOC-29 Questionnaire is an instrument that measures comprehensibility, manageability and meaningfulness, that will provide information regarding the salutogenesis of employees.

## **1.4 Purpose and Objectives**

The purpose of this study is to investigate the level of employees' sense of coherence (SOC) in terms of the adjustments and developments of the 4IR, and to gain an in-depth understanding of the three SOC components, namely comprehensibility, manageability and meaningfulness. The

study will try to determine how employees with high and low SOC level scores manage the stressors inherent in the 4IR. The objective of this study is to determine whether managerial employees have a high or low SOC level and to determine how employees utilise their SOC resources during the 4IR.

### **1.5 Research questions**

The main research question, based on the literature review, the purpose and aim is: How do employees, specifically managers, in South Africa conceptualise the 4IR in terms of their SOC levels? This relates to the SOC of employees who manage the changes of the 4IR and aim to capture the life-orientation of the employees in the 4IR. Furthermore, sub-questions derived from the main questions include:

- **Comprehensibility:** How do managers understand the 4IR? And how do managers predict that their job descriptions will change?
- **Manageability:** How do managers manage the changes relating to the 4IR? And what kind of resources do they use to cope with the demands of the 4IR?
- **Meaningfulness:** What makes managers' work meaningful? and Is the 4IR seen as a welcome change?

An SOC is a life-orientation that is adopted to comprehend a situation that is complex, predictable, and structured regardless of factors affecting an individual's life (Lindström & Eriksson, 2006). It will determine the understanding of the word and the resources they will utilise to provide information on their understanding of the 4IR. Answers to the questions on meaningfulness will provide information on how employees see the meaningfulness of the 4IR and their work will determine the level of motivation and engagement.

### **1.6 Delineation of scope of study**

Mental health research is a broad domain. Although, mental health has become an increasingly important issue to address in the working environment (Barry, 2009), the literature focuses mainly on how to treat mental problems (Kelloway, 2017; LaMontagne et al., 2014; Dewa et al., 2012). The focus has shifted to the concept of positive mental health, and how to develop and promote mental health (Barry, 2009). This study focuses on Antonovsky's (1979) theory on the

development of mental health, specifically on salutogenesis (Sense of Coherence) of individuals and this theory examines how individuals maintain their mental health (Mayer, 2011).

Change is a factor that influences individuals' mental health, which can affect mental health negatively or maintain mental health (Bamberger et al., 2012). While the 4IR brings about dynamic changes and uncertainty, these can affect employees' mental health significantly (Hattingh, 2018). Furthermore, this study aims to identify the coping measures of individuals by assessing the individuals' SOC levels in relation to the 4IR.

### **1.7 Structure**

The structure of this dissertation consists of an introduction, a literature review, methodology, findings, discussion and conclusion. The introduction provides the background to the phenomena under study, the problem statement, the purpose and objective as well as the research questions. The literature review is based on literature on Salutogenesis and the Fourth Industrial Revolution. The methodology section details the data-collection methods to provide the answers to the research questions. The results of the data collection are presented in the findings section, in which the results are explained and direct quotations are provided. In the discussion section the findings and relevant literature on the findings are presented. Thereafter, the conclusion, limitations and recommendations for future research are provided in the conclusions.

### **1.8 Chapter summary**

Some literature emphasises the transformation produced by the 4IR (Griffiths & Ooi, 2018; Hirschi, 2018; Lasi et al., 2014; Lombard, 2017). The world of work is being reshaped by innovative technology, which affects all employees (Xu et al., 2018; Hattingd, 2018), because 67% of South African professions are at risk of being automated (Hattingh, 2018). How does this phenomenon affect employees, specifically their mental health? The purpose of this study is to determine how employees remain mentally healthy during the transition period of the 4IR. For this purpose, Antonovsky's (1979) theory on salutogenesis is employed to determine how individuals cope and manage the 4IR stressors.

## CHAPTER 2: LITERATURE REVIEW

### 2.1 Chapter overview

The purpose of this chapter is to provide an overview of the literature available in the field of salutogenesis and the Fourth Industrial Revolution. This chapter provides a comprehensive description of the history of this industrial revolution and what salutogenesis entails. The current theories that are utilised in the 4IR and the gap that exists in current literature, which forms the basis of this study.

### 2.2 Background to the 4IR era

Throughout history, industrial revolutions have brought changes in the economy, society and the world of work. Industrial revolution is a term that refers to an economic change that is characterised by a new era of free-market development or a point of departure to ensure economic growth and development (Kamitake, 2008). Therefore, an industrial revolution refers to the development of industry and the expansion of other sectors of the economy (More, 2002). The industrial revolutions have had a dire impact on all aspects of society, work and life in general (Makridakis, 1995).

The 4IR is the integration of evolving technology into the physical and biological worlds. This has not been the case in the other industrial revolutions with advances increasing at an exponential rate (Skilton & Hovsepian, 2017). Skilton and Hovsepian (2017) go on to say that 4IR includes breakthroughs such as gene sequencing, nanotechnology and quantum computing. It is therefore evident that the 4IR is bringing dynamic and new technology to the world of work, which will change and create numerous new occupations. Dombrowski and Wagner (2014) comment that the new key technologies will inevitably result in job losses, redundancies and de-industrialisation.

Webber-Youngman (2017) lists the skills needed to adapt to the 4IR as critical thinking, problem-solving, creativity and innovation, emotional intelligence, cognitive flexibility and adaptability. This implies that individuals need to adapt their skills and knowledge to thrive in the new world of work (4IR). According to Coldwell (2019), the strain experienced to retain employment in the changing and dynamic 4IR environment has an adverse effect on the mental health of employees. The World Health Organization (2004, p. 10) defines mental health as “a state of well-being in which the

individual realises his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community”. As mentioned before, the world of work is changing drastically due to the innovative technology of the 4IR. These changes influence individuals’ employability and their working environment, which in turn have an effect on their mental health (Coldwell, 2019).

Various theories exist that try to explain the relationship between the mental health of employees and their working environment (Fernandes et al., 2013). Unfortunately, most theories focus on the negative effects on mental health, whereas Antonovsky’s (1979) theory tries to determine what creates positive mental health, rather than is harmful to mental health in situations of suffering and stress, this is known as salutogenesis (Eriksson et al., 2019). The focus is on the individuals’ feeling of assurance that their internal and external environments are assured and events will proceed as planned (Mayer, 2011).

In Germany, Japan and the US the 4IR is perceived as an opportunity rather, than as a threat (Ślusarczyk, 2018), whereas in South Africa (SA) it is generally seen as a threat since the challenges of the 4IR are likely to cause job losses. In developing countries such as South Africa, this can be serious because of the high unemployment rates (Manda & Backhouse, 2017). In some countries the 4IR has been known to cause hardship, therefore, an investigation into how employees stay healthy during the changes brought by the 4IR is necessary to determine how employees manage the negative and positive aspects of the 4IR by measuring the salutogenesis of individuals. It follows that a positive attitude is required to ensure that employees will strive to understand, manage and fulfill the opportunities and challenges of the 4IR meaningfully.

### **2.3 History of the Industrial Revolution**

The industrial revolution that originated in Great Britain, and spread to Europe and the USA, is one that dramatically affected human beings (Van Neuss, 2015). Van Neuss (2015) dates the industrial revolution to the mid-18<sup>th</sup> century in Great Britain, by calculating the “average rate of efficiency growth through the technological change in the world economy”, which was close to zero around 1760. From the dawn of the industrial revolution, it is evident that this movement reshaped the industrial and economic sectors by altering the structures and thwarting traditional hierarchies

(Van Neuss, 2015). In addition, Jovane et al. (2018, p. 1) assert that the industrial revolution started with “small networks within limited geographical domains and later, on networks that exceeded first regional and, hence, national boundaries”. The subsequent industrial revolutions presented opportunities and challenges to humankind.

The first industrial revolution (1IR) showed a progressive economic growth with competitive and innovative trends (Jovane et al., 2018) thereby, affecting the economy, society and technology. The 1IR was driven by steam power (converting heat energy into mechanical energy), which was labeled as revolutionary and transformed economies (Bruland & Smith, 2013), resulting in a shift from agriculture to industrial labour (Ventura & Voth, 2015).

Agarwal and Agarwal (2017, p. 1064) report that in the 1IR, water and wind energy sources were replaced to “enhance the productivity capacity of manufacturing”, which also benefited the mining industry. Various views have been put forward on the effects of the industrial revolution. On the one hand technical change is seen to have had a positive effect on human capital in the long-run, while on the other hand skill displacement is the primary outcome of technical change (De Pleijt et al., 2020). The positive effects of the steam engine were evident in industries that required power such as factories and railroads, and the shipping industry (Chin et al., 2004). Another view on the 1IR is that steam engines were introduced to replace or reduce workers’ skills, whereas De Pleijt et al. (2020) infer that this revolution demonstrated new skills that were needed in the modern economic situation with the transition from manual labour to collective labour (Mamedov et al., 2019.) However, O’Rourke et al. (2013) contend that various textile industries required a mass workforce with few or no specialised skills when technologies in the 1IR were implemented. Although new skills were required to work with water and steam engines and machinery, Mamedov et al. (2019) opine that employees were regarded as uneducated and unable to apply creativity in their work, while it was necessary for the individual to earn a living to survive. Human resources were undervalued because minimum remuneration was paid for the lack of money leading an inability to provide quality healthcare and opportunity for development (Mamedov et al., 2019).

Although the 1IR excelled in England's economy to become the leading economy in Europe, not everyone enjoyed the advantages provided by the new technology, notably the textile workers (Grieveson et al., 2018). As a result of negative experiences of this industrial revolution, a group of individuals named the Luddites registered their protests against the implementation of new machinery and technology by damaging machines. The destruction of machinery represents the fight against unemployment, depreciation of living standards and occupations that were threatened by the new technological innovations (Grieveson et al., 2018).

The second industrial revolution (2IR) is described as including "chemical processes, electrification and the internal combustion engine" (Hull, 1996, p. 22). Hull (1996) includes the following science-based concepts, namely mass production, automation, and process control, which technological aspects played the main role in the steel, chemicals and electricity industries (Agarwal & Agarwal, 2017). Agarwal and Agarwal (2017) maintain that the 2IR lasted from 1890 to 1930. This industrial revolution was marked by the very important invention of electricity that changed every aspect of the world, leading to an improvement in working conditions, decreased probability of fire hazards and a reduction in heat and pollution from gaslighting (Agarwal & Agarwal, 2017). Atkeson and Kehoe (2001) asserted that the 2IR had an impressive upward effect on living standards, although the 2IR was characterised by the transition from manual labour to machine labour (Ustyuzhanina et al., 2017). A decrease in the number of manual laborers was experienced due to the implementation of new technology, which took over repetitive labour. However, deskilling and reskilling of employees were results of the innovation of 2IR (Hull, 1996).

The third industrial revolution (3IR) introduced the internet, which led to new technologies such as computer hardware, software and improved telecommunications (Smith, 2001). As renewable energy and recycling technologies were included in the 3IR, businesses were required to transform their practices, while new markets emerged (Smith, 2001). Furthermore, in the 3IR the development of services evolved, while making of goods according to the market needs (Tien, 2012). The speed with which the technological change occurred during the 3IR increased the demand for skilled employees and increased payment for skills, which led to further inequality in income (Liu & Grusky, 2013). As seen in the previous industrial revolutions, the 3IR also had a



significant impact on society, resulting in market shifts and greater demands for skills creating opportunities and challenges for the workforce.

## 2.4 Fourth Industrial revolution

The 4IR has also prompted disruption in society as witnessed in the preceding industrial revolutions. As technology develops exponentially, the repercussions on the workforce are noticeable. The 4IR builds on the technological advances of the 3IR, which integrates the physical, digital and biological worlds (Xu et al., 2018). The by-product of the innovative technology used in the 4IR offers numerous opportunities and challenges. This industrial revolution is set apart from the previous industrial revolutions by the dissemination, speed and the scale of the new technologies which have been implemented in various sectors. Li et al. (2017) state that the technological drivers of the 4IR are technologies emanating from digital, physical and biological dimensions. Li et al. (2017) classified the technologies as:

- Digital technologies include the internet of things (IoT), artificial intelligence (AI), machine learning, big data and cloud computing, as well as digital platform.
- Physical technologies include self-driven cars and 3D printing.
- Biological technologies include genetic engineering and neurotechnology.

It is evident, that throughout the history of the industrial revolutions change is inevitable. Each industrial revolution brought certain changes to the world of work that affected employees in various ways. Furthermore, although the previous industrial revolutions saw the creation of new and the redundancy of jobs present employees adapted to this change. However, the 4IR is different from the previous industrial revolutions in terms of the exponential evolving pace, the depth to which changes are occurring in the world of work and creating an interconnected world (Casas i Klett & Howell, 2017). In some respect, the 4IR can be likened to the previous industrial revolutions, while being very different in other respects.

Prisecaru (2016) discusses the impact of the 4IR on the economy and society, where self-employment, short-term contracts and part-time workers are key players in the disruption brought by this industrial revolution. Prisecaru (2016) further states that the disruption of the 4IR in the labour market not only affects the individuals, but tax revenue, pension funds and the gross

domestic product (GDP). Tax revenues from labour income will diminish in the distant future and the lower GDP will increase the social costs needed to sustain certain individuals from taxes (Prisecaru, 2016). In addition, Prisecaru (2016) contents that the 4IR will affect the income distribution with the low-income earners being seriously affected, and pensions being lower. Li et al. (2017) on the other hand, argue that the 4IR creates greater opportunities for future economic development. Li et al. (2017) assert that the IT industry accounts for 20% of the GDP in the US. In addition, the 4IR reinforces the connections between the “producers, consumers”, while “regulating economic fluctuations, minimize periodic fluctuation, thus accelerating the development of global economy in a steadier approach” (Li et al., 2017, p. 631). Li et al. (2017) also cite the increase in production efficiency and a shift in the global value chain (such as outsourcing), which opportunities are enabled by the 4IR.

One of the strengths of SA is innovation owing to an active innovative culture and entrepreneurial activity. However, Levin (2018) highlights concern regarding preparation of South Africa’s human capital for the 4IR. There is a shortage of engineers, scientists and individuals with the digital skills to ensure future production. In addition, Levin (2018) asserts that it is essential that the Institutional Framework of SA be reviewed and improved to facilitate the change to 4IR thereby ensuring an environment with steady policies that can direct innovation.

It is obvious from the aforementioned that challenges and opportunities arise as a result of the breakthroughs of 4IR technologies. Therefore, Prisecaru (2016) emphasises education and re-education if we are to adapt to the changes of the 4IR.

## **2.5 The Effect of the 4<sup>th</sup> Industrial revolution**

### *2.5.1 The effect on the organisation*

With the new technologies proliferating in the economy, society and industry, these technologies have had major consequences in everyday life and the world of work. Brondoni & Zaninotto, (2018) opine that the 4IR has forced a shift in businesses that has altered the traditional business and organisational models. The 4IR will inevitably affect the people, the business processes and the supply chain of organisations (Agostini & Filippini, 2019). In turn the labour market will be affected by this industrial revolution that offers more flexibility and on-demand work (short-term

and freelance contracts), therefore, individuals will be paid for every job they complete and no fixed salary will be earned (Hattingh, 2018). Furthermore, Hirschi (2018) cites the loss of jobs, the change of occupation and the emergence of new occupations, resulting in the relocation of power, wealth and knowledge (Xu et al., 2018).

Operating within the 4IR, some employees may receive higher salaries and improvement in their jobs, while other employees are downgraded to lower-paying jobs and unemployment, which situation has a negative effect on their well-being and mental health (Coldwell, 2019). The question is how organisations will support employees' mental health during the time of the 4IR? Organisations generally implement programmes to promote mental health and address stressors in organisations namely stress management interventions and/or workplace health promotion strategies (Bauer & Jenny, 2013). These include the concept of salutogenesis. Salutogenesis is the application of resources and outcomes that relate to the positive health-orientated change process in the organisation (Bauer & Jenny, 2013). However, there is a lack of information on how organisations can assist their employees during the 4IR to promote salutogenesis. A study conducted by Morathi (2020) in an information technology company, the employees formulated the following guidelines to assist them during the changes brought about by the 4IR, which will enable them to be more self-sufficient, to develop the employees, provide future-orientated leadership, to practice transparency, and to give clear descriptions of their future roles.

### *2.5.2 The effect on the workforce*

It is evident that the 4IR has a major effect on the organisations, but some contributors discuss the effects of the 4IR on the workforce. The effect of the 4IR on jobs has been discussed with specific focus on intelligent robots and automation, and how this can disrupt the labour market (Conner et al., 2019) or give rise to new job opportunities and unemployment. Connor et al. (2019) mention that the extent to which automation is infiltrating sectors has spawned both restlessness and optimism relating to the new world of work. It is quite clear that 4IR incites both anxiety and hope in current and future employees. Bonciu (2017) agrees with this statement by stating that the impact of the 4IR encompasses the opposing views, because the 4IR affects the labour market and the role humankind has to play in the economy. Other authors assert that the previous industrial revolutions did not have significant or long-lasting effects on the labour market, and the

same will be true for the 4IR. It is clear that the effects of the 4IR are interpreted differently and these impact individuals in various ways depending on skills, knowledge and different industries.

Min et al. (2019) published an article on the occupational health issues relating to the 4IR. With automation and robots taking over repetitive or simple tasks, employees experience job insecurity, and this instability provoked by 4IR can give rise to the mental illnesses among employees (Min et al., 2019). Although the 4IR technologies put forward an argument for increased productivity and a better quality of life, Min et al. (2019) argue that automation results in increased human labour time to improve productivity and keep abreast with the competitive firms, thus resulting in increased occupational stress.

When Dombrowski and Wagner (2014) looked at the mental strain of socio-technical production systems on imposed employees, they observed that sophisticated problem solving was necessary and employees would require different competencies to function in the Industry 4.0. This preliminary study analysed the industrial work systems with regard to various levels of automation and changes in the steel sector. Furthermore, the study uses the VERA and RHIA methods, which are based on the action regulation theory, to gather information regarding the mental requirements for socio-technical production systems (Dombrowski & Wagner, 2014). VERA and RHIA are German acronyms for analysis of regulation problems and regulation requirements in work processes. From the secondary analysis used to gather the information, it is evident that work systems that are subjected to change (such as 4IR) give rise to an increase in the mental demands process related to working systems (Dombrowski & Wagner, 2014).

Furthermore, in South Africa the 4IR has brought in new Employment Equity (EE) practices that will govern the effects of this revolution (Mayer & Oosthuizen, 2020). Mayer and Oosthuizen (2019, p. 2) state that as “job mobility, consent retraining and rotation” are necessary to improve employees’ flexibility, employability and suitability in today’s world of work, an adaptation to EE is necessary to address the changing work environment. According to Min et al. (2019) government policies should also be adapted to protect the health rights of employees who are faced with increased atypical employment due to the 4IR, currently some employees are not protected by the labour laws (Min et al., 2019).

Botlik (2020) discusses how the 4IR will affect the labour market by stating that certain jobs will become redundant namely low-skilled jobs, while other jobs will become highly specialised activities namely those in diagnostic medical systems and legal systems. However, Min et al. (2019) oppose Botlik's (2020) view by stating that human medical practices and lawyers are more likely to be replaced by telesurgery robots and artificial intelligence, while the 4IR can increase the quality of employees' lives or increase the risk of unemployment (Botlik, 2020). However, in both cases, it is imperative to remain mentally healthy, although these situations can result in improving or loss of quality of life.

Sutherland (2020) highlights that the 4IR threatens the existence of unskilled labour due to automation, mass customization and robotization. Furthermore, the challenges faced by South Africa require a significant understanding and engagement with the fundamentals of the new technologies and how this connects with the strategy of the business to develop sophisticated policies (Sutherland, 2020). He further mentions that South Africa needs an in-depth understanding of the failures in the past to successfully implement the necessary policies. However, in the current state of South Africa, where the government is tasked with addressing high unemployment rates, tackling state capture and dealing with the technological recession (Sutherland, 2020). Levin (2018) agrees that South Africa is in a position of incompetent technological capabilities, ineffective digital readiness and unsuccessful economic practices. Therefore, the success of 4IR in the South Africa depends on the approach taken when adopting the new technologies in collaboration between the government and the private sector, which greatly affects the work availability in South Africa. Bayode et al. (2019) point out that the South African government does recognise the opportunities presented by the 4IR and preparing for the 4IR through different departments, however, little to no evidence is presented to support or fund these opportunities. Therefore, in the South African context, the 4IR places the labour market in a precarious situation, where the majority of the South African workforce is unskilled labourers which will be significantly affected with no actual support from the government.

From an international point of view, Li et al. (2017) pinned that businesses will need to change their business models and operations to meet the new expectations and challenges presented by the

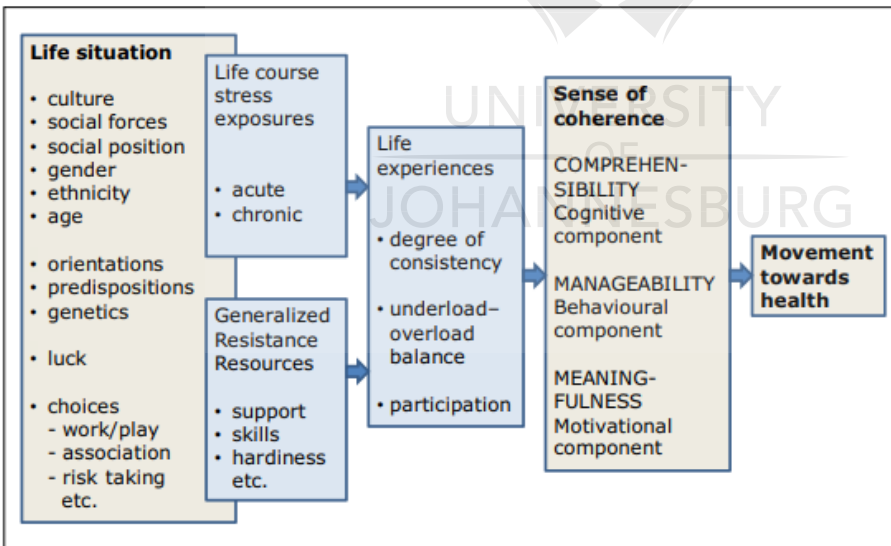
4IR, which is a complicated process that is costly and met with resistance. Therefore, businesses are faced with two options which include changing with the 4IR or face collapse. From a South African point of view, more challenges are faced with adopting the technologies of the 4IR, which will require effective change management and leadership support to facilitate the transition towards the 4IR. Therefore, the question arises of how prepared South African companies are to effectively transition to new business modes to remain competitive with international markets, which is characterised by the quick adoption of new technologies to meet customer expectations.

## 2.6 Salutogenesis and Sense of Coherence

Traditionally health theories focused on pathogenesis, which looks at the origin of the disease to avoid or limit the spread of disease (Becker et al., 2010). When Antonovsky (1979, 1987) sought the answer to the question of what keeps people healthy, he introduced the concept of salutogenesis (Mayer, 2011). The Salutogenesis Model is depicted in figure 2.1:

**Figure 2.1**

*Salutogenesis model (Benz et al., 2014)*



Schnyder et al. (2000) state that salutogenesis focuses on maintaining good health amid undesirable stressors. Salutogenesis focuses on the origin and assets of health, and the central focus of the Salutogenesis Model is the Sense of Coherence (SOC), which is molded by an individual's life experiences (Mittelmark et al., 2017), therefore, it focuses on the resources and

factors that will generate good health and wellbeing (Bhattacharya et al., 2020). The resources used to develop one's SOC are referred to as general resistance resources (GRR), which are measures that one implements or uses to relieve stress in challenging times (Bhattacharya et al., 2020). GRR include social support or support networks, knowledge, self-esteem and money (Vaandrager & Koelen, 2013).

Antonovsky (1979) (as cited in Griffiths et al., 2011, p. 168) defines SOC strength "as a global orientation that expresses the extent to which one has (A) pervasive, enduring, though dynamic feeling of confidence and that stimuli, deriving from one's internal and external environments in the course of living are structured, predictable and explicable; (B) the resources are available to one to offset the demands posed by these stimuli; and (C) these demands are challenges worthy of investment and engagement". Therefore, a strong SOC assists individuals to marshal resources to manage stressors and change effectively (Mittelmark et al., 2017).

SOC includes the following dimensions: comprehensibility (cognitive element), manageability (behavioural element), and meaningfulness (motivational element) (Lindmark et al., 2020; Lindström & Eriksson, 2006). Comprehensibility is a concept that refers to the rationalisation of external and internal elements to make sense, which results in the predictability of the elements or the possibility of implementing problem-solving strategies (Januszewski, 2011). Manageability relates to the individuals' believe or confidence in their personal and external resources at their disposal are ample to address the demands of internal or external stressors experienced (Januszewski, 2011). Meaningfulness is the perception of whether the challenges encountered are deemed as a worthwhile endeavor (Januszewski, 2011). Therefore, individuals with high SOC levels: "wish to, be motivated to, cope; believe that challenge is understood; believe that resources to cope are available" (Antonovsky, 1996, p. 15). Braun-Lewensohn and Mayer (2020) elaborate that SOC is an appraisal of the environment to assisting the examination of the available resources that can be utilised to cope with a stressful event or situation. GRR also includes coping strategies, which are defined as behavioural factors that summon the effort to be implemented to make a stressful situation or stressors tolerable and to minimise the negative effects of the situation (Braun-Lewensohn & Mayer, 2020). The salutogenesis framework is therefore a means

by which health can be promoted due to the focus on problem-solving or finding solutions and determining the GRR to direct individuals towards positive health (Lindström & Eriksson, 2006).

Antonovsky developed the Sense of Coherence (SOC) scale as an instrument to measure salutogenesis (Schnyder et al., 2000). SOC is considered as being flexible, therefore, “not constructed around a fixed set of mastering strategies, like the classic coping strategies” (Lindström & Eriksson, 2006, p. 241). Furthermore, the SOC is a tool to measure individual’s ability of resilience when facing challenges or stressors. In other words, the SOC measures the ability to implement the appropriate coping strategies and processes. Therefore, individuals with high scores of SOC will effectively implement strategies to address encountered stressors, while individuals with low SOC scores display the opposite (Schnyder et al., 2000).

The measurement tool under investigation is the SOC-29 item questionnaire. Gruszczynska (2006) points to that uncertainty is found in the process that conceptualises the SOC instrument due to inadequate representation of the pilot sample used to formulate the SOC concept, therefore the pilot study sample should consist of individuals with different functioning levels. The concept of SOC is interpreted as a holistic resource, which is not used to describe other characteristics of people because it refers to peoples’ functioning under pressure or stress. In addition, Gruszczynska (2006, p. 81) states that the most valuable aspect of Antonovsky’s theory is the “positively interpreted higher order factor”. In other words, the sense of coherence is interpreted as a meta-resource which is not generalisable to other specific characteristics of an individual, but rather indicates the whole functioning of an individual under stress.

### *2.6.1 Salutogenesis in the workplace*

The SOC measure is applicable to both the individual’s personal life and working life. Various organisations are focused on organisational health, whereas professionals often focus on employees, leaders, teams and organisations and their wellbeing, health, productivity, change, promotion and development (Bauer & Jenny, 2013). Bauer and Jenny (2017) define a healthy organisation as one which is characterised by producing both low pathogenic processes and high salutogenic processes. The focus of organisational health development (OHD), should be where health in organisations is improved and maintained through the interaction between the individual



and the organisation's capacities including salutogenic health development. This is achieved by explaining critically the employees' working environment and their SOC. The framework of salutogenesis is based on two concepts, which are the SOC and GRR, and the specific GRR in the work context includes job control, task significance and social relations (Vaandrager & Koelen, 2013).

As it is evident that the 4IR is accompanied by dynamic changes which affect both the organisation and the individual, thus attention should be paid to the health promotion in the organisation to bring about change. Change involves the complex relationship between psychosocial elements (objective procedures and subjective experiences), job design, policies and procedures and the external environment of the organisation (Karanika-Murray & Biron, 2013). Therefore, an organisational health intervention's objective is to effect change on all three levels namely individual, group and organisational levels (Karanika-Murray & Biron, 2013). The model of salutogenesis can be used as an intervention to foster organisational health development (Bauer & Jenny, 2017). Furthermore, these interventions can be used to address job demands (work-related stressors) and job resources (work-related GRR) to ensure a better balance between stressors and GRR to improve the work experience of employees (Bauer & Jenny, 2017).

Studies have been conducted on determining the effect of SOC on burnout, work engagement, personal accomplishments, and occupation stress (Lindmark et al., 2020; Bezuidenhout et al., 2010). Another study conducted by Mayer (2011) aims to assist in the development of South African managers' SOC. In addition, a study conducted in the Democratic Republic of Congo, investigates the SOC, burnout and coping, which contribute towards positive psychology in African literature (Mitonga-Monga & Mayer, 2020). Mitonga-Monga and Mayer (2020) reported that individuals were dedicated and engaged when they observed their world of work as structured. Recent studies have focused on the connection between the work-SOC and the SOC's prediction on work engagement, stress and employee wellness (Van der Westhuizen, 2018), and the link between the SOC, mindfulness and the Big Five personality traits (Grevenstein et al., 2018). The study conducted by Van der Westhuizen (2018) found that work-SOC significantly predicted work engagement and fatigue, therefore the work-SOC exhibited incremental validity. The study conducted by Grevenstein et al. (2018) concluded that SOC and mindfulness showed incremental

validity in the Big Five Traits, therefore, a significant correlation existed. Furthermore, a study conducted by Flensburg-Madsen et al. (2005) demonstrated that the association between SOC and physical health was low, thus SOC was a weak predictor of physical health. However, Pallant and Lae (2002) assert that individuals with higher levels of SOC are more inclined to cope with stressors by using adaptive strategies. Therefore, leaders with higher SOC scores will be able to effectively manage others during times of change by disruptive technologies.

During the study of Morathi (2020), it becomes clear that employees would like to be more self-sufficient, require transparency and clear roles, therefore it is important for managerial employees need to provide the necessary leadership styles to lead the employees into the 4IR. Taking this into consideration, managers are expected to understand what the 4IR is, which touched on the comprehensibility component of SOC. In addition, managers are expected to express clear job roles, therefore the SOC component of meaningfulness is needed due to finding ways of making the new roles meaningful during the 4IR. Self-sufficiency was also significant to assist during the 4IR, which touches on the component of manageability, where the necessary resources are available to manage the changes brought by the 4IR.

## **2.7 Theoretical models used in 4IR**

As mentioned above, the 4IR has significant implications for businesses and the workforce. The following authors discuss what theoretical models could be used to understand and explain, as well as reduce the negative effects of the 4IR on the workforce:

Hirschi (2018) suggests that the following career models can be utilised to navigate the changes introduced by the 4IR. These are the Protean and Boundaryless career models. Furthermore, Hirschi (2018) argues that due to the barriers created by the 4IR, it is challenging to make sense of employees' professional identity and to identify meaning in work. Therefore, career construction theory and practices can be used by counsellors to motivate employees to create a sense of coherence and purpose in the new world of work.

While Coldwell (2019) employs the theoretical model of organisational citizenship behaviour entropy in a secondary data analysis to explain that extreme forms of organisational citizenship behaviour as a result of the 4IR can cause toxic leadership, with energy being wasted, resulting in

disorder, and organisational entropy. Furthermore, the model demonstrates that the extreme forms exhibited by employees are due to toxic leadership, job insecurity and poor work-life balance as a result of which the 4IR can have the following consequences: burnout, depression and mental illness (Coldwell, 2019).

A hermeneutical and interpretative analysis was conducted by Mayer and Oosthuizen (2020) to determine the perspectives of international leaders on the sense of coherence, compassionate love and coping and interrelationships in relation to their work and leadership style during the shift to the 4IR. The results indicate that strong leaders focus on positive elements when facing challenges during the transition into the 4IR due to their substantial focus on a strong Sense of Coherence, salutogenesis and meaningfulness. Furthermore, the results indicate that meaningfulness is the most important concept, followed by manageability and comprehensibility, which promotes happiness, well-being, positivity and listening skills (Mayer & Oosthuizen, 2020).

Due to the importance and major role of the 4IR in the economy and society, the effect of the 4IR has been discussed by various authors, who focuses on the opportunities and challenges this revolution will present to employees. It becomes evident from the literature that various theories and models can be employed to determine the effect on employees and their coping strategies.

Although a study was conducted on salutogenesis (Sense of Coherence, compassionate love and coping) and how this assists international leaders to create healthy organisations in the midst of a transition process towards the 4IR, there is a sizable gap in the current literature on the lack of research pertaining to how managers are embracing and experiencing the 4IR. In addition, Mayer and Oosthuizen (2020) point out that research needs to be conducted in the experiences, impact and perceptions of the 4IR in various industries.

As Salutogenesis is a framework used to maintain mental wellbeing during change or in adverse situations, it is not a model used to facilitate change but to manage it, which focuses on the individual's ability to manage change by remaining mentally healthy. Salutogenesis is a western concept but is relevant in the South African context, which is also reflected in the use of the SOC questionnaire across different cultures (Eriksson & Lindström, 2005). However, it is significant to take into consideration the effect different cultures may have on the perspective of mental health

and which resources are available in each culture. In addition, the 4IR is also a western concept that affects all corners of the world, but to various degrees due to the economic state of the country. South Africa is rich in various different cultures which do affect the perspective and adoption of the 4IR.

## **2.8 Critical views on 4IR literature**

The 4IR is a global trend that affects the world in varying degrees. As the 4IR originated in Germany, the literature usually contains Western views and perspectives on the 4IR. The 4IR is a global trend that affects South African workplace (Oosthuizen & Mayer, 2019). The 4IR introduces new technologies to the workplace, which affect the workforce. Current literature discusses the influence of the 4IR from a Western perspective (Mayer & Vanderheiden, 2020a) namely automation, new industries and job losses (Conner et al., 2019). Mayer and Vanderheiden (2020b) note that the 4IR is understood, defined and viewed in different parts of the world in different ways. Calitz et al. (2017) assert that owing to the diverse workforce of South Africa, the approach to developing human-robot interaction should be based on specific cultural frameworks. In addition, Mayer and Oosthuizen (2019) opine that employees and organisations need to create specific scenarios and unique ideas to create a future 4IR work environment, because South African organisations need to consider the effect of the 4IR on employment equity, which is context specific to South Africa.

## **2.9 Critical view on salutogenesis literature**

Technology generates in the global work context, which encompasses international and transcultural workplaces, accompanied by challenges of change, information overload and complexities in different cultures making the maintenance of mental health more important (Mayer & Krause, 2011). Bauer et al. (2020) argue that the existing salutogenetic intervention theories and strategies require further investigation into how change is managed by looking at social systems and processes.

## **2.10 Conclusion**

The 4IR is bringing about huge changes, which impacts on society. The 4IR is characterised by changing opportunities with specific challenges, which were present in the previous three

industrial revolutions. Previous industrial revolutions also brought about change with positive and negative effects on workers. Throughout history, people have had to adjust and take advantage of new technological innovations. With the 4IR dynamic change is also being experienced, albeit at an exponential rate. Therefore, it is imperative to foster strong mental health, specifically, a strong sense of coherence (salutogenesis).

Authors have explored the effects of the 4IR on individuals to gain a greater understanding of the 4IR by incorporating several theories and models in the studies. However, a lack of information on managerial employees' sense of coherence levels during the 4IR is obvious. Although a study was conducted to determine how salutogenesis can assist international leaders to cultivate healthy organisations during the transition of the 4IR, this research fails to address the question of how various levels of South African management are functioning in the 4IR context.

### **2.11 Chapter summary**

It is evident from the literature that the 4IR is causing dynamic disruption globally therefore adaptation is paramount. Individuals should be equipped to adapt to the new world of work to ensure their wellbeing and maintain mental health. The literature indicates that there is a gap in the research on salutogenesis in the 4IR context with specific focus on managers' level of functioning during the 4IR.



## 3. RESEARCH METHODOLOGY

### 3.1 Chapter Overview

The purpose of this chapter is to describe the research methodology implemented to gather information regarding the SOC levels of managers during the 4IR. This chapter sets the scene for philosophical assumptions, research design, research approach, data analysis and sampling methods applied in the study to meet the objectives of the study. Quality assurance and ethical considerations are described extensively in this chapter.

### 3.2 Research Philosophy and Research Paradigm

All research is built on certain philosophical assumptions that determine how reality is perceived and what method is appropriate for a specific study (Bhattacharya, 2017). Therefore, it is significant to determine what philosophical assumptions are to be employed to gather valid information when conducting research. Research is a way of gathering information, answering questions that have not been answered, or to bring the unknown into existence (Goddard & Melville, 2004). To answer questions relating to a phenomenon, various research strategies can be used. This chapter outlines the philosophical assumptions, research design and data-collection methods while describing the process followed during the study.

The research paradigm adopted on which to base the study is interpretivism, which assumes that reality is created through different views, which are deemed valid, thus interpretivism seeks to explore the construction of multiple views due to lived experiences (Ponterotto, 2005). Furthermore, the research design of this study is a hermeneutical design, which comprises of a qualitative and quantitative research method. These methods make use of a questionnaire that measures the participants' SOC levels and a semi-structured interview. Furthermore, this chapter details the needed criteria to ensure the trustworthiness of the study.

Guba & Lincoln (1994) assert that a paradigm is a set of shared beliefs that represent a common view of the existence of reality and an array of possible relationships with that reality. Research paradigms consist of three components namely ontology, epistemology and methodology. Ontology is the segment of philosophy that specifies the nature of reality, namely what exists, while the ontology approach in this study favours constructionism, which interprets reality as

constructed by social processes (Antwi & Hamza, 2015; Hathcoat et al., 2019), therefore it is understanding the reality from subjective perspectives. Antwi and Hamza (2015) describe epistemology as the nature of the relationship between the researcher and what is known (how we know what we know). In addition, Hathcoat et al. (2019) define epistemology as the nature, boundaries and the reasoning of knowledge, however, the nature of inquiry of this study employs an interpretivist approach, which means that knowledge is interpreted with a view to understanding reality. Therefore, the researcher allows an event to unfold naturally to gain an understanding of real-world experiences (Antwi & Hamza, 2015). The third branch of philosophy is methodology, which describes how the researcher approaches the subject to find knowledge by referring to the data-collection and analysis methods and techniques (Antwi & Hamza, 2015; Mohajan, 2018).

The interpretivist paradigm embraces an approach that is known as “detailed explanation”, although it is impractical to describe explicitly which factors are essential and important (Ochieng, 2009, p. 13). The purpose of this paradigm is to study the entire subject to gain an understanding of the complexity of the situation and to ensure that all factors are taken into consideration (Ochieng, 2009). Interpretivism implies that reality is constructed socially, therefore gathered information is based on the participant’s experience and views of a specific phenomenon (Mackenzie & Knipe, 2006).

This paradigm was implemented in this study to provide a detailed understanding of the salutogenesis of managerial employees in South Africa and their interpretation of the era of the 4IR. Qualitative research enabled the researcher to obtain in-depth information about managerial employees’ SOC levels and how these play a role in the 4IR.

### **3.3 Research Design**

The research design applied in this study was a hermeneutical design (Prasad, 2002). Friederich Ast (1808) postulated the principles of hermeneutics (Ormiston & Schrift, 1990). Ast (1808) claimed that the objective of philosophy is to gain an understanding of the “Geist” (spirit) which is transmitted through text. Ash offers three frameworks to gain a better understanding of the classical authors’ texts (Ormiston & Schrift, 1990) namely (a) an understanding of the historical

context of the text in; (b) a grammatical understanding of context content, and (c) “a spiritual understanding of the total Geist (spirit) of the individual and their age” (Ormiston & Schrift, 1990, p. 12). From here, Heidegger takes an interpretive phenomenological approach by challenging the assumptions set out by Husserl about how phenomenology guides the inquiry process (Lopez & Willis, 2004). Heidegger believes that humans are unable to remove themselves from the context, thus the hermeneutic inquiry does not focus only on the content of the subjectivity of the individual but rather on the narratives of his or her experiences (Lopez & Willis, 2004). Husserl takes the descriptive phenomenological approach by referring to experiences that were described and opinions that were disregarded (Reiners, 2012).

As the term hermeneutical refers to an understanding and interpretation of texts such as organisational activities or events, the goal is to derive the participants’ meaning from the text (Prasad, 2002). According to Prasad (2002), two aspects should be taken into consideration when interpreting texts namely the grammatical and psychological aspects. Grammatical aspects refer to how the language of the text is constructed, whereas the psychological aspect refers to the process of analysing the mental and creative processes of the participants to obtain an in-depth understanding of the texts (Prasad, 2002).

A major component of hermeneutics is the hermeneutical circle. This process refers to the determination of understanding the text ‘as a whole’ by referring to the parts relating to the whole (Prasad, 2002). Furthermore, in the third framework presented by Ash (1807) the contribution of this framework is the hermeneutical circle. The purpose of the hermeneutical cycle is placing the meanings derived through reflection on both the parts and whole of the data collected (Whitehead, 2004). Therefore, the hermeneutical circle is designed to ensure that the intuitive process is conducted in a reliable and structured manner (Anderson, 2019). During the analysis of the data, the hermeneutical circle was used in the process to move from the part to the whole in terms of engaging with the parts of the research to gain feedback to reflect on the greater understanding of the whole. The parts of the study refer to the experiences of the participants during the 4IR concerning to the sense of coherence components specifically through interviewing the participants and gaining further insights by using specific questions that will elicit specific information about the three components in terms of the 4IR. Furthermore, the three components



are referred to as the whole by using their SOC scores generated through the SOC-29 Questionnaire, thus the whole represents the salutogenesis levels of managers overall.

A philosophical hermeneutical approach (Ormiston & Schrift, 1990) was employed to determine and understand managers' experiences of the implications of the 4IR. Furthermore, to understand the experiences and fears of managers during the 4IR, their SOC levels (manageability, comprehensibility and meaningfulness) were determined within the context of the 4IR, through an interview process. The reason for using the hermeneutical research design was due to the understanding it provided of how the participants experienced the phenomenon of the 4IR, which the researcher interpreted while engaging with the participants (Chang, 2010). Furthermore, methodological triangulation design, namely across the method approach was utilised, which is characterised by adopting a quantitative and qualitative method (Bekhet & Zauszniewski, 2012). In the context of this study, a questionnaire was used to provide further insight into the managers' sense of coherence, while also conducting a semi-structured interview on the experiences of the 4IR.

### *3.3.1 Strengths and weaknesses of this design*

The hermeneutical approach provides rich data and an in-depth understanding of the participants' experiences during the 4IR. Furthermore, this approach provides a unique perspective on the phenomena under observation and not merely an overall perspective (Whitehead, 2004). Reality can be constructed based on external factors or the experiences of the participants. A hermeneutical approach provides insight into the participants' construction of reality which in this study represents the 4IR (Kafle, 2011). Studies that employed the hermeneutical approach include:

1. A study conducted by Mpofu and Nicolaidis (2019) employed a hermeneutical phenomenological approach to gain an understanding of ethical and human rights considerations where the primary objective was to determine the risks posed to the South African labour and industry by the 4IR.
2. Another study that employed the hermeneutic phenomenological approach was conducted by Barnard and Furtak (2020). The aim of the study was to determine the South

African volunteers' psychological resilience in the health care context by referring to the salutogenic framework which featured a lack of resources, poor infrastructure and poverty.

The challenge that a researcher experiences is the influence of the researcher's prejudice on the study since researchers are unable to disregard their experience when interpreting the texts or experiences (Whitehead, 2004). Furthermore, as this approach is characterised by an absence of an empirical basis, there are no generic steps for interpreting the text. To ensure that the researcher's prejudice did not distort the information gathered from the text continuous reflection on and reasoning of each interpretation were done to determine whether the conclusions were based on the participants' experiences rather than on the prejudice of the researcher (Whitehead, 2004). The interview questions were based on the in-depth literature review and related to the quantitative questionnaire, thereby, ensuring that the data agreed when the integration phase took place.

### **3.4 Research Approach**

As mixed method was employed to gather primary data in the qualitative research paradigm, a hermeneutical approach was adopted, more specifically an embedded design of Morse (1991) was implemented to gather, analyse and interpret the data, where the interpretation of data is based on the Qual(quan) results style (Schoonenboom & Johnson, 2017). Therefore, the qualitative data carried more weight, and the quantitative data provide more understanding of the SOC components. The reason for adopting this method was that it was the most efficient way to answer the research questions and to supply adequate information about the participants' SOC levels and their experiences of the 4IR.

### **3.5 Sampling**

As the population under investigation consists managerial employees in South Africa, the sample consists of managers from various industries. These participants included any employee or employer who has leadership responsibilities or manages others; therefore, the term manager might not appear in their job title. The rationale behind the inclusion criteria is because managers, or employees who manage or lead other employees play a significant part in guiding employees

into the 4IR and managing the changes brought by the 4IR. Purposive sampling is a non-random method where the sample is based on selecting participants who shares specific qualities or characteristics (Etikan et al., 2016). Moreover, a homogeneous sampling method was used where the selection of participants is according to similar characteristics or traits (Etikan et al., 2016). Specific individuals were invited to participate in the study. These individuals were directly contacted by email or telephone. Data were collected from selected individuals. The sampling method used was purposive sampling.

Snowball sampling which is type of convenience sampling (Naderifar et al., 2017), was also employed to gain access to other managers through participants in the study. Noy (2008) describes snowball sampling as a method where the researcher accesses participants through other participants in the study. Participants were asked to refer other possible participants that met the inclusion criteria for the study. The individuals invited to participate in the study were selected according to the following criteria:

- South African managers from any managerial level who were affected by the 4IR working in different industries;
- The term manager includes any employee or employer who have leadership responsibilities or manages others;
- and Fluent English speakers.

The sample size was determined when data saturation was reached (Naderifar et al., 2017). Data saturation is fulfilled when needed amount of information derived from the data to produce the same study with no added information or new emerging codes (Fusch & Ness, 2015). The sample comprised seventeen participants, where no new themes emerged when analysing all the transcribed interviews.

### **3.6 Research methods**

The research method was twofold: first, the SOC questionnaire was used to measure the employees' individual SOC levels according to Antonovsky's (1979) salutogenesis theory. The life orientation questionnaire (SOC) is a 29-item measurement instrument that is used to measure the

individual's SOC level (Mayer, 2011), where 11-items measure comprehensibility, 10-items measure manageability, and 8 items measure meaningfulness (Mittelmark et al., 2017). Furthermore, each item of the 29-items provides seven possible answers from which the participants were required to select a number (between one to seven) that best suited the statement (Mayer, 2011). Therefore, a seven-point Likert scale is used in the questionnaire. The summed index of the questionnaire ranges from a point score of 29 to 203 points (Mittelmark et al., 2017).

According to Eriksson and Lindström (2005), the Cronbach  $\alpha$  of the SOC-29 Questionnaire range between 0.70 and 0.92, which measures the reliability of the questionnaire and this indicates high internal consistency. Therefore, according to Taber, (2018) the alpha values of this measurement describe the reliability from relatively high to strong. Gruszczynska (2006) indicates that the validity, specifically the construct validity, of the SOC-29 questionnaire seems to be uncertain. Whereas Kivimäki et al. (2000) assert that this instrument maintains construct, content, face, consensual, predictive, and criterion validity. In addition, Eriksson and Lindström (2005) agree with the statement that the SOC-29 Questionnaire is reliable, valid and applicable to a diversity of cultures, while displaying no bias against different cultures. Therefore, it can be administered in a South African setting representing various cultures. In a study conducted by Söderhamn et al. (2015) the SOC-29 scale does have construct validity due to the relationship between sense of coherence and observable variables where SOC constitutes 100% variance in manageability, 77.4% variance in comprehensibility, and 75.7% variance in meaningfulness. Therefore, the SOC-29 Questionnaire was administered in the study. Interviews were conducted virtually to gather qualitative data that would determine the influences of the 4IR. The two methods were employed to attain a holistic picture of the influence of the 4IR, and these methods enabled the researcher to determine how strong or weak the employees' SOC scores were and how this related to the content gathered through interviews. Determining the strength of employees' SOC levels assisted in identifying their level of resilience in times of change. The interviews presented an in-depth understanding of comprehensibility, manageability and meaningfulness constructed by managers. As the interview was a semi-structured interview; a number of questions were drafted which

allowed further elaboration if needed. Seventeen interviews were conducted to ensure that data saturation could be reached.

### **3.7 Data collection**

As mentioned above the research method was twofold, comprising an interview and the SOC questionnaire. The SOC-29 item English questionnaire was distributed to each participant via email. On completion by the participants, these were sent to the researcher.

Data were also collected in a semi-structured interview. As qualitative research aims to interpret and describe subjective meanings, a series of events or experiences, interviews are used to gather the meanings and processes experienced by individuals. The interviews were conducted over Zoom and face to face. The interviews conducted over Zoom were recorded using an application within Zoom, which allowed for the session to be recorded (audio recordings). Personal interviews were recorded using a phone recorder (audio recordings). Thereafter, the recordings of the interviews were transcribed. Halcomb and Davidson (2006, p. 38) define transcription as “the process of reproducing spoken words, such as those from an audiotaped interview, into written text”, thus transcriptions are the translations of the spoken words to written text (Brinkmann & Kvale, 2018). Brinkmann and Kvale (2018) assert that the amount and type of transcription is dependent on the nature of the materials, purpose of the study, as well as time and money. This type of study requires the type of transcription where the meaning of the interview is based on the content of the interview rather than on linguistic style or social interaction, therefore, a specialised form of transcription is not necessary (Brinkmann & Kvale, 2018). However, the pauses, emphasised words, changes of thought or trail offs, and incorrect speaking (incorrect grammar) were indicated in the transcription.

### **3.8 Data analysis**

The data were analysed by linking qualitative content to quantitative data (Mayer, 2011). However, for the purpose of this study the quantitative analysis was embedded in the qualitative paradigm (Mayer, 2011).

For the quantitative analysis descriptive statistics were used to analyse the SOC questionnaires. This consisted of frequency distribution to supplement the qualitative data analysis (Mayer & Oosthuizen, 2020). However, due to working in the qualitative paradigm, no inferential statistics analysis could be implemented since working with a small sample and data set, and the objective of the study excluded that (Marshall & Jonker, 2011). Scores of the SOC questionnaire were calculated by totaling the points gained for each of the 29 items (Antonovsky, 1987). However, as the questionnaire consisted of items that were scored positively, the rating value was marked at face value, and the items that were negatively scored where the rating values were converted to the face value, for example the lowest value mark (1) is converted to the highest value (7) and so forth (Antonovsky, 1987). Furthermore, in the analysis of the SOC questionnaire the overall scores of the sample were examined, while analysing the three components of the SOC. The questions in the questionnaire were assigned to one of the three components in the following manner (Antonovsky, 1987):

- Comprehensibility - C: 1, 3, 5, 10, 12, 15, 17, 19, 21, 24, and 26;
- Manageability – MA: 2, 6, 9, 13, 18, 20, 23, 25, 27, and 29;
- Meaningfulness – ME: 4, 7, 8, 11, 14, 16, 22, and 28

The interpretation of the SOC scores revealed whether the participants had attained a high or low SOC score, with the high scores indicating a strong SOC, and low scores indicating the opposite. A high score was determined by the cut-off point on the Likert scale (7-point scale), with the high scores ranging from five to seven. Furthermore, the low scores range from one to three on the Likert scale, and four is a medium score. The total scores of the SOC-29 questionnaire indicated whether the participants have a stronger ability to resilient in times of change, therefore, the higher the SOC score, the more likely the participant can manage and remain mentally healthy during the 4IR.

For the qualitative analysis of the data set, a content analysis was applied. Content analysis can be described as the analysis of data with reference to a specific context and the attributes labeled by the group under study (Krippendorff, 1989). Krippendorff (1989) provides the following definition: “Content analysis is a research technique for making replicable and valid inferences from data to

their contact” (p. 403). Content analysis can be used to identify and discuss the views or attitudes of individuals or groups (Drisko & Maschi, 2016). More specifically the interpretive qualitative content analysis was utilised, where the texts (transcribed interviews) were coded into identified categories (Priest et al., 2002). Furthermore, an abductive approach was employed, which entails the interaction between established theories and data where other findings occur (Timmermans & Tavory, 2012). The themes were established prior to the data analysis using a thorough literature review on the Sense of Coherence, which included comprehensibility, manageability and meaningfulness, whereas categories were identified from the analysis of the textual data. The interview questions were drafted to gather information on the established themes and allow for further elaboration and emergence of other categories. For example, the questions:

- ‘what do you the 4IR is?’ relates to the theme of comprehensibility;
- ‘do you believe the 4IR is a positive or negative aspect?’ relates to meaningfulness; and
- ‘what are your personal resources to cope with 4IR?’ relates to manageability.

However, the established themes are not limited to each question, therefore, the same question can provide data relating to two themes or more.

The Terre Blanche et al. (2006) method was applied to analyse the data. This method comprises of 5 steps:

- Step 1: Familiarisation and immersion
- Step 2: Inducing themes
- Step 3: Coding
- Step 4: Elaboration
- Step 5: Interpretation and checking

In the first step the researcher engaged with the data on the preliminary understanding of the data set’s meaning (Terre Blanche et al., 2006). The textual data was read multiple times and notes were made to aid the interpretation of the data.

In the second step general rules were inferred by identifying the organizing principles that naturally occurred from in research material (Terre Blanche et al., 2006). The themes were Comprehensibility, Manageability and Meaningfulness. These themes were researched and used as a framework in designing the interview questions to collect the data.

In the third step the data were coded, where segments of the textual data were relevant to the established themes generated in step 2 (Terre Blanche et al., 2006). In addition, the part of the text that referred to more than one theme was allocated with more than one code (Mayer, 2011).

In the fourth step the identified themes and codes were reorganized. This allowed more in-depth exploring of the data by identifying similarities and differences in the data and codes, consequently, the study identifies categories which represents homogeneity codes (Mayer, 2011).

In the final step the thick descriptions of the findings were included under specified themes, which explain and elaborate on the categories and codes identified during the previous stages (Mayer, 2011).

### **3.9 Reporting of data**

The findings were reported according to the qualitative method under the three themes. This was done by providing an overview of the findings, pointing out noteworthy findings, and interpreting the findings that contributed to the themes (Mayer, 2011). The identified categories which consisted of the group of codes would be presented under the themes (Løkkeberg et al., 2020). Furthermore, direct quotations of the participants were incorporated to provide a better understanding and examples of the selected codes (Løkkeberg et al., 2020). The findings of the quantitative approach (SOC-29 Questionnaire) were used to analyse and interpret the qualitative findings to contribute to the thick description and a better understanding of each theme (Mayer, 2011).

### **3.10 Quality assurance and quality criteria**

Quality assurance is more arduous to ensure in qualitative research is more arduous than in quantitative research (Thomas & Magilvy, 2011). The rigor of qualitative inquiry (Lincoln & Guba, 1986) is necessary to establish that the results are based on evidence and science (Thomas &



Magilvy, 2011). The trustworthiness of the research study is ensured by adhering to the requirements of credibility, transferability, dependability and conformability (Whitehead, 2004; Lincoln, 1995). These criteria will be described in more detail.

### *3.10.1 Credibility*

Credibility was achieved through the truthful interpretation and explanation of the experiences mentioned by the participants (Whitehead, 2004). This was the extent to which the data gathered and data analysis was credible. The method used to increase credibility was method triangulation and persistent observation (Lincoln & Guba, 1986). For method triangulation multiple methods were used to collect data to ensure the consistency of the findings (Korstjens & Moser, 2018), thus both a questionnaire and a semi-structured interview were applied to give credibility to the criteria. Therefore, the quantitative data was used to explain or contradict the qualitative results of the data for example when the participant mentioned they believe they have resources to manage the changes of the 4IR and they scored relatively high on the Manageability component of the SOC-29 questionnaire, which confirms what the qualitative data. Persistent observation contributes the behaviour of identifying the characteristics or elements that fulfil the objective of the study and focusing on these characteristics (Korstjens & Moser, 2018). The participants were identified and selected based on the inclusion criteria and specific data were included based on the whether the data will add value to the data. The themes that emerged from the data were based on the characteristics of the 4IR and the sense of coherence through reading and re-reading the data to identify codes and thereafter formulated themes, thus irrelevant data were excluded in the result section.

### *3.10.2 Dependability*

Dependability is determined by the reliability of the findings or the consistency of the results, which is guaranteed by maintaining records (audit trail) of the steps followed and conclusions made during the research process (Korstjens & Moser, 2018; Lincoln & Guba, 1986). The process and steps followed are described in detail throughout the research process, and the SOC-29 questionnaires and transcribed interviews are stored in a password protected file on the laptop, therefore an audit trail can be conducted.

### *3.10.3 Transferability*

Transferability refers to whether similar findings can be attained by replicating the study, thus showing no ambiguity found in decisions made (Whitehead, 2004;), hence during the research process, the strategy used to ensure transferability is by extensively describing the research process and the context of the research (Korstjens & Moser, 2018; Lincoln & Guba, 1986). An in-depth description of the process and experiences is explained and provided in the study which can be used as a guideline for other researchers to make transferability judgement thereby ensuring the transferability of the study (Korstjens & Moser, 2018), and the raw data and materials are provided and stored for audit trail purposes.

### *3.10.4 Conformity*

Conformity denotes the extent to which the results are verified and supported by other researchers (Forero et al., 2018). To prove that the study is trustworthy the process is described in depth to explain how and why the conclusions were made based on the facts gained during the study (Whitehead, 2004). This was confirmed by an audit trail as well by documenting all the records throughout the study (Korstjens & Moser, 2018; Lincoln & Guba, 1986), therefore other researchers or readers can make their own conclusions based on the detailed description of the process followed and the interpretation of the results.

## **3.11 Ethical considerations**

Unethical practices that can put the participants at risks may have negative consequences (Brittain et al., 2020). This is particularly true for I/O Psychology research in the context of organisation, mental health and well-being (Lefkowitz, 2012). Moral and social values need to be promoted to respect the dignity of individuals (Resnik, 2011).

As ethical considerations in research are norms for behaviour that is suited to a goal or objective, these norms direct behaviour, actions or activities of researchers to establish trust in the study, field and discipline (Resnik, 2011). In addition, these norms or rules protect participants in the study from harm or misuse of data or the participants themselves (De Vries et al., 2006). This research study fulfills the requirements of the ethical committee and is ethically cleared by the

Department of Industrial Psychology and People Management (IPPM) Research Ethics Committee with the ethical clearance code of IPPM-2020-418(M).

Ethical principles adhered to were (Ketefian, 2015):

- Respect for individuals
- Beneficence, that refers to doing good and benefitting the stakeholders of the study. The rights of every participant were respected and rules were adhered to.
- Non-maleficence, which means to inflict no harm. This study has a low risk of inflicting harm on participants.
- Justice refers to fairness thus considering what is fair in the process of the study. Therefore, including questions of ‘who benefits from the research?’ and ‘who carries the risk of the research?’ while conducting the research.

#### *3.11.1 Voluntary participation*

The participants were provided with the information relating to the study and given a choice to participate in the study (Smythe & Murray, 2000). Voluntary participation was emphasised so there was no feeling of coercion. Furthermore, the participants were informed that they had the right to withdraw from the research process at any time if they felt uncomfortable, and their data would be excluded from the study.

#### *3.11.2 Informed consent*

While the participants were provided with the necessary information regarding the objectives of the study (Connelly, 2014), the participants were provided with the opportunity to exercise their right of informed consent. The participants signed an informed consent form, which had to be signed before the commencement of the data gathering process.

#### *3.11.3 Confidentiality*

Confidentiality is a means of guaranteeing participants’ anonymity and not disclosing any identifiable information from the participants (Wiles et al., 2008). Confidentiality was adhered to in terms of using a numerical label that was allocated to each participant (Connelly, 2014), and precautions were put in place to prohibit the disclosure of personal information to outside related

parties. The researcher also refrained from asking identifiable questions that could lead to the disclosure of participants' identities. Furthermore, the participants personal information and documents were stored on a technological device that was protected by a password.

#### *3.11.4 Transparency*

While reporting was conducted in a transparent and honest manner to avoid deception (Smythe & Murray, 2000), the researcher did not draw conclusions that were not supported by the data gathered (Walker, 2007).

### **3.12 Methodological Limitations**

The methodological approach of this research study is subject to limitations. The data of this study are not generalizable due to the small sample size and the unique events that are particular to certain individuals' perspectives (Toomela, 2011). Consequently, the findings of the study can only be used in follow-up studies or provide guidance for other studies (Mayer, 2011). Furthermore, as this study is set out to collect subjective data an emic perspective was taken, the researcher's biases may be mirrored in the data analysis (Schaefer & Alvesson, 2020).

### **3.13 Chapter Summary**

This chapter outlined the research paradigm and philosophy, the research design characterised by a philosophical hermeneutical approach, and a research approach which described the methods namely a semi-structured interview and a questionnaire that were used to collect data. Furthermore, this chapter discussed the data analysis method which consisted of a qualitative (thematic analysis) method and quantitative (SOC-29 questionnaire) method. This chapter also discussed the methods implemented to adhere to the quality assurance and ethical considerations in this study.

## 4. FINDINGS

### 4.1 Chapter Overview

In this chapter, the findings of the interview are presented in terms of a content analysis of the 4IR and Salutogenesis. The findings are categorised and coded under three themes namely, comprehensibility, manageability and meaningfulness and direct quotations are also provided from participants.

### 4.2 Findings of study

There were 17 participants who supplied the following biographical information;

**Table 4.1**

*Biographical Information of Sample*

Participant	Gender	Age	Race	First language	Industry	Position in the company
1	Male	57	White	English	Manufacturing	Managing Director
2	Male	51	White	Afrikaans	Electronic manufacturing	Senior Executive Product Development
3	Male	27	White	Afrikaans	Psychiatry	Senior Research Officer
4	Male	51	White	Afrikaans	Procurement, Wholesale & Human Resource	Financial Director
5	Female	52	White	Afrikaans	Medical	Embryologist 1991-2019  Medical Sales Representative
6	Female	37	White	Afrikaans	IT/Telecomms	Executive/Shareholder
7	Female	57	White	Afrikaans	Finance	HR Manager

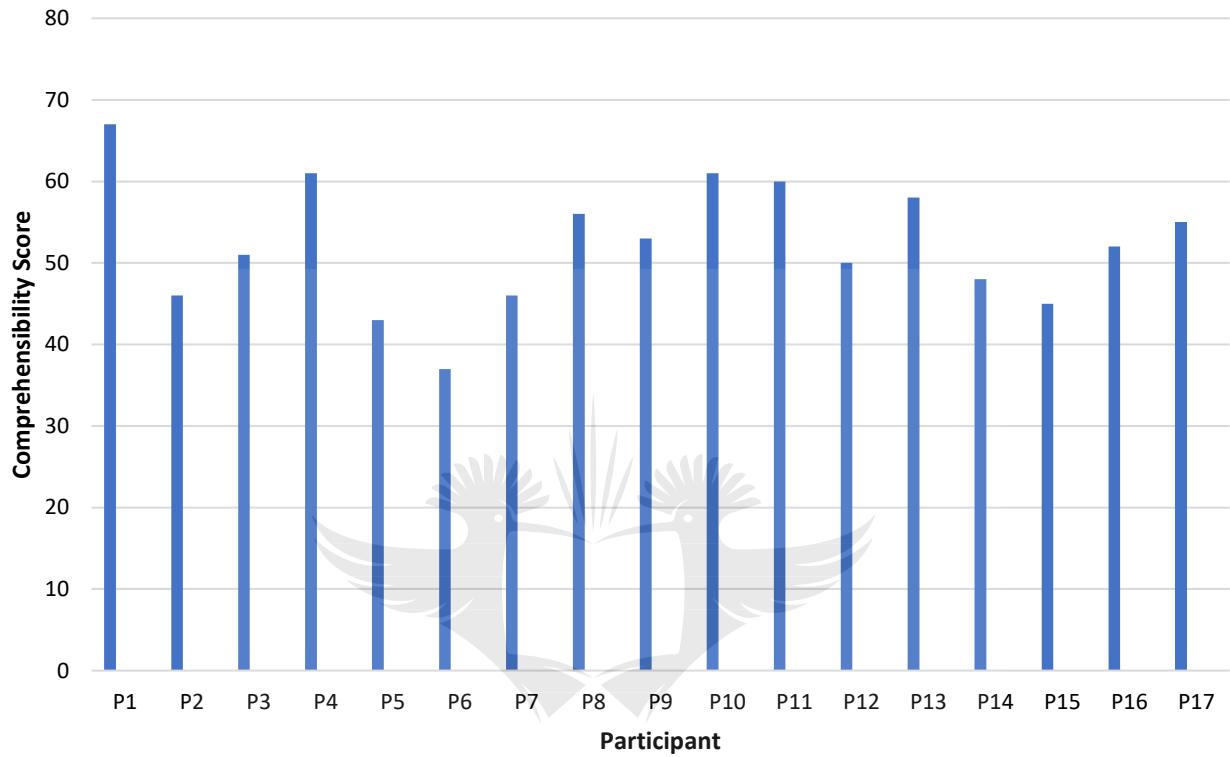
8	Female	58	White	English	Retail	Senior Bookkeeper & Head of Accountant
9	Female	38	White	English	Professional Services	Executive Head
10	Male	47	White	Afrikaans	IT / Software Development	Executive
11	Male	51	White	Afrikaans	Construction	Commercial Director
12	Female	34	White	English	Previous – academia; current – performance coaching	Performance coach
13	Male	41	White	Afrikaans	Utilities	Deputy Engineering Manager
14	Male	63	White	English	Old Age Home	Executive Director
15	Female	26	Coloured	English	Assisted Reproduction/Embryology/ Obstetrics and Gynaecology	Assistant Research Officer
16	Male	52	White	English	Engineering	Director
17	Male	49	White	Afrikaans	Financial Services (retirement funds)	CEO

*Note.* All the participants have managerial responsibilities.

#### 4.2.1 Presentation of Quantitative findings

Figure 4.2

*Comprehensibility Sub-components Scores of Managers*

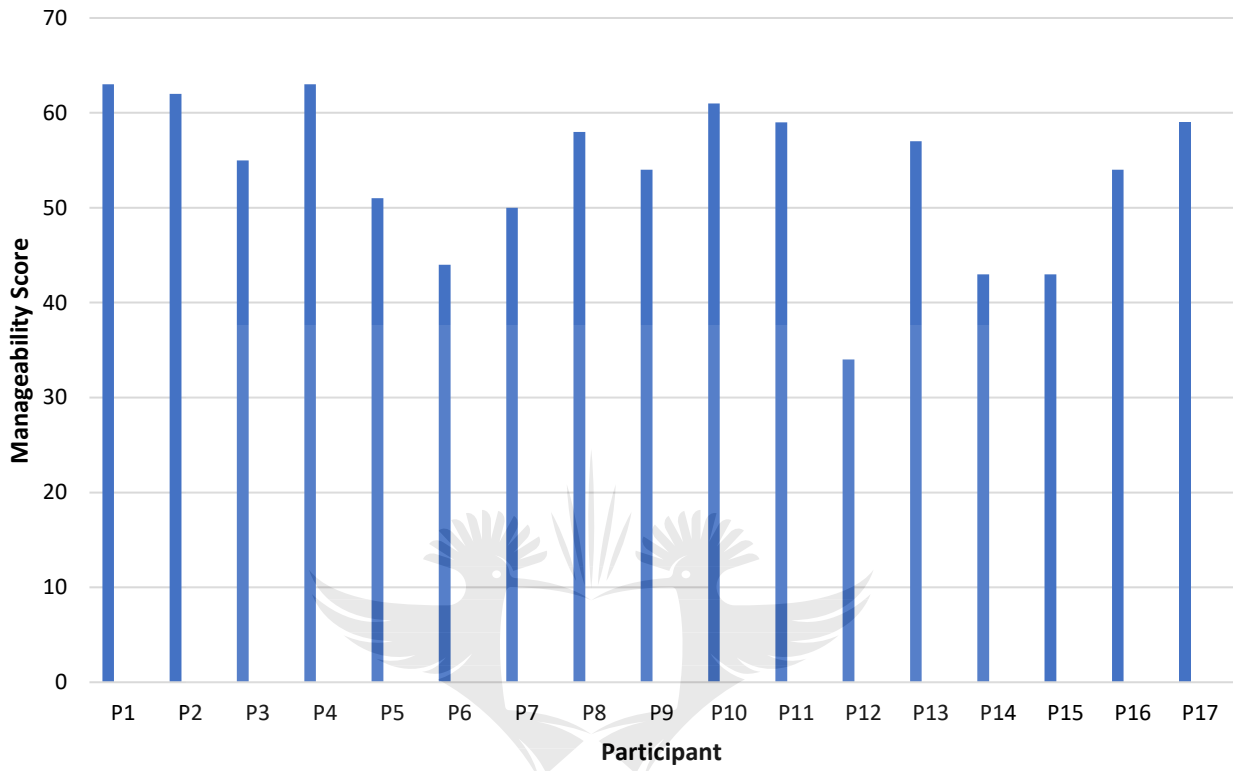


*Note.* This figure demonstrates the scores achieved by each participant on the comprehensibility sub-component of the SOC-29 Questionnaire.

Figure 4.2 illustrates that P1 (67) scored the highest on the comprehensibility sub-scale, whereas P6 (37) scored the lowest. The overall score of the sample on the comprehensibility component falls within four and five on the Likert scale, which indicates that the comprehensibility scores are between the medium and higher scores.

Figure 4.3

*Manageability Sub-component Scores of Managers*



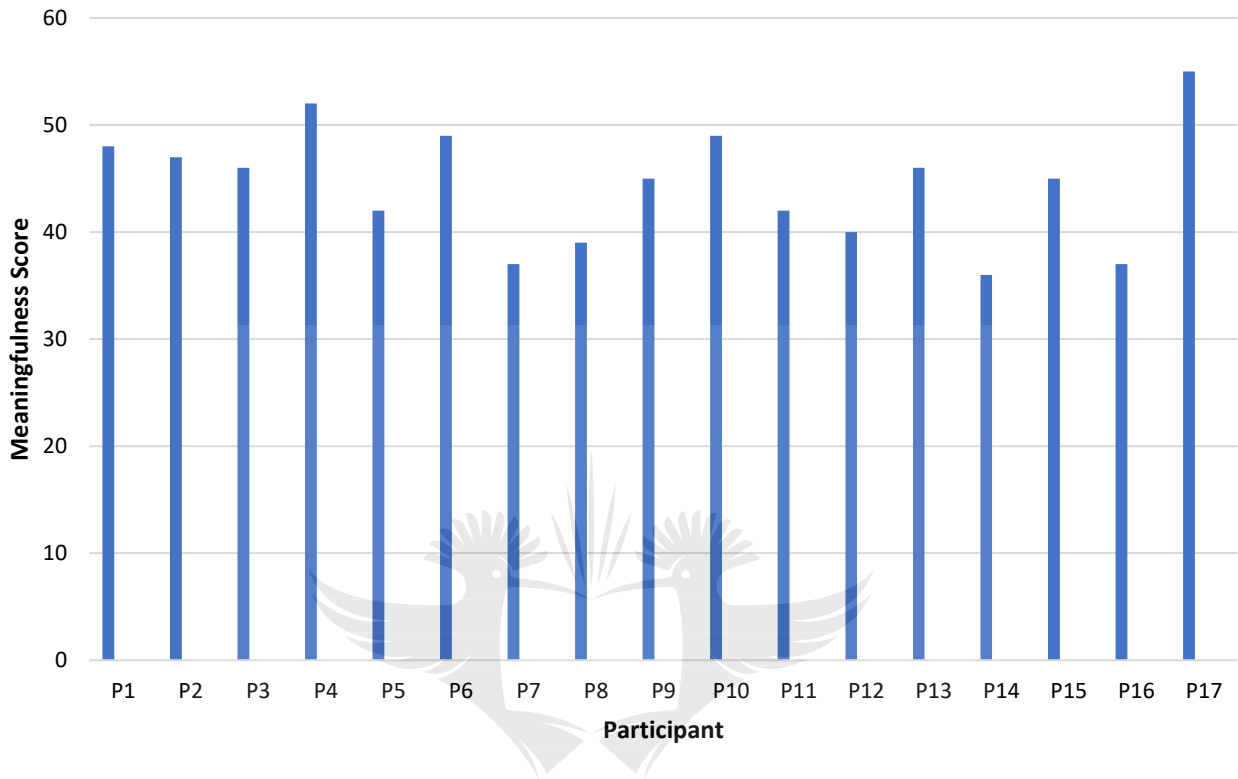
*Note.* This figure demonstrates the scores achieved by each participant on the manageability sub-component of the SOC-29 Questionnaire.

In figure 4.3, P1 (63) and P4 (63) scored the highest on the manageability subscale, whereas P12 (34) scored the lowest on this sub-scale. The overall score of the sample falls within the higher end of the Likert scale, which demonstrates that the sample attained a high manageability score.



Figure 4.4

Meaningfulness Sub-component Scores of Managers

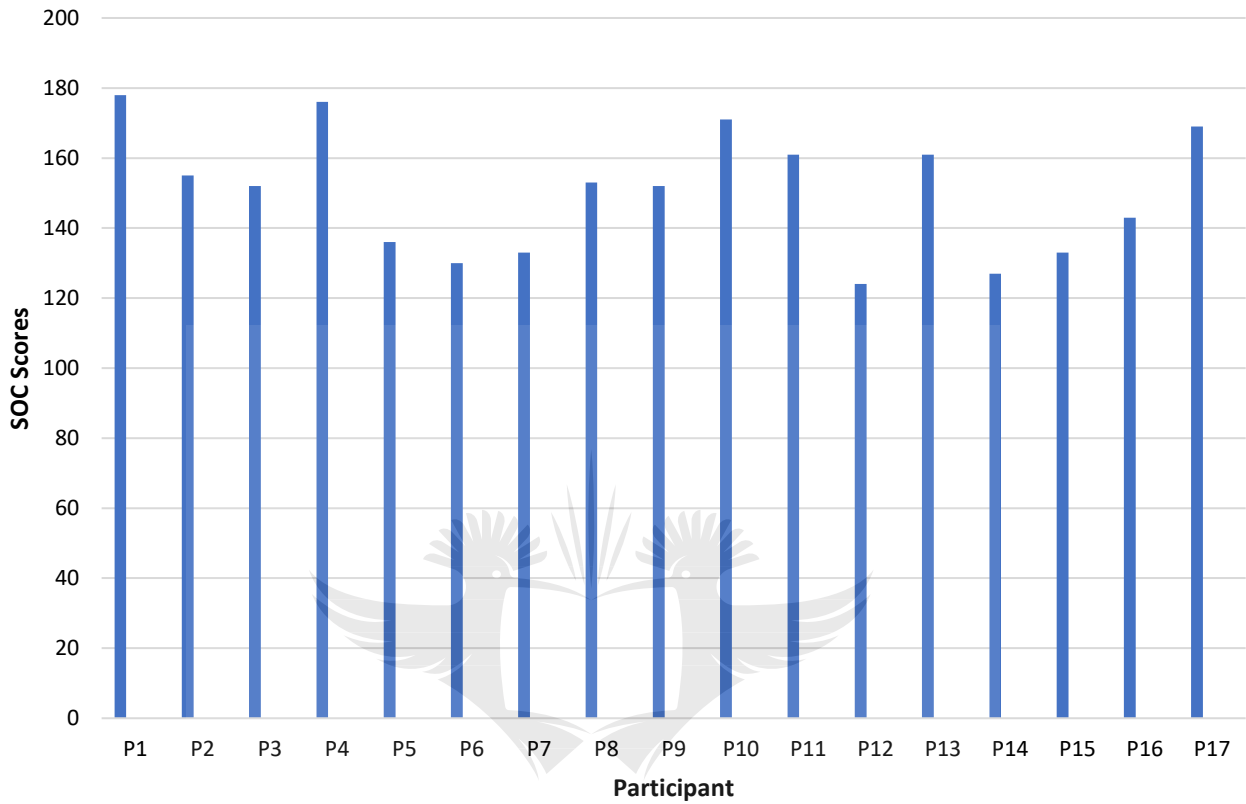


Note. This figure demonstrates the scores achieved by each participant on the meaningfulness sub-component of the SOC-29 Questionnaire.

Figure 4.4 illustrates that P17 (48) scored the highest on the meaningfulness sub-scale, whereas P14 (36) scored the lowest in this sub-scale. The overall score of the sample falls within the higher end of the Likert scale, which demonstrates that the sample attained a high meaningfulness score.

Figure 4.5

Total SOC Scores of Managers



Note. This figure demonstrates the total scores achieved by each participant on the of the SOC-29 Questionnaire, which is the sum of the sub-components namely comprehensibility, manageability and meaningfulness.

In figure 4.5, each participant's SOC scores are illustrated, where P1 (178), P2 (155), P3 (152), P4 (176), P8 (153), P9 (152), P10 (171), P11 (161), P13 (161), and P17 (169), whereas P12 attained the highest SOC score. The lowest SOC score is 124, which was attained by P12. The sample's SOC scores range from medium to high scores, which indicates that none of the SOC scores is weak.

## 4.2.2 Presentation of Qualitative Findings

**4.2.2.1 Theme1: Comprehensibility.** This theme contains the descriptions the participants provided of what the 4IR is, their experiences of the technologies in their work environment and in their personal life. Furthermore, opinions on the connection between BEE and religion are also discussed. The comprehensibility scores indicate that the 4IR makes cognitive sense and is predictable to some extent.

- Definitions of the 4IR

### *i. Category: Technology*

The participants described the 4IR in various ways. Ten participants described the 4IR as the development of disruptive technology, as is evident in the following words:

*“Uhm, and actually quite disruptive, I think we hear about stuff like water, you know, self-driving cars, and maybe household appliances being interconnected, everything...”* (Participant 2, Male)

*Uhm, it's basically the advancement of the technologies...”* (Participant 8, Male)

Furthermore, 12 participants provided examples of the development of technologies, which include artificial intelligence, cloud computing, machine learning, internet of things, self-driven cars, 3D printing, robotics, nanotechnology, information technology, cyber physical space and the 5G network:

*“...I have an interest in the in the [sic] medical side of it, where we can 3D print prosthetics...”* (Participant 12, Female).

*“And using technology in in [sic] fast new ways, uhm less people involved and artificial intelligence...”* (Participant 4, Male).

### *ii. Category: Digitization*

Eleven participants mentioned that the 4IR was known to bring automation and digitisation of labour and tasks, which is demonstrated by the following comments:

*“...but the other component is also the automation of the workforce uhm, replacing what used to be manual labour with a computer or machine...”* (Participant 3, Male)

*"...almost in one word is it's the digitization..."* (participant 7, Female)

Nine participants understood the 4IR as the fusion of the digital, biological and physical worlds, and this is illustrated in the following words:

*"Uhm, it's that fusion of digital, biological and physical worlds..."* (Participant 5, Female).

*iii. Category: Access*

Fourteen participants mentioned the 4IR had provided people with more access to information and emphasised the ease of attaining information, which is cited by the following participants:

*"...gives us far better access to information..."* (Participant 17, Male)

*"...my manager can get a lot quicker into the information and analyze and be more strategic..."* (Participant 9, Female).

And one participant had to read up on the 4IR before conducting the interview to gain insight into what the 4IR is: *"I had no idea Cemonn, so I had to go and read up on it, uhm, what it actually entails."* (Participant 11, Male).

*iv. Category: Humanness*

Eight participants argued that as not all human tasks can be automated, the human element cannot be removed. The following statement is provided by a participant:

*"...there will always need to be some human intervention in some way..."* (Participant 6, Female)

*v. Category: Workplace*

In the business environment, seven participants noted that the 4IR led to change: *"...I see it as obviously uhm... a change in the business environment..."* (Participant 1, Male), whereas two participants averred that it was a necessity in the workplace: *"I think if if [sic] the workplace doesn't embrace it and change in order to use it to its own benefit; I think we will do companies won't survive."* (Participant 2, Male).

*vi. Category: No relevance*

However, one participant was of the opinion that the 4IR was not a major milestone, but rather the gradual improvement of technology: “*And I just don't think it's going to be as extreme as a lot of people believe.*”, and “*I I [sic] I've seen it coming and it's been it's not [sic] it's not a major milestone. Uhm... I believe technologies gradually improved.*” (Participant 16, Male). However, the P16’s comprehensibility score indicates that the participant has the capability to understand the 4IR.

**Table 4.2**

*Categories Defining the 4IR*

Frequency	Code	Participant	Category	Frequency
12	Naming 4IR technologies	P1, P2, P3, P4, P5, P6, P8, P9, P10, P11, P12, P14	Technology	22
10	Disruptive technology, development of technology	P2, P3, P4, P5, P8, P9, P10, P14, P15, P17		
11	Automation and digitization	P2, P3, P4, P6, P9, P12, P13, P14, P15, P16, P17	Digitisation	20
9	Fusion of the digital, biological and physical worlds	P1, P2, P3, P5, P7, P8, P12, P14, P17		
14	More access to information – Category	P1, P2, P4, P5, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17	Access	15
1	Had to read up on 4IR	P11		

8	Cannot replace human element	P1, P3, P4, P6, P9, P13, P15, P16	Humanness	8
7	Change in business environment	P1, P2, P6, P7, P14, P16, P17	Workplace	9
2	Necessity in the workplace	P2, P9		
1	Not a major milestone	P16	No relevance	1

- Perceptions of the effects of the 4IR on the world of work

Participants' interpretation of the effect of the 4IR on the world of work was it would make work easier and more efficient, where the virtual workplace would become more prominent, but less contact with people will be an effect of the 4IR. Furthermore, in the world of work jobs would become redundant jobs and new industries and jobs would be created.

*i. Category: Decentralization of workplace*

Nine participants mentioned that remote work would become more general in the world of work: "...we've already seen the changes, uhm we've discovered that we can work remotely." (Participant 7, Female). Nine participants voiced their concern about the decline in human interaction in the workplace, which is evident in the following statements: "...in the human context, we are more and more reliant on technology and more more [sic] isolated from other human beings, that personal contact is falling away, and it's being replaced by technology..." (Participant 5, Female), and "I think, obviously, losing that personal touch in the work environment might be a problem." (Participant 11, Male).

Three participants noted that the 4IR technologies enabled more online medical and legal consultations: "Uhm, but even there, we've seen that doctors will do the initial consultations now with the patients because of COVID uhm, remotely, to know—kind of try and limit exposure. So, I think this is a new thing that's now been forced into the foreground over the last few months." (Participant 5, Female).

ii. *Category: Technological processes*

Twelve participants said that the technology of the 4IR would make work easier and more efficient, which is illustrated in the following words:

*“Now it's just typing keywords you have SEO's like everything... is brilliant, and easy and accessible at this point.”* (Participant 15, Female).

*“And my my [sic] job probably would not be as easy if it wasn't for technology. So... I think... it is made much of a lot easier.”* (Participant 3, Male).

Additionally, coding and data analytics in the work environment are becoming more prominent: *“...data analytics is the way forward if you can if you can [sic] code, you're probably going to be rich, and had [sic] lots of jobs...”* (Participant 3, Male).

iii. *Category: Job related*

Five participants expected that the unfavourable results of the 4IR will result in job losses: *“...I think it's not good in terms of jobs. Uhm, you know, because, you know, computers are essentially taking over where people used to do these things.”* (Participant 8, Male), and *“...it's not necessarily as good a thing 'cause it makes one person's life so much easier at the cost of other people's livelihoods.”* (Participant 12, Female). In addition, one participant commented that the financial consulting services will become redundant due to the 4IR, which is stated by the following words: *“...I think my industry, which is the consulting and advisory type business, it uhm could well lead to the end of financial services consulting, as we know it...”* (Participant 17, Male).

Four participants argued that 4IR created new jobs and industries: *“...look at, it it [sic] creates new job opportunities for people that... uhm, it creates new work. We don't even know what kind of jobs are are [sic] going to be out there...”* (Participant 10, Male). Furthermore, two participants stated that highly skilled and specialised positions would not become redundant due to the 4IR: *“I think... highly skilled, specialized positions will stay with the humans, but I think things like GPs, psychometry, legal-like baseline legal representation can almost be automated...”* (Participant 12, Female), and *“And then on the other side of it, you're going to have your very skilled people that still always will be there...”* (Participant 13, Male).

**Table 4.3**

*Categories of the Effects of the 4IR on the Future World of Work*

Frequency	Code	Participant	Category	Frequency
9	Less contact with people	P2, P5, P6, P7, P9, P11, P13, P16, P17	Decentralization of workplace	21
9	Remote workplace	P1, P2, P4, P5, P7, P9, P14, P16, P17		
3	More medical and legal consultations online	P1, P3, P5		
12	Technology will make work easier and more efficient	P1, P3, P5, P6, P8, P9, P12, P13, P14, P15, P16, P17	Technological processes	14
2	Coding and data analytics become more prominent	P3, P15		
5	Job losses	P3, P8, P12, P15, P17	Job related	12
4	Creation of new jobs	P3, P8, P10, P17		
1	End to financial consulting services	P17		
2	Highly skilled, specialized positions	P12, P13		

- The 4IR connection with BEE and politics



The majority of the participants did not perceive any connection between the 4IR, Black Employee Empowerment and politics of the organisations, whereas some participants recognised a connection between these aspects where communication was easier and more accessible to BEE individuals. However, exclusion of disadvantaged individuals was also blamed on the 4IR.

*i. Category: No relevance*

Nine participants communicated that they did not perceive any connection between the 4IR, BEE and Politics: *“So, I don't think it has a big change on our politics or the BEE in our company...”* (Participant 6, Female), and *“Soh, at this stage I I [sic] can't see that there is any connection between the politics and the BEE of the company. I I [sic] can't see any connection there at the moment, no.”* (Participant 11, Male).

*ii. Category: Communication*

Whereas ten participants agreed that there was a connection between 4IR, BEE and Politics, the following comments were made:

- a) Communication and connections have become more rapid: *“...also helped as well as that we can have a lot more connections with, with uhm, previously disadvantaged people within the the [sic] demographics...”* (Participant 9, Female) and *“So, it's easier access to more people and a broader spectrum of people—you could then include more doctors, more uhm, races of all, you know...all kinds.”* (Participant 5, Female). One participant stated that the 4IR excluded the previously disadvantaged individuals: *“...I also feel that maybe the industrial fourth industrial revolution is excluding a lot of the uhm, disadvantaged communities because they not although they all have cell phones, but they're not really able to afford all the modern technologies...”* (Participant 7, Female).
- b) One participant said that the technologies of the 4IR made it easier to make political influences more obvious in the working environment, because propaganda could be spread more easily: *“Uhm, it's it's [sic] very, very easy to make a political influence... there's a lot of potential to, you know, have fans and get the right*

*message across, but then also to despair propaganda, in effect.” (Participant 3, Male).*

**Table 4.4**

*Categories of the Connection Between the 4IR and BEE/Politics*

Frequency	Code	Participant	Category	Frequency
9	No BEE connection	P6, P8, P10, P11, P12, P13, P14, P16, P17	No relevance	9
6	Communications has become more rapid, more ways to communicate, more connections with disadvantaged	P1, P3, P4, P5, P9, P10	Communication	8
2	Easier to make political influence.  Negative side: propaganda	P3		
1	Excluding disadvantaged	P7		

- The changes in job descriptions

The majority of the findings indicated that the participants thought that their job descriptions would not change in the near future, but the way the work would be carried out will change and additional tasks would also be included in the job descriptions. However, the findings also indicated that a few jobs could be automated by the 4IR. The findings indicated that leadership roles would not change due to the 4IR.

i. *Category: Additional practices*

Thirteen participants communicated that their job descriptions would not change due to the 4IR but the way they delivered the end product or additional tasks would be included: *“Uhm I... don't... think my job description will change as much in the near future, uhm we will still have projects, we still need to deliver on certain time...”* (Participant 6, Female), and *“...the job description will probably be the same, it's the way we get to the answer that will probably change a little bit.”* (Participant 4, Male). On the other hand, three participants believed that their jobs could be automated due to the arrival of the 4IR: *“However, going back to the jobs that I had previously and managing teams, curriculating, uhm and course design can be absolutely done by automated technology, because it can reach further the data gathering process, the comparison process between what all other institutions are doing, I think that can be done better by an automated service.”* (Participant 12, Female).

Five participants revealed that they needed to have the necessary knowledge about the new technologies to do their jobs effectively: *“Well, being being [sic] in a leadership and management position, that's your job is always questioned if you're not technically strong, so... need to be relevant, understand the technologies out there, and be able to uhm, lead teams that make use of those technology.”* (Participant 10, Male). In addition, one participant mentioned that it is important to stay up to date with new opportunities: *“that's going to force me to keep scanning the environment and keeping being aware of potential business opportunity”* (Participant 1, Male).

Four participants suggested that their work would be more accurate due to the developments of the 4IR: *“...information that you receive, it will be a lot better to compile your budget, uhm, for what you might require. Uhm, so people make I [sic] cash flow and your financials a lot more reliable going forward.”* (Participant 11, Male).

ii. *Category: No changes*

Three participants commented that leadership roles would not change due to the 4IR, consequently, people management would remain relevant in the working environment although a lot of automation was taking place: *“No, I don't see. No, I don't see that. My job is to just just [sic] think, and lead people and I don't see that going away.”* (Participant 1, Male). Furthermore, two

participants stated that their job descriptions would leading people to cope with the new environment: *“I will have to..., maybe first of all, I will have to lead people to be able to cope uhm, in this uhm, new environment.”* (Participant 2, Male).

Additionally, one participant mentioned that there would be no changes to her job description: *“I don't think it will. I don't think it will, ja.”* (Participant 8, Female).

And *“So, I think that would probably stay the same. Uhm, the only thing that would they’ll probably add some auxiliary in front of it, like online research, or virtual research or something like that...”* (Participant 3, Male).

iii. *Category: Job automation*

Whereas, one participant pointed out that her job was already automated: *“I think..., well, already, it's quite digital, and quite technological, uhm my job description, I spend a lot of time in front of the computer, constantly searching for things...”* (Participant 15, Female).

**Table 4.5**

*Categories of Perceived Changes of the 4IR on Job Descriptions*

Frequency	Code	Participant	Category	Frequency
13	Job descriptions stay the same – will not change, additional or different practices included.	P2, P3, P4, P5, P6, P7, P9, P10, P11, P12, P14, P17	Additional practices	26
	Way of doing things will change			
5	Have knowledge of the new technology	P1, P7, P10, P11, P15		
4	More accurate work	P6, P11, P12, P13		

3	Lead people to cope with new environment	P2, P10, P13		
1	Stay updated with opportunities	P1		
1	Already digital	P15	No changes	5
1	Not any changes	P8		
3	Leading people will not change	P1, P7, P10		
3	Job can be automated	P6, P12, P16	Job automation	3

- 4IR connection to religion

The findings suggested that the 4IR provided individuals with more resources and information about their religion, namely the participants could continue with their church services as during lockdown and they were able to have their Bible on their phone. However, various participants mentioned they saw no connection between their religion and the 4IR.

*i. Category: Religious connection*

Eleven participants mentioned that the 4IR enabled more access to religious resources such as online church services and reached more people to inform them about their religion: “Yes, it can—actually information about the religion can reach more people through the technology.” (Participant 10, Male), and “...going to church, you can actually sit and watch and look at a mass on your Facebook at home, streaming to the TV. Uhm... again, I think it just comes back to technology that we've got at our fingertips.” (Participant 13, Male).

One participant mentioned that her belief system is based on science, therefore, she believes in things that are provable by science: “Uhm, it n—I believe in science, I’m I’m [sic] quite secular in that way...” (Participant 12, Female).

One participant pointed out that technology enabled people to participate in practices that are against their religion: *“that comes a lot of negative things that more religion is opposed to uhm, anything from theft, money laundering, pornography, those sorts of things, or, you know, all the evil things in the world are suddenly a lot easier with technology.”* (Participant 17, Male).

ii. *Category: No connection*

While four participants stated that there was no connection between the 4IR and their religion: *“I don't think it does. I kind of feel that they separate uhm...”* (Participant 8, Female).

**Table 4.6**

*Categories of the Connection Between Religion and the 4IR*

Frequency	Code	Participant	Category	Frequency
11	More access to religious resources	P2, P4, P6, P7, P8, P9, P10 (inform more people), P11, P13, P15, P17	Connection	13
1	Religious - Technology made it easier to do bad things	P17		
1	Believe in science - religion	P12		
4	No connection to religion	P5, P8 (Technology and religion are separate), P14, P16	No connection	4

- Impact on life and health

The findings further revealed that the 4IR made their life easier and more comfortable, and the 4IR had a good impact on their health due to new technologies and the developments in the medical field. However, a few participants said that the 4IR had affected their health negatively

due to longer working hours, less exercise and the fatigue, with a few participants not experiencing any direct effect on their health. In addition, the findings revealed that their perceptions of life were changed due to the 4IR and a few noted a small impact on their lives.

*i. Category: Positive impact*

Eight participants revealed that the 4IR made their life easier and more comfortable: *“It's made my life easier. I get here, I didn't have I didn't have[sic] a computer when I started here, or my other companies where I worked, I had a computer to keep in touch with uhm, people overseas or contacts...”* (Participant 14, Male).

Eight participants opined that the 4IR had a good impact on their health because of a better work-life balance and more access to knowledge about health: *“Now it is quite nice, because you book your class, and then you know, you're in that class, you can plan your day around that class. So, I think it's helped me... uhm dedicate better to do physical activity. Uhm, so it help [sic] me structure my day between work and stuff.”* (Participant 9, Female), and *“So, health wise, yes, I think all that information does help and give you a good indication of where you are. So, all in all, I think it's a, it's a [sic] positive for for [sic] health.”* (Participant 11, Male). Furthermore, seven participants stated that the technology assisted to monitor exercise and made it easier to be motivated to exercise: *“Uhm, and it also motivates you, if you see where you at with it.”* (Participant 11, Male).

Although five participants mentioned that the 4IR did not directly affect their health, some admitted that the 4IR had prompted health consciousness: *“Uhm, it didn't impact my health because I didn't—let me put it this way, it did not impact my health directly, but it did make me do is uhm, make me realize that I have to make time and and [sic] plan better.”* (Participant 4, Male), and *“I I [sic] don't see it being a.... great as a huge effect on me.”* (Participant, 16, Male).

In addition, six participant said that the 4IR had had a good impact on the health sector, such as more information about illnesses, and improving medical conditions, disabilities and treatment options: *“Oh, health wise, if I were to get the knee replacement, I can get a 3D printed knee...”* (Participant 12, Female), and *“...if you look at the technology in in [sic] the medical fraternity, if you want to call that—how that's going to decision making—all those nanotechnologies in in [sic]... operation stuff, I think that will have an impact.”* (Participant 10, Male).

ii. *Category: Negative effects*

On the other hand, six participants made it known that the 4IR had had negative effects on their health, which included longer working hours and less movement due to a virtual workplace, fatigue due to more screen time, and more stress due to change: *“Uhm, and, and that's called the blue screen effect is severe fatigue, associated with constantly being on a screen—having screen time.”* (Participant 3, Male), and *“sitting down all day working behind your computer, you know, after the day's slouching in front of the computer, you feel your neck, shoulder, neck muscles as a bit of a spasm.”* (Participant 7, Female), and *“Uhm, so that that will bring most additional stress, I think so uhm, and and [sic] because you are basically connected uhm, with some sort of a device twenty-four seven, you you [sic] basically connected to your work twenty-four seven...”* (Participant 2, Female).

Three participants asserted that the 4IR had had a small impact on their lives, which could be inferred from the following words: *“I think currently is the impact is still small, uhm... it's still gonna [sic] come...”* (Participant 2, Male).

iii. *Category: No impact*

Five participants stated that the 4IR had had no direct effect on their health, which could be deduced from the following words: *“...let me put it this way, it did not impact my health directly, but it did make me do is uhm, make me realize that I have to make time and and [sic] plan better.”* (Participant 4, Male).

iv. *Category: Small impact*

Three participants communicated that the 4IR had had a small impact on their life so far, but they predicted that it might be significant in future:

*“I think currently is the impact is still small, uhm... it's still gonna [sic] come...”* (Participant 2, Male).

v. *Category: Change*

Two participants mentioned that the 4IR had changed their perceptions of life: *“It's it's it's[sic] changed the way we perceive life.”* (Participant 14, Male).



**Table 4.7***Categories of the Effect of the 4IR on Life and Health*

Frequency	Code	Participant	Category	Frequency
8	Life would be easier and more comfortable	P4, P7, P8, P10 P11, P13, P14, P15	Positive impact	29
8	Good impact on health (work-life balance, more access to health knowledge)	P1, P6, P9, P10, P11, P12, P13, P17		
7	Technology improved monitoring of exercise.  Use fitness watches	P1, P6, P8, P9, P11, P12, P14		
6	Good impact on health sector	P7, P8, P10, P11, P12, P17		
6	Negative effects on health - Connected 24/7 to work – longer working hours, less moving around, more stress due to change	P2, P3, P5, P6, P7, P14	Negative health	6
5	No direct impact on health	P4, P7, P8, P14, P16	No impact	5
3	Small impact on life	P2, P11, P16	Small impact	3
2	Changed life perceptions	P14, P15	Change	2

**4.2.2 Theme 2: Manageability.** The findings indicated that the participants used various resources at their disposal to cope with change and stay abreast of the new developments. The most prominent resources mentioned were continuous learning, sharing knowledge and skills with other knowledgeable people in the industry, and using current skills and knowledge, these included:

- Current knowledge to know what was available on the market and understanding of new technologies;
- Performance, presentation and communication skills available to present to clients virtually;
- Skills learnt naturally due to growing up with technology;
- Computer literacy to gain information;
- Active listening to take in what other people communicate;
- Research and analytical skills

Furthermore, the manageability scores of the sample indicated that the participants' available resources were sufficient to address the change and demands of the 4IR.

*i. Category: Skills and knowledge*

Twelve participants stated that continuous learning was an essential activity during the 4IR: *"Learning as you go, I mean, it's impossible to get all the information in one shot..."* (Participant 3, Female), and *"Yes, I would say I read a lot, I read a lot. Uhm, I read, uhm, a lot of articles related to my job, and also to the technology."* (Participants 7, Female).

Furthermore, twelve participants admitted to sharing knowledge and skills with others who were knowledgeable was a key practice to stay abreast with new developments: *"And other thing as well is connecting with people face to face, virtually, and learning from their experiences and then determining, you know, what is, you know, how can I respond to that, to ensure that they have uhm, a good experience."* (Participant 6, Female). Additionally, twelve participants stated that they used their current skills and knowledge to cope and manage the changes presented by the 4IR: *"Uhm, but I I [sic] think for me, skills that is important still would be active listening, making sure I listen to what people say, that connecting thing that I talked*

*about earlier...” (Participant 2, Male), “...then obviously analyzing skills, ja ja [sic], to analyse all this information that you get, because it's going to be an information overload and you need to to [sic] know how to interpret that information.” (Participant 11, Male), and “...I mean, there's there's [sic] a technical answer, and that and that [sic] is remai—understanding the cloud technologies out there in computing, and what kind of solutions exist.” (Participant 10, Male).*

Nine participants said that staying informed about the new developments of the 4IR was a coping mechanism: *“...if we think about and inform ourselves, we will be able to take advantage of of [sic] opportunities that present themselves.” (Participant 1, Male).*

Nine participants revealed that they had upskilled themselves through training courses and internet platforms to remain relevant during the 4IR: *“...we've had quit a few platforms we had to because this company will use Teams, that company will change software flatforms that are being used, way of training is changing.” (Participant 5, Female), and “...because we are in a tech world, technology change often. So, we do many course change [sic], we do a lot of courses and stay up to date with new technology all the time.” (Participant 6, Female).*

The findings further indicated that participants believed that adaptability was important during the 4IR, because six participants stated that adaptability and flexibility were necessary attributes during the 4IR: *“Uhm so ja, I think just basically people that are stuck in their ways are not going to cope [laugh] they will have to be adaptable.” (Participant 2, Male).*

Two participants stated that they had observed how this was impacting their jobs and what iwas being implemented in their industry to manage the changes brought by the 4IR: *“...really look at how it will impact my job and the people around me and the company, and make sure that the things that we take on board uhm, are really going to add value.” (Participant 2, Male), and “... I observe and I uhm... implement if I can... and uhm... discard innovations, which I don't think are gonna [sic] last... or really improve things.” (Participant 16, Male).*

*ii. Category: Other resources*

The findings also indicated that certain participants used software as well as technological and financial resources to manage the changes brought by the 4IR, with seven participants making use of these resources: *“So, I would have an audible subscription and listen to all the latest books on technology, leadership, people development. So uhm I think money helps obviously, to enable these things, I’d tap into that to make sure that my learning continues.”* (Participant 10, Male).

In addition, one participant used exercise to clear his head: *“And then my biggest coping mechanism is my training. Uhm, I I [sic] just do it to get out or to get away or to clear my head.”* (Participant 4, Male).

*iii. Category: Management*

However, the findings showed that managing time on devices and exercising were necessary to have a work-life balance and to cope with the negative aspects of the 4IR. Six participants asserted that it was important to manage their electronic devices: *“Uhm, on a personal level, on my phone, I have been known to have some screen time limiting apps, uhm, just to sort of manage the amount of time I spend in front of my phone, uhm, there isn't really much I can do about the need to be in front of a computer at work.”* (Participant 15, Female).

**Table 4.8**

*Categories of the Resources Used by Managers*

Frequency	Code	Participant	Category	Frequency
12	Skills and knowledge	P1, P2, P3, P5, P7, P10, P11, P12, P13, P14, P16, P17	Skills and knowledge	62
12	Others’ skills and knowledge	P1, P2, P3, P4, P5, P6, P7, P9, P12, P13, P14, P16, P17		

12	Continuous learning	P1, P3, P7, P8, P9, P10, P11, P12, P13, P14, P15, P17	
9	Upskilling	P4, P5, P6, P7, P10, P11, P12, P15, P17,	
9	Stay informed	P1, P3, P4, P6, P7, P8, P9, P15, P17	
6	Adaptability	P2, P3, P6, P9, P14, P15	
2	Observation	P2, P16	
7	Other resources	P1, P6, P8, P10, P12, P13, P14	Other resources 8
1	Exercise	P4	
6	Manage devices	P1, P2, P3, P5, P7, P15	Management 6

- 4IR connection to Shamefulness

The findings revealed that a majority of participants do not experience shamefulness due to their lack of experience of new technologies and they were willing to learn new skills and gain technological knowledge.

*i. Category: No shame*

Twelve participants stated that they did not experience any shame and did not mind asking for help when they struggled with the new developments of the 4IR: *“but I don't feel ashamed about it... I'm—I don't, you know, have a problem in asking.”* (Participant 4, Female). Six participants who

experienced any shamefulness were able to use the technologies and had grown up with technology: “So uhm, we grew up with our technology. And, you know, we we [sic] were the first to get cell phones and high school and those type of things... so no, no, no, shamefulness, especially at work.” (Participant 6, Female).

ii. *Category: Shame*

However, two participants mentioned that they did experience shamefulness to a small degree because they thought they were up to date, but it was not the case: “Ja [sic], perhaps a little bit. Uhm, I work—I always thought of myself as a bit of a tech guy and I was always up to date with it, and I help other people with their computers and everything. But lately, I—it feels like I am falling behind, yes.” (Participant 11, Male). Furthermore, one participant admitted that his shamefulness had increased because due to the increase in connectivity more people were able to see his mistake: “Uhm, ja, I must say it, it, it, I think it is increased, uhm... I mean, if I make a mistake, it’s for for [sic] everybody to see, [laugh] everybody can see it. So, if you’re online, or you’re on on [sic] a Whatsapp group, or you’re on a workgroup somewhere, and you say something wrong, everybody sees it, everybody sees it [sic].” (Participant 2, Male).

**Table 4.9**

*Categories of the Connection Between the 4IR and Shamefulness*

Frequency	Code	Participant	Category	Frequency
12	Do not feel ashamed. Ask for help	P1, P2, P3, P4, P5, P6, P7, P8, P9, P14, P16, P17	No shame	18
6	No Shame – grew up with technology	P2, P3, P6, P10, P13, P15		
2	Experienced slight shamefulness	P11, P12	Shame	3

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Thought he was up to date  
– but actually behind

---

1	Shamefulness Increased	P2
	(everyone sees mistake)	

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**4.2.3 Theme 3: Meaningfulness.** Overall, the participants' view of the 4IR is positive and the majority of the participants were optimistic about the changes brought about by the 4IR. However, the participants also cited negative aspects. However, the 4IR was generally seen as a welcome change, with a few participants being cautious towards the 4IR. In addition, the meaningfulness scores showed that the participants viewed the 4IR's challenges and changes as a worthwhile effort.

- Whether the 4IR was a welcome change
  - i. *Category: Positive view*

Seventeen participants communicated that overall, the 4IR was a positive development: *"I think it's a positive aspect... I think it's like some strain off human on humans."* (Participant 6, Female). In addition, fourteen participants indicated that they were optimistic about the 4IR: *"Oh, yes, for sure. I think it's probably the best thing. Yeah, the best thing we can do now is to push forward with it."* (Participant 13, Male).

Furthermore, five participants stated that the 4IR was beneficial to businesses. This is illustrated in the following words: *"So, in our business, it's to our advantage, uhm we we [sic] can centralise our our [sic] business."* (Participant 4, Male).

- ii. *Category: Negative view*

However, three participants communicated their concern regarding the lack human interaction due to the increasing use of technology in the workplace, which is illustrated in the following words: *"Uhm, I'm I'm [sic] worried about the lack of human interaction that resulted from the*

*fourth industrial revolution.*" (Participant 3, Male). In addition, three participants pointed out that the 4IR is increasing the inequality between the rich and the poor: *"...but because of inequalities and access to resources and access to technology and access to education around technology, it could be exploited."* (Participant 12, Female), while fourteen participants argued that there were positive as well as negative aspects of the 4IR: *"Uhm, lots of positives, but lots of negatives."* (Participant 17, Male).

Six participants mentioned that they were cautious regarding the 4IR: *"Yes, I am. But uhm I'm also... cautious, it's probably the right word."* (Participant 5, Female).

*iii. Category: Opportunistic*

One participant mentioned he is rather opportunistic rather than optimistic, thus looking at the opportunities brought about by the 4IR: *"I won't say I'm optimistic. Uhm..., let's call it opportunistic."* (Participant 3, Male).

**Table 4.10**

*Categories on the Perceptions of the 4IR*

Frequency	Code	Participant	Category	Frequency
17	4IR is positive	P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17	Positive view	50
14	4IR positive and negative	P1, P2, P3, P4, P5, P7, P8 (more positives), P11, P12, P13, P14, P16, P17		



14	Optimistic about 4IR	P1, P2, P4, P6, P7, P8, P9, P10, P11, P12, P13, P14, P15, P17		
5	Beneficial to businesses	P4, P8, P9, P11, P15		
6	Cautious	P3, P4, P5, P7, P15, P17	Negative view	26
3	Worried about lack of human interaction	P3, P9, P17		
14	4IR positive and negative	P1, P2, P3, P4, P5, P7, P8 (more positives), P11, P12, P13, P14, P16, P17		
3	Great impact on inequality	P12, P13, P17		
1	Opportunistic	P3	Opportunistic	1

- **Meaningfulness in career**

The findings suggest that the majority of the participants' jobs will be made meaningful by helping others and making an impact on other individuals by reaching more people through technology. Although, some participants already find their jobs meaningful, others find their achievements make their work meaningful.

*i. Category: Technology*

Eight participants asserted that their jobs would be meaningful when they impacted other people's lives by reaching more people using technology and developing their knowledge and

skills: *“...I can reach more people through technology that would be great, uhm that I could get the knowledge out there. Uhm, you know, get more knowledge to more people.”* (Participant 5, Female), and *“...it's just leading people really, whatever, if it's technology or whatever, it's literally being part of somebody's growth. Uhm, luckily, in my space, I have that opportunity and I've got the financial backing of my company to actually uhm, grow people in their careers without any limitations, you know...”* (Participant 10, Male).

Furthermore, two participants stated that their jobs would be more meaningful if services that assisted humanity such as, more access psychological services to individuals were provided: *“So, I think what would make my job meaningful in... is... more access to to [sic] psychological services or to intervention... If you move up virtual, you can pre-record a lot of the content and people can listen to it and then just have half the session with the person thereby therefore doubling the amount of people you can reach...”* (Participant 3, Male).

Four participants mentioned that the 4IR could be used as a tool to make their jobs meaningful. The 4IR could help by providing solutions to water problems, by reducing human error, providing important information and acquiring a battery pack to be outdoors more:

*“...the fourth industrial revolution is one of the tools that you will have to obviously take into account.”* (Participant 1, Male)

*“...very project deadline driven. So, if a computer can tell me I am going to be done on this day, and he will be done by that day because he is a computer that will make my life meaningful, because then I don't have a human interaction or dependent on any human failures or faults.”* (Participant 6, Female)

*“...my job more meaningful uhm, I would love I would love [sic] to be outdoors more. Uhm, I know it sounds weird and I don't know how—but I'd love to have a battery pack on a computer that can last for a long time that I can go do my work and just be the outdoors the whole time doing it.”* (Participant 9, Female).

ii. *Category: No technology*

Four participants found their jobs meaningful when they had personal contact with people: *“To connect with people and make sure that you have a positive impact. I think the fourth industrial revolution... uhm, can assist me in that, I mean, if I use it the right—in the right way.”* (Participant 2, Male).

Two participants stated that their jobs they would find their job meaningful if they were challenged more often and did not rely on technology: *“...I like being challenged. So, I almost don't want to use the technology, I want to use my brain.”* (Participant 8, Female).

*iii. Category: Achievement*

One participant opined that a sense of achievement would make his job meaningful: *“And does your professional life at least give you a sense of achievement and, and and [sic] that I do have at the moment.”* (Participant 1, Male).

Two participants said that their jobs would be meaningful if they were assured that the company was profitable and sustainable: *“...to make sure that we are profitable, that you do make money so that the company will be sustainable.”* (Participant 11, Male).

Two participants communicated that their jobs would be meaningful if they delivered good work at the end of the day: *“I think having gone home putting a decent day's work.”* (Participant 14, Male).

*iv. Category: Already meaningful*

Five participants asserted that they found their jobs meaningful, by saying: *“Ja [sic], I would like to think that my job is meaningful at at [sic] this stage...”* (Participant 11, Male), and *“I definitely think that my job is quite meaningful, even though it's sort of indirect...”* (Participant 15, Female).

**Table 4.11**

*Categories of What Makes Managers' Jobs Meaningful*

Frequency	Code	Participant	Category	Frequency
8	Reach more people through technology – provide more knowledge and skills	P2, P3, P5, P8, P10, P12, P13, P14, P15	Technology	14
2	Provide more access to psychological services	P3, P12		
4	Apply 4IR tool in Meaningfulness	P1, P4, P6, P9		
2	Meet more challenges - do not want to use technology	P8, P16	No technology	6
4	Make personal contact with people	P2, P7, P8, P9		
2	Make sure company is profitable and sustainable	P1, P11	Achievement	5
2	Deliver Good work	P14, P15		
1	Feel a sense of achievement	P1		
5	Feel job is meaningful	P1, P11, P15, P16, P17	Already meaningful	5

### 4.3 Summary of Findings

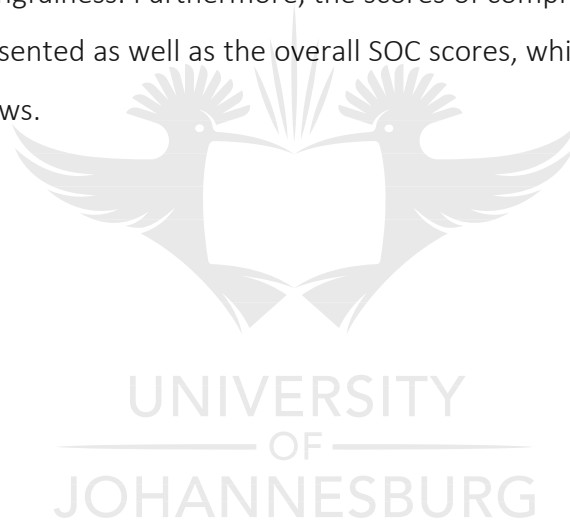
With regard to the findings of the SOC questionnaires, P1 scored the highest. It is evident from the information gleaned from interview that this participant understood the 4IR very well to determine the impact it would have on the business and to ensure what technologies to utilise. This is also evident from P1 scoring the highest in comprehensibility. Furthermore, this participant scored the highest in manageability, which is also seen in the qualitative results, which indicated

that P1 demonstrated the ability to manage the 4IR by determining the advantages of the 4IR and the relevance of this technology in the business.

As P12 scored the lowest on the SOC questionnaire, the qualitative results indicated that this participant had a good understanding of the 4IR, demonstrated the ability to identify the necessary resources, and finds meaningfulness in the 4IR.

#### **4.5 Chapter Summary**

This chapter provided the data results of the qualitative and quantitative research, which have been integrated to ensure method triangulation. The findings were reported using content analysis to generate categories and codes from the initial themes, namely comprehensibility, manageability and meaningfulness. Furthermore, the scores of comprehensibility, manageability, meaningfulness were presented as well as the overall SOC scores, which were discussed with the findings from the interviews.



## 5. DISCUSSION

### 5.1 Chapter Overview

This chapter contains a discussion of the findings and the relevant literature. Literature from international, African, and South African sources are incorporated in this chapter. As the structure of this chapter follows the order of the research questions, the findings which are discussed under each question relate to the three components of SOC.

### 5.2 Discussion

The general objective of this study based on the literature review as well as the purpose and aim was to determine how managers in South Africa conceptualise the 4IR at their SOC levels. The findings relate to the objectives of the study.

The first objective was to determine how managers understood the 4IR and how the changes in their job descriptions could be predicted. The overall findings relating to comprehensibility illustrate that the majority of the managers tend to have an understanding of the 4IR and what implications the 4IR will have on the world of work and their job descriptions. This can also be seen in the SOC scores which show a tendency towards medium to high comprehensibility SOC levels. The findings illustrate that the most frequent understanding of the 4IR is the technological component, which includes disruptive technologies and the identification of technological developments. These descriptions of what the 4IR entails is consistent with the views of Schwab (2016), who describes the 4IR as a technological revolution which brings about changes and transformation. In addition, the findings indicate that although the 4IR leads to changes in the business environment it has become a necessity in the workplace, which is shared by Schwab (2016). Furthermore, digitisation and access to information are also used to describe the 4IR, which is similar to that of Griffiths and Ooi (2018), Hirschi (2018), Lasi et al. (2014), Lombard (2017), Skilton and Hovsepian (2017), and Schwab (2016). These descriptions of the 4IR include unlimited access to information, digitisation and the fusion of biological and physical worlds. However, the findings also indicate that the human element cannot be fully removed from the workplace, with Paba and Solinas (2018) sharing the opinion of the participants that not all human

tasks can be replaced by the new technology, therefore, these findings contribute to international literature.

The findings also indicate that the majority of managers believe that their job descriptions will not change due to the 4IR in the near future, but rather additional skills will be needed to stay relevant during the 4IR. These findings are similar to the findings of Abdulla (2019), who maintains that managerial activities and leading of people cannot be done by automation, therefore, these findings contribute to South African literature. Furthermore, managers perceive that the future world of work will become more decentralised, with remote work and online consultations taking place, and an increase in efficiency. However, job related changes such as job losses, emerging new jobs and highly skills and specialised occupations will remain relevant. These findings are in line with international views of Wisskirchen et al. (2017) who assert that the 4IR results in the creation of new company structures such as virtual workplaces, while new technologies deliver work that is accurate and efficient. Furthermore, the findings describe the effects of the 4IR on occupations such as job losses, and new job creations, while highly skilled jobs will remain relevant. These findings agree with the statements by Hattingh (2018). Hence these findings contribute to South African literature.

Furthermore, the findings reveal that the majority of managers find no connection between the 4IR and BEE or politics in the workplace, whereas some managers see a connection, but no reference to new policies needed in the organisation. These results are contradictory to the South African study by Mayer and Oosthuizen (2020), which details the new Employment Equity (EE) practices that will govern the effects of this revolution.

Religious connections to 4IR are evident in most of the findings, this is in line with the views in African literature of religion and the culture of Botho (expresses the way of living- compassion, harmony, humanity and dignity of community to build the well-being in the community), which can assist blockchain technology in Botswana (Mihigo, 2019). However, the findings of this study differ to some degree, because technology assists religious practices, whereas in the findings of Mihigo (2019), Botho and religion assist technology.

At this juncture, the new technologies have not been fully implemented in all businesses because Mbandlwa (2020) states that South Africa is in the process of adopting the new technologies. The results indicate that most participants understand the improvement the 4IR has made in their lives and to their health. This is similar to the findings of Jayanthi et al. (2020) who report that the 4IR has a positive effect on health, while Schwab (2016) states that the 4IR has the potential to enhance lives. However, the findings also indicate that negative effects of the 4IR are also experienced relating to change and constant connection to work. Similar findings of Min et al. (2019) indicate that automation results in increased human labour time to improve productivity and stay abreast with the competition resulting in increased occupational stress. Therefore, these findings contribute to international literature.

The second objective of this study was to investigate how managers managed the changes of 4IR and what kind of resources they made use of to cope with the 4IR. The findings reveal that managers believe they have the necessary resources to manage the challenges and changes brought by the 4IR. Managers' report that they have the relevant knowledge and skills to remain relevant during the 4IR, while they have access to other resources such as financial and technological resources. Managers are willing to learn, upskill and employ relevant knowledge to manage the changes brought about by the 4IR. Güteryüz and Duygulu (2020) assert that the leaders prepare themselves for the 4IR by acquiring the necessary knowledge and skills, and an understanding of the 4IR. Therefore, the findings of this research contribute to international literature. The majority of managers do not experience shame when asking for assistance with regard to the 4IR. Furthermore, the findings indicate that managers cope with the disruption brought about by the 4IR by building relationships with other professionals who are knowledgeable about the 4IR. This agrees with the findings of Oosthuizen (2017) who contends that South African leaders need to engage with other stakeholders and professionals. In addition, the need to adapt is evident in the findings of Mdluli and Makhupe (2017) who opine that a leader should be adaptable to navigate the changes of 4IR, thus the findings contribute to South African literature. The results also show that the management of technological devices is important to cope with the 4IR. Schwab (2016) elaborates that the integration of technology in everyday life with constant connection, can deprive individuals of their essential human relationships and



empathy. In addition, the SOC scores show that managers find that their resources are sufficient to address the changes and challenges of the 4IR.

The third objective of this study was to determine whether the 4IR is seen as a welcome change by managers and what made their work meaningful. The findings of the theme of meaningfulness show that managers find the 4IR to be meaningful because the majority of the changes are seen as positive and this optimistic view is shared by managers. However, managers also indicate that although there are negative aspects regarding the 4IR, most are positive. A study conducted by Abdulla (2019), reveals similar results, where most South African managers had a positive view of the technologies available due to the 4IR and negative views were also shared. In addition, Mayer and Oosthuizen (2020) report that international managers tend to focus on positive elements when confronted with challenges during the transition into the 4IR owing to their strong focus on Sense of Coherence, salutogenesis and meaningfulness. Furthermore, most of the managers' work is meaningful when they are able to employ technology to reach more people and upskill them. Although it is evident that the 4IR can assist managers in making their jobs meaningful, some of the managers find meaningfulness through achievement and not through technology. Mayer and Oosthuizen (2020) report that international leaders find meaningfulness important to provide the necessary strength and motivation during 4IR. However, literature on what makes managers' work meaningful is scarce. Furthermore, the SOC scores of the managers indicate that they find their challenges and changes worthwhile because of the benefits derived from the 4IR and the ability to employ technology to make their work meaningful.

The findings also indicate that comprehensibility is an important concept for managers in the context of the 4IR. This is followed by manageability and meaningfulness. These findings are contradictory to the international findings presented by Mayer and Oosthuizen (2020), who maintain that leaders find that meaningfulness is most important. However, Mayer (2011) states that managers focus on comprehensibility and manageability. This view is similar to the findings of this study.

### **5.3 Integration of findings**

The integration of the quantitative and qualitative data was revealed that the quantitative data provided more insight into the qualitative findings, namely P1 scored the highest SOC score, which provided explanations for qualitative data. However, in one case the qualitative data and score scores were contradictory. The qualitative results indicate that this participant has a good understanding of the 4IR, demonstrates the ability to identify the necessary resources, and finding meaningfulness in the 4IR, but the participant has the lowest SOC score.

The findings of this study contribute to international literature as well as African and South Africa literature. Most findings support previous studies, which deal with comprehensibility of the 4IR, the effects on health and life, managing and coping with the 4IR, and the positive view of the 4IR, that the 4IR is meaningful.

However, different views are evident concerning the connection between BEE, politics and the 4IR, where the majority of the findings report no connection. On the religious connection with the 4IR, it is indicated that the 4IR assists religious practices. On the other hand, the Sense of Coherence's focus on comprehensibility differs from the findings of Mayer and Oosthuizen (2020) study but support the findings of an older study conducted by Mayer (2011).

New concepts emerge with regard to what makes managers' jobs meaningful and how the 4IR can be utilised to increase the meaningfulness in most of the participants' jobs.

### **5.4 Chapter summary**

These findings have a contribution to make to current literature, and to fill in gaps in current literature. Notably, the Sense of Coherence scores indicate that the participants have a medium to strong Sense of Coherence level, which supports the information gleaned from the interviews and the content analysis. This information relates to the fact that most the managers have the necessary understanding of the 4IR, and have found coping mechanisms and meaningfulness in their work to stay mentally healthy during the 4IR.

## 6. CONCLUSION

### 6.1 Chapter overview

As this chapter presents the conclusions drawn from the integration of the findings of this study and other literature at an international, African and South African level, the conceptualisation of the 4IR by South African managers is presented. Furthermore, this chapter outlines the recommendations for future study and the limitations of this study.

### 6.2 Contribution of study to the aims

The aim of this study was to investigate the level of employees' SOC in terms of the adjustments and developments of the 4IR, and their in-depth understanding of the three SOC components, namely comprehensibility, manageability and meaningfulness. The 4IR incites disruption in society, the economy and industry by introducing dynamic changes, which will affect businesses, individuals and their jobs (Hattingh, 2018; Ghislieri et al., 2018; Hirschi, 2018). To cope with these changes and challenges one needs to have a strong salutogenesis to comprehend and manage change in a resourceful manner to see the meaningfulness in that change and to formulate new job requirements. Considering how extensively the 4IR is discussed and the effects of the 4IR on economies, businesses and jobs, there is there is a noticeable lack of research on the Salutogenesis of employees at the time of the 4IR, namely how managers and employees remain mentally healthy during the changes and disruptions of the 4IR.

With this in mind, this study was undertaken to explore managers' SOC levels with relevance to the 4IR. A mixed method approach was implemented to determine how employees, specifically managers in South Africa, conceptualise the 4IR in terms of their SOC levels. The sample consisted of seventeen participants, who were identified by purposive and snowball sampling, while the data collection was done using a semi-structured interview and an SOC questionnaire. The data were analysed using content analysis to identify themes and categories, with descriptive statistics being used to analyse the SOC scores to complement the qualitative data.

The first objective was to determine managers' understanding of the 4IR and the changes predicted in their job descriptions. They had medium to high SOC scores. Managers tend to have a good understanding of the 4IR when describing this concept with reference to literature

(Schwab, 2016). In addition, managers predict that their job descriptions will not change drastically in the near future, but that additional skills will be required, which facts are in agreement with the views of Abdulla (2019). However, their perception of the connection between BEE and the 4IR is contrary to that of Mayer and Oosthuizen (2020), who aver that the findings show no connection between BEE and the 4IR. However, in the South African context, the full extent of the effects of the 4IR has not fully experienced due to minimal implementation of 4IR technologies in South African organisations (Mbandlwa, 2020).

The findings also indicate that the predictions of the changes in job descriptions and in the future world of work are accurately described (Hattingh 2018; Wisskirchen et al., 2017), therefore, management will remain relevant in the 4IR era as managers have an understanding of how company structures will change due to new technologies.

The second objective was to investigate how managers managed the changes of 4IR and what kind of resources they made use of to cope with the 4IR. According to the findings, managers are confident they have the necessary resources to manage and cope with the changes and challenges presented by the 4IR. These findings show that managers have reasonable sense of which resources are needed during the 4IR as cited in the South African, African and international literature (Oosthuizen, 2017; Mdluli & Makhupe, 2017; Güleriyüz & Duygulu, 2020). This is reflected in their high manageability SOC scores.

The third objective was to explore what made their jobs meaningful and whether they perceived the 4IR as a welcome change. The findings confirm that managers find their jobs meaningful when technology can be used to help and upskill others, to encourage achievement and not to rely solely on technology. To date there is no literature on this subject. According to the findings, managers perceive the 4IR as an overall welcome change, with certain mentioning negative aspects. This positive view of the 4IR, that in supports South African literature (Abdulla, 2019) is confirmed by the high meaningfulness SOC scores.

Although the SOC scores show that managers have a stronger inclination towards manageability and meaningfulness, the qualitative data show that they deem comprehensibility more important. However, the overall results indicate that managers tend to maintain a strong SOC during the 4IR.

### 6.3 Recommendations for future research

It is apparent that the changes of the 4IR infiltrate every aspect of human life. These include society, economies and working environments. Most of the literature focuses on how the 4IR impacts jobs of a specific nature, and the effects on organisational structure, economics, and societies, but literature on positive mental health remains scarce in the 4IR field. Recommendations for future studies include: studies being conducted on the SOC of how managers and lower-level employees differ, which information will provide insight into the different types of preparation that are required for different levels of employees. Furthermore, these findings could be used as a basis for future study, which could use a quantitative approach to generalise the findings to a bigger population.

#### *6.3.1 Value of this study*

This study supplies information on the SOC of employees on managerial levels. From this data, an understanding of the potential resilience, confidence and preparedness of managers, as a result of the 4IR is derived. This study provides further information on the SOC of managers, which is a gap in current literature. This scientific study is focused on the collection of new data and the interpretation of managers' SOC during the 4IR.

Furthermore, practical added value is evidence-based information on how the mental health (salutogenesis) of employees can be sustained, supported and improved during the 4IR provides a positive perception of the mental health due to the changes of the 4IR. There is no doubt that the 4IR will disrupt the workplace with advanced technology changing work environments and job descriptions with some becoming redundant. While some managers perceive the 4IR as an exciting challenge rather than as a disruptive factor, this study will assist in determining the role of SOC in this phase of the 4IR. Determining how managers understand, manage and perceive the 4IR will provide insight into how managers experience the 4IR. In addition, the findings provide a foundation for Industrial and Organisational psychologists (I/O Psychologists) to gain insight into how managers remain mentally healthy during the 4IR. This is a practical guide that provides recommendations for I/O Psychologists on how to support organisations with training and consultancy to strengthen the SOC and ensure mental health. Based on this study an SOC-training

model could be developed for companies to support their employees on managerial levels to cope, stay resilient and mentally healthy during stressful times of change.

#### **6.4 Limitations of this study**

The methodological limitations of this study are discussed in section 3. These entail the subjective perspective on the qualitative approach that results in the probability of the researcher's bias to reflect certain data, therefore, these findings are not generalisable due to the small sample size. Another limitation of the study is that the sample is not representative of all South African cultures, since the sample consists mostly of white participants, with the majority of the participants being male (10), whereas the female participants number seven of the seventeen participants. Furthermore, these findings cannot be linked to a specific industry because participants working in various industries.

#### **6.4 Chapter summary**

It is evident from the findings and the discussion that managers conceptualise the 4IR well, with the required understanding, coping mechanisms and meaningfulness. The managers attained a high SOC score, which indicates a strong Sense of Coherence, implying that managers tend to remain mentally healthy during the 4IR.



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## APPENDIX A: SOC-29 QUESTIONNAIRE

### 6.5. ORIENTATION TO LIFE QUESTIONNAIRE (SOC-SCALE)

Source: Antonovsky, A. (1987): Unraveling the mystery of health. How people manage stress and stay well.

#### Orientation to Life Questionnaire

Here is a series of questions relating to various aspects of our lives. Each question has seven possible answers. Please mark the number which expresses your answer, with numbers 1 and 7 being the extreme answers. If the words under 1 are right for you, circle 1; if the words under 7 are right for you, circle 7. If you feel differently, circle the number which best expresses your feelings. Please give only one answer to each question.

1. When you talk to people, do you have the feeling that they don't understand you?

never have this feeling  1  2  3  4  5  6  7 always have this feeling

2. In the past, when you had to do something which depended upon cooperation with others, did you have the feeling that it:

surely wouldn't get done  1  2  3  4  5  6  7 surely would get done

3. Think of the people with whom you come into contact daily, aside from the ones to whom you feel closest. How well do you know most of them?

you feel that they're strangers  1  2  3  4  5  6  7 you know them very well

4. Do you have the feeling that you don't really care about what goes on around you?

very seldom or never  1  2  3  4  5  6  7 very often

5. Has it happened in the past that you were surprised by the behaviour of people whom you thought you knew well?

never happened  1  2  3  4  5  6  7 always happened

6. Has it happened that people whom you counted on disappointed you?

never happened  1  2  3  4  5  6  7 always happened

7. Life is:

full of interest 1 2 3 4 5 6 7 completely routine

8. Until now your life has had:

no clear goals or purpose at all 1 2 3 4 5 6 7 very clear goals and purpose

9. Do you often have the feeling you're being treated unfairly?

very often 1 2 3 4 5 6 7 very seldom or never

10. In the past ten years your life has been:

full of changes without your knowing what will happen next 1 2 3 4 5 6 7 completely consistent and clear

11. Most of the things you do in the future will probably be:

completely fascinating 1 2 3 4 5 6 7 deadly boring

12. Do you have the feeling that you are in an unfamiliar situation and don't know what to do?

very often 1 2 3 4 5 6 7 very seldom or never

13. What best describes how you see life:

one can always find a solution to painful things in life 1 2 3 4 5 6 7 there is no solution to painful things in life

14. When you think about your life, you very often:

feel how good it is to be alive 1 2 3 4 5 6 7 ask yourself why you exist at all

15. When you face a difficult problem, the choice of a solution is:

always confusing and hard to find 1 2 3 4 5 6 7 always completely clear

16. Doing the things you do every day is:

a source of deep pleasure and satisfaction 1 2 3 4 5 6 7 a source of pain and boredom

17. Your life in the future will probably be:

full of changes without your knowing what will happen next 1 2 3 4 5 6 7 completely consistent and clear

18. When something unpleasant happened in the past, your tendency was:

"to eat yourself up" about it 1 2 3 4 5 6 7 to say "ok, that's that, I have to live with it", and go on

19. Do you have very mixed up feelings and ideas?

very often 1 2 3 4 5 6 7 very seldom or never

20. When you do something that gives you a good feeling:

it's certain that you'll go on feeling good 1 2 3 4 5 6 7 it's certain that something will happen to spoil the feeling

21. Does it happen that you have feelings inside that you would rather not feel?

very often 1 2 3 4 5 6 7 very seldom or never

22. Do you anticipate that your personal life in the future will be:

totally without meaning or purpose 1 2 3 4 5 6 7 full of meaning and purpose

23. Do you think that there will *always* be people whom you'll be able to count on in the future?

you're certain there will be 1 2 3 4 5 6 7 you doubt there will be

24. Does it happen that you have the feeling that you don't know exactly what's about to happen?

very often 1 2 3 4 5 6 7 very seldom or never

25. Many people – even those with a strong character – sometimes feel like sad sacks (losers) in certain situations. How often have you felt this way in the past?

never  1  2  3  4  5  6  7 very often

26. When something happened, have you generally found that:

you overestimated or underestimated its importance  1  2  3  4  5  6  7 you saw things in the right proportion

27. When you think of difficulties you are likely to face in important aspects of your life, do you have the feeling that:

you will always succeed in overcoming the difficulties  1  2  3  4  5  6  7 you won't succeed in overcoming the difficulties

28. How often do you have the feeling that there's little meaning in the things you do in your daily life?

very often  1  2  3  4  5  6  7 very seldom or never

29. How often do you have feelings that you're not sure you can keep under control?

very often  1  2  3  4  5  6  7 very seldom or never



## Codification of the Items

The table on this page shows which item is attributed to which sub-scale of the SOC: C=Comprehensibility, MA=Manageability, ME=Meaningfulness.

The score for a sub-scale and the total score for SOC as a whole can be calculated by adding the points marked for each item in the questionnaire. Care, however, must be taken regarding the item scoring. If the item is positively scored, then the rating value marked is taken at face value: for example, a positively scored item which the questionee rates at "2", is then scored with two points. However, if the item is reverse scored, the lowest value marked (i.e., 1) must be converted to the highest value (i.e., 7). In keeping with this procedure, a 2 would get 6 points, a 3 would get 5 points and so on.

Item Number	SOC Sub-scale	Item Scoring	Short Form
1	C	reverse scoring	
2	MA	positive scoring	
3	C	positive scoring	
4	ME	reverse scoring	S
5	C	reverse scoring	S
6	MA	reverse scoring	S
7	ME	reverse scoring	
8	ME	positive scoring	S
9	MA	positive scoring	S
10	C	positive scoring	
11	ME	reverse scoring	
12	C	positive scoring	S
13	MA	reverse scoring	
14	ME	reverse scoring	
15	C	positive scoring	
16	ME	reverse scoring	S
17	C	positive scoring	
18	MA	positive scoring	
19	C	positive scoring	S
20	MA	reverse scoring	
21	C	positive scoring	S
22	ME	positive scoring	
23	MA	reverse scoring	
24	C	positive scoring	
25	MA	reverse scoring	S
26	C	positive scoring	S
27	MA	reverse scoring	
28	ME	positive scoring	S
29	MA	positive scoring	S

## APPENDIX B: SEMI-STRUCTURED INTERVIEW QUESTIONS



Title of research: Salutogenesis and sense of coherence of employees in the Fourth Industrial Revolution in South Africa

Researcher: Cemonn Wegerle

### Interview Questions

1. What do you think 4IR is?
2. How do you perceive 4IR?
3. Do you believe 4IR is positive or negative aspect?
4. Are you optimistic about the 4IR?
5. Tell me about your experience of the 4IR?
6. How do you feel about the 4IR in the workplace?
7. How do you see the 4IR will shape the future of work?
8. What impact do you feel the 4IR will have in your job?
9. How will your job description change to stay relevant in the 4IR?
10. How do you control the changes brought by the 4IR?
11. What skills do you apply to stay relevant or have an active part in the 4IR?
12. How do you feel the 4IR is connected with the politics/BEE of the company?
13. How do you feel the 4IR impacted your life?
14. How does 4IR impact your health?
15. What are your personal resources to cope with 4IR?
16. How does 4IR connect with your religion?
17. How does 4IR impact on your shamefulness?
18. What will make your job meaningful in the future?

## APPENDIX C: CONTENT ANALYSIS RULES

### Categories definitions

#### Comprehensibility

Definition: The Comprehensibility category is defined as the perceptions and understanding of the participants of the 4IR, how it makes senses, and reasonably predicts the future. Therefore, including the participants view of what the 4IR is, their experiences, and how this will affect their occupations and personal lives. Examples of technologies of the 4IR.

Questions relating to category:

- What do you think 4IR is?
- Tell me about your experience of the 4IR?
- How do you feel about the 4IR in the workplace?
- How do you see the 4IR will shape the future of work?
- What impact do you feel the 4IR will have in your job?
- How will your job description change to stay relevant in the 4IR?
- What skills do you apply to stay relevant or have an active part in the 4IR?
- How do you feel the 4IR is connected with the politics/BEE of the company?
- How do you feel the 4IR impacted your life?
- How does 4IR impact your health?
- How does 4IR connect with your religion?
- How does 4IR impact on your shamefulness?

#### Manageability

Definition: This category is defined as the resources the participants use to address the demand of the 4IR and whether these resources are sufficient. Therefore, this includes the skills, resources and means through which the participants stay up to date with the 4IR.

Questions relating to category:

- How do you control the changes brought by the 4IR?
- What skills do you apply to stay relevant or have an active part in the 4IR?
- What are your personal resources to cope with 4IR?
- How does 4IR impact on your shamefulness?

### Meaningfulness

Definition: This category looks at the motivational concepts of the participants, thus looking at their source of satisfaction and that their life changes are worthwhile. Therefore, perceiving whether the 4IR is a welcomed change. In other words, how the participant's feel about the change or the technologies of the 4IR. This category includes what makes their job meaningful and their view of the 4IR. The view optimistic

Questions relating to category:

- How do you perceive 4IR?
- Do you believe 4IR is positive or negative aspect?
- Are you optimistic about the 4IR?
- What will make your job meaningful in the future?

However, the themes are not restricted to a specific question, more codes can be identified by looking at the transcribed interview that suits the define themed.



## APPENDIX D: DATA ANALYSIS

### Textual data analysis

Comprehensibility		
Code	Participant	Frequency
Internet connecting people and machines – communicate	P1, P2, P12	3
fusion of digital, biological and physical worlds	P5, P7, P8, P14	4
More digital	P17	1
Data dependent	P16	1
Competitive advantage – how you use the data – consultancy sector	P17	1
Not a major milestone  Technology gradually improves	P16	1
Not sure it happened	P16	1
Not as extreme as everyone believe	P16	1
Change in business environment	P1, P2 (change the types of jobs), P6, P7, P14, P16, P17	7

As a business leader to understand how it can impact business	P1, P10 (understand technologies)	2
More access to information – everybody, Easier access to greater information, Broadening of knowledge	P1, P2 (Information overflow), P4, P5, P8, P9, P10, P11, P12, P13, P14, P15, P16, P17	14
Too much data in manufacturing environment	P1	1
Always need for machinal, structural and construction concepts	P16	1
Focus on how to extract intelligence from information	P2	1
Work remotely, virtual workplace	P1, P2, P4, P5, P7, P9, P14, P16, P17	9
Bandwidth and the speeds are improved	P1	1
A lot less traveling in business	P1, P5	2
Cheaply connect with people far away P3: connect in real time	P1, P3, P5, P6, P7, P14, P17	7
Don't communicate with near family because more on phones	P7	1

Apps used for monitoring appliances	P1, P11	2
Internet of things	P1, P2, P10, P11	4
Cloud Computing	P1, P6, P10, P14	4
Machine learning	P10, P15	2
Algorithms	P15	1
Knowledge industry can do more things remotely	P1	1
Retail industry - online	P1, P17	2
More medical and legal consultations online	P1, P3, P5	3
End to financial consulting services	P17	1
Reach more clients	P5	1
Online meetings not as effective as face-to-face	P1, P3	2
Technology helped during lockdown	P1, P2, P3, P4, P5, P7, P9, P15, P17	9
Online teaching <ul style="list-style-type: none"> <li>• No need for infrastructure</li> <li>• Going to have massive universities</li> </ul>	P3, P14	2

Remote working & automation restricted – certain things will have to be done physically	P1, P3, P4, P6, P9, P13, P15, P16	8
Technology will make work easier & efficient	P1, P3, P5, P6, P8, P9, P12, P13, P14, P15, P16(benefited), P17	12
90% of work could be automated but not in his lifetime	P16	1
Adds value in research	P15	1
A lot of ethical consideration integrating technology in work	P15	1
Job not become less demanding	P1, P4	2
Stay updated with opportunities	P1	1
More opportunities	P5, P9, P10 (enables)	3
Job descriptions stay the same – won't change, additional or different practices included  Way of doing things will change	P3, P4, P5, P6, P7, P8 (not any changes), P9, P11, P12, P14, P17	11

Job descriptions stay the same: already digital	P15	1
Job description: To learn how to interpret the data  Stay abreast with new technological developments	P10, P11, P15(coding)	3
Job description: Integrate job with technology – wellness apps	P12	1
Empowering clients to use technology	P12	1
Had to learn very quickly to learn the new technology  Have knowledge of the new technology	P7	1
Job description – can be in automated	P6, P12 (project management)	2
Continuously revise strategic plans	P1, P4	2
Leading people will not change	P1, P7, P10	3
Don't feel ashamed  Ask for help	P1, P2, P3, P4, P5, P6, P7, P8, P9, P13 (grew up with it), P14, P16, P17	13

Shamefulness – not applicable	P10, P15	2
Status influences shame – newest technology	P15	1
Technology is reducing shame in embryology	P15	1
BEE/Politics: Communications has become more rapid, more ways to communicate, more connections with disadvantaged	P1, P3, P4, P5, P9	5
Politics and BEE influences funding – funding to 4IR technologies Access to technology	P15	1
Computers helping graduates to learn coding	P10	1
No BEE connection	P6, P8, P10, P11, P12, P13, P14, P16, P17	9
BEE - New protocols More red tape	P17	1
Easier to make political influence Negative side: propaganda	P3, P7 (commit crimes)	2

Technology improved monitoring of exercise Use fitness watches	P1, P6, P8, P11, P12, P14	6
Can check facts	P1	1
Rely more on technology	P4, P5	2
Negative side: More fake news on social media – disruptive & difficult to manage	P1, P2, P3	3
Good impact on health	P1, P9, P11, P12, P13	5
Good impact on health sector	P7, P8, P10	3
No direct impact on health <ul style="list-style-type: none"><li>4IR prompted health consciousness - plan better</li></ul>	P4, P7, P8 (no impact), P14, P16	5
More knowledge & access about health	P16, P8	2
safer – don't have to go on the roof	P14	1
More access to information about illnesses	P8	1
Motivated by technology systems to train - Use fitness	P1, P6, P9, P11	4

watches (encourages exercise)		
Helped to plan day – better work-life balance - health	P9	1
Helped with prioritising and tools to look at health	P9	1
Automation, automate processes and procedures	P2, P3, P4, P6, P9, P12 (GPs, psychometry and legal representation automated), P13, P14, P15, P16, P17	11
Modernisation	P13	1
Disruptive technology, development of technology	P2, P3, P4, P5, P8, P9, P10 (fantastic), P14, P15, P17	10
Self-driving cars	P2	1
Artificial intelligence	P2, P3, P4, P5, P9, P10, P11	7
Change lives	P2	1
Less challenges	P16	1
Wireless	P2	1
5G network	P2	1
3D Printing	P5, P12	2
Fibre	P8	1
Robotics	P9, P15	2
Nanotechnologies	P10	1



Multifaceted	P10	1
Necessity in the workplace – use is to own benefit for competitive advantage	P2, P9	2
Have to embrace it	P2	1
Won't necessarily lead to a lot of people losing their jobs -	P2	1
Job losses	P3 (AI replacing jobs), P8 (concerned), P12, P15, P17	5
Creation of new jobs	P3, P8, P10, P17	4
Change in labour and employment - Small workforce	P17	1
Fundamental change in IT industry	P10	1
Nature of occupations are changing  P4: 4IR does influence job – change reporting, change communication	P2, P3, P4	3
Zoom meetings will become a norm	P14	1
Coding and data analytics becoming more prominent	P3, P15	2

Less contact with people	P2, P5, P6, P7, P9 (Difficult to reinvent interaction between people), P11, P13, P16, P17	9
Lead people to cope with new environment	P2, P10 (upskill them) P13,	3
Getting people recognised	P13	1
Make sure all races and cultures embrace it and upskill – if not, will affect BEE status	P2	1
Easier to access people to increase BEE accreditation – include broader spectrum of people	P5	1
Excluding the disadvantaged communities	P7	1
Small impact on life	P2, P11, P16	3
Dramatic impact on life	P4	1
Life will be made easier & comfortable	P11, P14, P15	3
More workload due to interactions online	P2, P4	2
More stress due to change	P2	1

More access to religious resources	P2, P4, P6, P7, P8, P9, P10 (inform more people), P11, P13, P15, P17	11
Religious - Technology made it easier to do bad things	P17	1
Technology used to map miracles	P15	1
Belief encourage progress – built to improve how we treat people	P10	1
No connection to religion	P5, P8 (Technology and religion are separate), P14, P16	4
May not use technology on Sabbath	P14	1
Believe in science - religion	P12	1
Does not affect belief system	P8	1
Shamefulness Increased (everyone sees mistake)	P2	1
Experience shamefulness a little bit  Thought he was up to date – but actually behind	P11, P12	2
Information technology	P3	1

Cyber physical space	P2, P3	2
Grew up with technology	P3, P6, P15	3
Connected 24/7 – difficult to unplug Longer working hours	P3, P6 P7	3
Fast-pace life Fast pace work	P3, P4, P6, P9	4
Got things faster and easier done	P17	1
More complicated people management	P17	1
Older generations tend to struggle with technology	P1, P3	2
Change in psychological assessments to adapt to 4IR	P3	1
Positive and negative effects on health	P3	1
Negative – less moving around	P5, P7, P14	3
Thought were at the forefront but not	P4	1
More Convenient, help in everyday life	P4, P7, P8, P10, P11, P13, P15	7
Everything in one warehouse	P4	1

More cost effective	P4, P10	2
Have to adapt or fall behind	P2, P3, P4, P7 (challenging to adapt), P10, P13	6
Change is slower in the finance department	P4	1
Online programs	P5	1
Lessen strain	P6	1
Decrease human error <ul style="list-style-type: none"> <li>• Computer makes accurate projection of the time needed to complete a project</li> </ul>	P6,	1
Work – more accurate	P12, P13	2
Job can be computerised In future job might become redundant	P6	1
Changed scope of work – focus more on process development	P6	1
Not much experience with 4IR (experience to a minimal degree)	P8, P11	2
Takes away freedom and privacy away	P8, P14, P17	3
More freedom	P16	1

Impact on job: Not much – in a business that is not technological advanced	P8, P12(coaching)	2
Make communication easier	P8	1
People moving back to basics	P9	1
Help with recycling	P9	1
Needs to be well managed	P9	1
More time available to do things that enjoy	P9, P14, P15	3
People will have more balanced lives	P9	1
Work less and get more outputs	P9	1
Use technology to fill gaps	P9	1
Improve employee experience better	P9	1
EQ is going to adapt differently	P9	1
Pushed out of comfort zone	P9	1
Technology provides power	P10	1
AI is more effective than people juries	P10	1

Change the of executing solutions for clients	P10	1
Benefit for IT industry	P10	1
Stronger focus on human growth	P10	1
Helps with the education of children	P10	1
IoT at home	P10	1
Able to track children's whereabouts with smartwatches - keeping daughter safe	P10	1
Had to read up on it	P11	1
Help people with disabilities, and medical conditions	P11, P12	2
In future will help a lot	P11	1
Artificial intelligence in the building maintenance - smart sensors	P11	1
More reliable work	P11	1
Easier to do maintenance	P11	1
clean energy	P12	1
Use technology to improve treatment options	P12	1

Highly skilled, specialized positions	P12, P13	2
Effect on job: Managing teams, course design – automated	P12	1
Impact on life: Encouraged to become more tech savvy	P12	1
Forced to upskill	P12	1
Incorporate technology in own practices – more effective	P12	1
Changed life perceptions	P14, P15easier	2
More emphasise on status	P14	1
Sets high standards that are not achievable by everyone	P14	1
Only gets better from now on – positive	P14	1



Meaningfulness		
Code	Participant	Frequency
4IR is positive Progress is positive	P1, P2, P3, P4, P6, P7, P8, P9, P10 (enables people), P11, P15, P16	12
Supporter of 4IR	P10, P12	2
Comes with great responsibility	P15	1
Perceived as brilliant new developments	P10	1
Beneficial for business	P4, P8, P9 (own job)	3
Great gap in inequality	P12, P13, P17	2
Positive connection to BEE	P9	1
Positive or negative – depends on social structure	P3, P5, P12, P13, P14, P16, P17	7
Positive is a lot better than the negative - Negatives can be managed	P13	1
Negative – psyche problems	P5, P11 (Are negatives: lose personal touch in work environment)	2
Positive and negatives in workplace	P7, P17	2

Still support human interaction	P17	1
Excited by possibilities broadening knowledge and accessibility for people	P5, P9	2
Large information (positive & negative)	P2	1
Depends on how you utilise it	P2	1
Can be overwhelming	P2, P3	2
Generally optimistic	P1, P2, P6, P7, P8 (see how it plays out), P9, P10, P11, P12, P13, P14, P15, P17 (purest form)	13
Cautious	P3, P4, P5, P7, P15, P17	6
Positive impact on future work	P15	1
Opportunities for monitoring consumptions	P1	1
Overwhelming positive things in life	P1, P17	2
Prefer to be outdoors	P17	1
Enjoy access to information	P1, P2	2
Enjoy the ability to monitor exercise	P1	1

<ul style="list-style-type: none"> <li>• Enjoy Air B&amp;B</li> <li>• Enjoy Uber</li> </ul>	P1	1
Exciting time to live in	P1	1
Technology made it easier to be motivated to exercise	P1, P11	2
Positive effect on health	P1, P6 (exercise), P9 (wellbeing), P10, P11, P12	6
Positive effects due to developments in the health sector	P7, P17	2
Negative effect on health Connected to work 24/7 – impact family life (physical & psychological health), fatigue, more stress	P2, P3, P5, P6, P15(More time behind computer - eyesight has deteriorated), P17	6
More online help hotlines	P3	1
4IR does not make life meaningful - own decision  <ul style="list-style-type: none"> <li>• Happy to do current job and enjoy being an owner (directly impacted by efforts)</li> <li>• Business – lot of opportunities</li> <li>• Able to influence business</li> <li>• Doing things well</li> <li>• Include other people in planning – enjoy</li> </ul>	P1	1

<p>seeing people seeing the success of plan</p> <ul style="list-style-type: none"> <li>• Sense of achievement</li> <li>• To provide solutions to water problems</li> <li>• To be part of a purpose driven company</li> </ul>		
<p>terms of converting _____ from a tank making company to water solutions company – satisfaction (4IR is a tool to take in consideration but will not help particularly)</p>	P1	12
<p>Produce products that will in the end assist humanity</p>	P2, P3	2
<p>positive influence in the future of work, if adapt</p>	P2	1
<p>Impact people’s lives - 4IR assists in that – more effective influencing people</p>	P2, P8, P14	3
<p>Connectedness – positive Enriches &amp; strengthens religion</p>	P2, P9	2
<p>Help grow people’s skills</p>	P2, P10 (need technology to do that), P13	3
<p>Connect with people</p>	P2, P8	2
<p>Love to work with people</p>	P7, P9	2

<ul style="list-style-type: none"> <li>To be able to have personal contact in the future</li> </ul>		
Opportunist rather than optimistic	P3	1
Worried about the lack of human interaction	P3, P9	2
Forces transparency	P3	1
Made products cheaper	P3	1
<ul style="list-style-type: none"> <li>Developing a virtual program to help women</li> <li>Providing more access to psychological services – to make it cost effective</li> </ul> <p>Increase access to psychological services</p>	P3, P12	2
Don't like drastic change	P4	1
To have more time to look at new technology and changes	P4	1
Use technology to report important information (make it simpler)	P4	1
Some people fear the new technology	P5, P7	2

Reach more people through technology Provide more knowledge	P5, P12	2
Not to be dependent on human failures or faults	P6	1
To be challenged more – don't want to use technology, want to use brain	P8, P16	2
Be able to help colleagues in personal life as well.	P8	1
Positively impacted religion	P9	1
Meaningfulness: Be outdoors more <ul style="list-style-type: none"> <li>a battery pack on a computer that can last for a long time that I can go do my work and just be the outdoors</li> </ul>	P9	1
Positive impact on job	P10, P13	2
Does not affect job	P16	1
Strong place in the workplace	P15	1

Job is meaningful	P11, P15, P16 (Happy with status quo), P17 (optimise incomes)	4
Make sure company is profitable and sustainable	P11	1
Applying technology could give a competitive advantage - to provide a good future – more productive and effective	P11	1
Technology is not a threat	P12	1
Excited about 4IR	P12, P13, P16	3
Transferring skills and knowledge	P12, P14	2
affect change to sustainably empower people	P12	1
Lover level employees negatively influenced	P13	1
Influence other people – improving them	P13	1
Decent work	P14, P15	2
Technology enabled more access to info to help others	P15	1

Manageability		
Business context		
Personal context		
Code	Participant	Frequency
Inform ourselves to be able take advantage of it Stay informed	P1, P3, P4, P6, P7, P8, P9, P15(read up on it), P17	9
Internet Platforms Training and courses	P5, P6, P7, P10, P11, P12	6
Upskilling	P6, P10, P12, P15, P17	5
Observe - See what is implemented in industry	P16	1
Supported by other knowledgeable people & companies P2: Stay in contact with others in the same industry & younger generations Consult with others to stay abreast Multi-disciplinary teams	P1, P2, P3, P4, P6, P7, P9, P12, P13, P14, P17	11
Utilise other people's skills and knowledge & outsourcing	P16, P17	2



Ability to identify the gaps and the resources and skills needed	P17	1
Identifying the right expertise	P17	1
Have relevant qualifications	P12	1
Use current knowledge	P16	1
Proactive approach	P17	1
Personal interest – provide greater understanding	P13	1
Know what is available on the market	P11	1
Manage change through doing things according to parameters	P4	1
Actor skills – now have to present yourself virtually with more clients simultaneously	P5	1
Skills came naturally – grew up with it.	P3	1
Continuously learning	P1, P3, P7, P8, P9, P10, P11, P12, P13, P14, P15, P17	12
Self-taught (Get by with current knowledge) – comfortable using laptop	P1, P3, P7, P14	4

Computer literacy		
Automatic software updates	P6	1
Work hard on making sure that the formal information is properly shared	P1	1
Presentation and communication skills to present to clients over internet	P5	1
Equipped to have access to information (good bandwidth, connectivity, devices)	P1, P8, P13	3
Financial resources	P1, P10, P12	3
Technological resources	P10, P13, P14	3
Understanding cloud technologies and what solutions exists	P10	1
Leadership skills and development	P10	1
Important to manage devices - negatively on normal communication  Manage negative effects - social media addiction	P1, P2, P3, P5, P7, P15	6

P2: Quiet time without devices		
4IR is managed by his own values and belief system – values to guide decisions regarding the 4IR	P1	1
Embrace it	P2	1
Look at how will impact on job	P2	1
Find a balance between value change and unnecessary change	P2	1
Active listening	P2	1
Flexibility	P2	1
Adaptability	P2, P3, P6, P9, P14, P15	6
Data analytics and coding – research skills	P3, P11, P13	3
Analytic skills	P11	1
Exposure to different technologies	P3	1
Family & friends	P4, P5	2
Religion	P4	1
Exercise	P4	1
Trial and error	P7, P16	2

Not affected by new technologies - workplace	P8	1
Mindset	P9	1
Don't use personal resources	P16	1



### Participant's SOC Scores

Participant	Comprehensibility	Manageability	Meaningfulness	Total SOC score
1	67	63	48	178
2	46	62	47	155
3	51	55	46	152
4	61	63	52	176
5	43	51	42	136
6	37	44	49	130
7	46	50	37	133
8	56	58	39	153
9	53	54	45	152
10	61	61	49	171
11	60	59	42	161
12	50	34	40	124
13	58	57	46	161
14	48	43	36	127
15	45	43	45	133
16	52	54	37	143
17	55	59	55	169
<b>Total Scores</b>	889	910	755	

## APPENDIX E: TRANSCRIBED INTERVIEWS

### Transcribed interview of Participant 1

Participant 1		
	Transcription	Coding
1.	I: Okay, great. And do you have any questions regarding the consent form? Uhm, or you need clarification of certain things? Or are you okay?	
2.	P: So, I think it was pretty straightforward. If I'm unhappy, I can pull out at any time, etc, etc.	
3.	I: Yes...	
4.	P: that's fine.	
5.	I: Perfect. Okay, let's start. Uhm, what do you think the fourth industrial revolution is?	Comprehensibility
6.	P: Yeah, for me it is uhm... that fact that uhm, we have this internet, which allows, uhm people and machines uhm to connect uhm, much... when I couldn't do in the past, so it's a whole... new business uhm, opportunities, different ways of doing business that relate to the fact that uhm, people and computers can, and machines can interact over distances via the internet.	<ul style="list-style-type: none"> <li>● Internet – people and machines connect</li> <li>● New business opportunities</li> <li>● Interaction between computers, humans and machines over distance</li> </ul>
7.	I: Great. How do you perceive the fourth industrial revolution?	
8.	P: Yeah, I mean, I see it as obviously uhm... a change in the business environment. And it's important for me as a business leader to understand how it can impact our business. And see if we can take advantage, where we can take advantage, participate—we should be	Comprehensibility <ul style="list-style-type: none"> <li>● Change in business environment</li> </ul>

	able to participate, uhm ja [sic], and make sure we don't miss any opportunities.	
9.	I: So, would you say it is a positive or negative aspect?	Meaningfulness
10	P: I uhm ... I always tend to see progress as positive... when no one likes change [sic] uhm, and and [sic] that's the, you know, the challenge that it forces us to make changes to your business model forces you to to [sic] look at the products and services you offer and say, is this still relevant? Uhm... but I do generally see changes as positive. I mean, I think... that social media and ah, fake news is obviously a problem. And also, negative consequences of all this information and this information available to everybody so easily..., but uhm that's life, we don't have as a society to manage it.	<ul style="list-style-type: none"> <li>• Positive and negatives</li> <li>• Progress is positive</li> </ul>
	Comprehensibility	<ul style="list-style-type: none"> <li>• this information available to everybody so easily</li> </ul>
11.	I: Okay, so are you optimistic about the fourth industrial revolution?	Meaningfulness
12.	P: Yeah, I mean, I'm, I'm [sic] generally optimistic. So... I see it as reality that uhm... that... is young, and ah, and [sic] we—if we think about and inform ourselves, we will be able to take advantage of, of [sic] opportunities that present themselves.	<ul style="list-style-type: none"> <li>• Generally optimistic</li> </ul>
	Manageability	<ul style="list-style-type: none"> <li>• Inform ourselves can take advantage of it</li> </ul>
13.	I: Okay. Tell me about your experiences of the fourth industrial revolution.	Comprehensibility
14.	P: Uhm... personally, obviously the uhm, the fact that we can work remotely, and we can swap more and more information... over the Internet, and the bandwidth and the speeds are improved, have	<ul style="list-style-type: none"> <li>• Work remotely</li> <li>• Bandwidth and the speeds are improved</li> <li>• a lot less traveling in our business</li> </ul>

	<p>allowed us to do things remotely. Uhm, it wasn't really a big issue until COVID and then we were forced to work remotely. And then what happened is, we found that it worked quite well. We also found that working from home was pretty effective. Uhm so... the positive side of that is we can get away with a lot less traveling in our business. We've got plants all over the place. So, we've seen that we can make the remote meetings work. Uhm, which wasn't you know—I don't think we would have done that if it wasn't for COVID and wasn't really forced on us. Uhm the... so that's from personal and then... personally it's also allowed me obviously very cheaply to speak to people that far away. And as you know, my daughter is not here, you know, I can I can [sic] speak to her over data whenever I want to, and which really helps, uhm stay in touch makes that arrangement a lot more tolerable than it would have been. Uhm, and then on the work side, we... were obviously aware that uhm, there are new opportunities for people to monitor, for example, their water consumption to monitor their uhm, amount of water they have in a tank, and they would like to do it on their cell phone, for example, people say, yeah check check [sic] my app, [noise] I can see how much water I'm using every day. [laughing] uhm you know. So, we actually have started a project to uhm, to look at providing that opportunity uhm, as part of one of the solutions that _____ will offer. So that is—that [sic] that's one opportunity we've seen, and we'll... we working [sic] with a lot of partners to make sure that... if there are opportunities in the water space... in a in a [sic] space that we do business that we participate in that uhm, and bring uhm, solutions and bring products to market.</p>	<ul style="list-style-type: none"> <li>• Connect with people far away</li> <li>• Apps used for monitoring appliances</li> </ul>
<p>Meaningfulness</p>		<ul style="list-style-type: none"> <li>• Opportunities for monitoring consumptions</li> </ul>



15.	I: So, are you developing an app for uhm, to see how much water you're using on your phone? How you can approach that?	
16.	P: We are... so we are—it's actually a web portal, which is then as an app that looks into the web portal. But yes, uhm we want to bring two devices to market one device is a tank level indicator... Uhm obviously, links up into the Internet of Things. And then other one is uhm a flow meter that you can stick in your home. and also links up to Internet of Things, battery powered, using pretty low energy consumption. So, you can you know, the battery last... a couple of years. Uhm, and then this information is in pushed into the Internet, and then is available to analyse and and [sic] present that to a user on an app. So that is a project we're working on at the moment. And if that is successful, we will look to provide additional information. Alternatively, we'll look to expand the project, you know, outside of South Africa, we'll see. But it's a lot of fun trying in the meantime.	
17.	I: It sounds very interesting. Uhm, so then how do you see the fourth industrial revolution will shape the future of work?	Comprehensibility
18.	P: Uhm..., look, I think it'll it'll [sic] obviously affect different industries, uhm, differently. Uhm I think...for example uhm knowledge industry... will be able to do more and more things remotely. So... in a... knowledge, retail uhm, and those industries that are already making big inroads into doing things on the internet, uhm, you know, that's going to continue. Uhm, and I do think you will probably get more consultations with lawyers, more consultations with doctors, more consultations, with... uhm, specialists over the internet, I think that there will be less business travel, 'cause [sic] people see that you can do things uhm over the internet as well. But I don't believe it's going to replace all physical travel. I think people still... our our [sic]	<ul style="list-style-type: none"> <li>● Knowledge industry – more remote</li> <li>● Retail industry – online</li> <li>● More medical and legal consultations online</li> <li>● Online meetings not as effective as face-to-face</li> <li>● Too much data in manufacturing environment</li> <li>● Remote working restricted – certain things will have to be done physically</li> </ul>


	<p>experience we held actually a board meeting and the board meeting went okay, but it certainly wasn't as good as if we'd been a in a boardroom together. Uhm, you can't see people's expressions you don't know, uhm when I talking [sic] because of the lag, you interrupt each other uhm, so I expect that... there will still be business travel will returning [sic], you know, once COVID ends and once people feel safer. Uhm, I do think you'll in manufacturing... you will—you're not gonna [sic] see that much change. Uhm, and weird makes sense for remote control of equipment, machinery, uhm, but just, there's so much data that has to travel... and just my experience is we we [sic] actually we've got too much data... in my production manufacturing environment to actually get information out of it. So, we've actually stopped storing a lot of the data because we just don't use it. For example, the temperature readings on the ovens when we when we when we [sic] make the tanks, uhm, that it's just—it's a lot of other data that doesn't tell you much. So uhm ja [sic], I think, ja [sic]—in summary, I think certain industries will start with—will continue to move rapidly, and by that, I mean, the knowledge industry will make sense, the retail industry, and I think manufacturing will make progress. But it'll be restricted by... by the realities of you know, the certain things you have to do physically on site just can't do it over the internet.</p>	
19.	I: So, you just say will make it more easy—easier with the new technology for people to do their work.	
20.	P: Ja.	
21.	I: Okay.	
22.	P: Ja.	

23.	I: What impact do you feel the fourth industrial revolution will have on your job?	Comprehensibility
24.	P: Look... I don't, I don't see our job becoming easier. I don't see my job becoming anymore any less demanding... Uhm, I do think that, uhm, the work from anywhere or work from home will will [sic]—is here to stay, and that will become more reality. Uhm, but if anything, that's going to force me to keep scanning the environment and keeping being aware of potential business opportunity. So it is, it is obviously a disruptive... uhm, technology that we must come con—continue to consider in terms of our strategic, uhm, horizons. But ja [sic], I think that that's about it, I don't see much changing other than, uhm, [laughing] there's more information, there's more opportunity, and I must get your wake up—you know [laughing].	<ul style="list-style-type: none"> <li>● Job not become less demanding</li> <li>● Remote work</li> <li>● Force to keep scanning the environment and keeping being aware of potential business opportunities</li> <li>● Continuously revise strategic plans</li> </ul>
25.	I: Okay, so you wouldn't say that your job description will change that much to stay relevant in the fourth industrial revolution?	
26.	P: No, I don't see. No, I don't see that. My job is to just just [sic] think, and lead people and I don't see that going away.	<ul style="list-style-type: none"> <li>● Leading people will not change</li> </ul>
27.	I: Okay, do you control the changes brought by the fourth industrial revolution?	Manageability
28.	P: Hugh, I don't know if already control changes uhm, we... we [sic] have a uhm, culture in the business where we always look ahead... And we look at opportunities, uhm, and then we look at the obviously the complexity of of [sic] executing the opportunities, and uhm, they all decide uhm... you know, which opportunities to prioritize. Uhm so, yes, we... we [sic] are definitely not, you know, uhm... pathfinders, we we [sic] generally wait till we see that things work. Uhm, and then when we are quite sure that they'll work for us..., then we will	<ul style="list-style-type: none"> <li>● Look for opportunities</li> <li>● Understanding what is possible</li> <li>● Managing the risks of change</li> </ul>

	<p>participate in those changes. So, I think it's a balance of understanding... what is possible, and managing the risk associated with with [sic] the changes that... are required. I mean, one of the things that... we are dealing with now is we we [sic] actually run our our [sic] Information System on our—we own all our own servers. And we've run all our own software and hardware. Uhm, but a lot of companies, our size has starting to go into Cloud computing. Uhm, so you take everything, you obviously load all your software on someone else's box in the middle of nowhere, one of these big computer warehouses, and they they [sic] promise you certain speeds, and I promise you certain uptime and obviously all the risks and safety that they manage for a fee...uhm, but the feedback we got is that we're going to have to change are our, uhm, Enterprise Resource system, which is a massive investment, and a massive complication, because... everyone knows how the current system works, and we're gonna [sic] have to return it, you know, it's a big risk item. So... uhm, we actually had to delayed [sic] that and we're looking whether we can go to cloud computing, uhm because our servers actually sits [sic] in Groblersdal and the bandwidth in Groblersdal is not great. So, every now and then our system is quite slow... but ja [sic], how do we manage it?... We we [sic] do then normal risk versus return on the decision making trying to understand what is going on before we take a course of action.</p>	
29.	I: Okay, what skills do you apply to stay relevant or have an active part in the fourth industrial revolution?	Manageability
30.	P: I'm a bit older... [laughing]	
31.	I: [laughing]	

32.	P: I am I'm [sic] fortunate enough in that, I uhm, I do rely on people to help me. Uhm, especially with the the [sic]... internet and the software that, you know, you continue to learn to use new software, uhm in order to be proficient. Uhm... I have taught myself, I'm pretty comfortable operating all on Microsoft Office suite of programs. Uhm... and then uhm, I'm get help for the rest. [Laughing] Maybe I am fortunate.	<ul style="list-style-type: none"> <li>• Rely on people to help</li> <li>• Continuously learning</li> <li>• Self-taught – comfortable using laptop</li> <li>• Get by with current knowledge</li> <li>• Supported by other knowledgeable people</li> </ul>
33.	I: [Laughing] Okay	
34.	P: But I can help myself, uhm, I'm honestly comfortable with using my my [sic] uhm... laptop comfortable using—I use an iPad, and I use my phone...Obviously very handy for when I'm out the office. Uhm, but ja [sic], I've been able to get by with my knowledge and with being supported by people that are more knowledgeable knowledgeable [sic] than I am in the specific Fourth Industrial Revolution.	
35.	I: Okay, uhm so how does the fourth industrial revolution impact on your shamefulness in the sense that older generations uhm do struggle a bit more with the new technology than the younger generation?	Comprehensibility
36.	P: How does that impact on my thankfulness?	
37.	I: Shamefulness. In a sense do you feel, uhm, shame when you cannot work with the technology or struggle?	
38.	P: Man, I don't really know hey, I uhm... you know my strength [sic] my—a strength, I'm not really paid... to to [sic] think I'm... really paid to uhm, to make good decisions. I'm really paid to lead people. I'm not—my job description doesn't mean I must be quick and efficient, with the technology. And uhm... overwhelmingly, it's still about being able to use Word, Excel, PowerPoint, and uhm, win our battle with	<ul style="list-style-type: none"> <li>• Don't feel ashamed</li> <li>• Ask for help</li> </ul>

	some specifics of the new IR... you know, I ask for help, and I don't feel ashamed at all, to be honest.	
39.	I: Okay, no, that's good. Uhm, how do you feel the fourth industrial revolution is connected with the politics or the BEE of the company?	Comprehensibility
40.	P: Uhm... yaaa [sic]. Look I—there's always been a fairly good uhm, network in _____. And in most companies, there's a... there's a [sic] network of comms—that the informal network of communications... uhm there's normally sort of satiety band that that [sic] discusses everything and then there's the unionised band that discusses everything uhm... I would say obviously the communications has become more rapid uhm, lately... but, you know, where's this now goes via cell phone—it used to go by phone. Anyway, you know, it used to maybe go a day or two later, so we haven't we haven't [sic] found... any real change in behaviour. In other words, the communications, informal communication still takes place. Uhm, but it takes place a little bit, but more quickly. Uhm, we actually haven't even found too much misinformation and fake news in our organization, which is quite pleasing. I think maybe it is... that we do work hard on making sure that the formal information is properly shared.	<ul style="list-style-type: none"> <li>• Communications has become more rapid</li> </ul>
	Manageability	<ul style="list-style-type: none"> <li>• work hard on making sure that the formal information is properly shared</li> </ul>
41.	I: Okay, uhm, how do you feel the fourth industrial revolution has impacted your life?	Comprehensibility
42.	P: Uhm... Ja [sic]...Look, I think it's been interesting. It's been interesting living in these times—enjoyed the some of the things that	<ul style="list-style-type: none"> <li>• Technology improved monitoring of exercise</li> <li>• Easier access to greater information</li> </ul>

	<p>have happened. I mean, uhm my—I enjoy Uber, I enjoy, uhm... I enjoy [sic] the fact that when I exercise, I can track everywhere I've gone with a GPS, and then I can track my heart rate [laughing] and I put it into—I can put it onto the network and see if I'm improving or not, uhm, enjoy Air B&amp;B. I must say I enjoy, access to unbelievable... content, you know, whether it's sporting content... uhm, and, ja [sic] I mean, so there's overwhelmingly positive things, massively positive things and the ease of information and you don't have to have [sic] ah—you don't have to have a disagreement anymore. You just have to Google it, [laugh].</p>	
	<p>Meaningfulness</p>  <p>UNIVERSITY OF JOHANNESBURG</p>	<ul style="list-style-type: none"> <li>• Enjoy Uber</li> <li>• Enjoy the ability to monitor exercise</li> <li>• Enjoy Air B&amp;B</li> <li>• Enjoy access to information</li> <li>• Overwhelming positive things</li> <li>• Exciting time to live</li> </ul>
43.	I: Yes	
44.	<p>P: You know, then you can check the facts. Uhm so I've really enjoyed that. I think, I think there are some negatives. I think Twitter is really... un unfortunately, become an unpleasant place, I luckily don't spend much time on it. And then ja [sic], I mean, the the [sic] fake news, the trolls on social media, obviously, quite disruptive and quite difficult to manage. But I think overwhelmingly for me..., it's been exciting time to live.</p>	<p>Comprehensibility</p> <ul style="list-style-type: none"> <li>• Can check facts</li> <li>• More fake news on social media – disruptive &amp; difficult to manage</li> </ul>
45.	<p>I: Okay. And then talking about training and using all this new technology with your exercises, and how did it impact your health, the fourth industrial revolution?</p>	<p>Comprehensibility</p>

46.	<p>P: [Luaghing] uhm..., you know they, uhm... it's actually being positive. I I [sic] actually get motivated by these little systems where I could check on everything uhm, and be reminded of everything and, uhm... and [sic]—look, I actually made a made a [sic] decision, my life to start exercising again, I was always very healthy. And I took about ten years off to... to to [sic] focus on my career and focus on raising, uhm my children. And then I woke up and I said, I must get a bit more healthy [sic] again. And since then, I've started exercising, but the fourth industrial revolution has uhm, made it easier and has made it easier [sic] to be motivated. So, it has been positive in that respect for me.</p>	<ul style="list-style-type: none"> <li>• Made training easier</li> <li>• Motivated by technology systems to train</li> </ul>
	<p>Meaningfulness</p>	<ul style="list-style-type: none"> <li>• Technology made it easier to be motivated</li> <li>• Positive effect on health</li> </ul>
47.	<p>I: Okay, so then what are your personal resources to cope with the fourth industrial revolution?</p>	<p>Manageability</p>
48.	<p>P: Look I'm..., obviously, we've equipped ourselves out at home with, uhm good bandwidth and the cheapest possible uhm, access to data. Uhm... we fortunately that we can afford the all the connectivity and the nice devices uhm, and then I use a laptop, I use an iPad and I use a cell phone so that that [sic] I... that I can stay informed and I can stay on top of of [sic] work when I want to. Uhm I I [sic]... think it's important to manage...uhm, your devices... uhm you know, sometimes you just sitting permanently on your phone... and which is a problem, you know, actually impacts negative [sic] negatively on normal communication. Uhm, so I think it's important to manage it. So yeah, so what I've done is, obviously equipped myself, and equipped my family, and then try very hard to manage the negative</p>	<ul style="list-style-type: none"> <li>• Equipped to have access to information (good bandwidth, connectivity, devices)</li> <li>• Financial resources</li> <li>• Important to manage devices - negatively on normal communication</li> <li>• Manage negative effects – social media addiction</li> </ul>



	<p>fallout, which we don't necessarily always get right. But ja [sic], personally, I think the other thing is—important thing is also not to chase down the rabbit holes on the internet because they are—you can or you can get stuck in some—you can become a Twitter addict or Instagram addict or, I mean, so I hardly [sic] I'm hardly on social media because it's just too time consuming.</p>	
49.	<p>I: And then how does the fourth industrial revolution connect with your religion?</p>	Manageability
50.	<p>P: Ja [sic] Cemonn, I have been an atheist a long time. Uhm...I grew up in a uhm, Christian household, my mom was quite religious, as you know. Uhm, but about the age of 18, I decided that... major religions of the world didn't really add up for me. Uhm, but I do believe fundamentally that we have an obligation to try and live good lives on Earth... Uhm, I believe in in [sic] the universal set of values that I think you've got to try to live your life by. And, obviously, some of them are underpinned by religion, because religion is often a sort of codifying of how to behave well, in all the major religions of the world and try—unfortunately, they get hijacked by people with vested interest... So, I mean, the fourth industrial revolution is is [sic] a phenomenon that that [sic] are managed in terms of my belief system and my set of values. And, you know, that's all of our life. So..., if in doubt about a decision, I will always fall back on my buddies and say, you know, against this set of values, what should I do? And I think likewise, I do that to the fourth industrial revolution.</p>	<ul style="list-style-type: none"> <li>• 4IR is managed by his own values and belief system – values to guide decisions regarding the 4IR</li> </ul>
51.	<p>I: Okay? Uhm how does the fourth industrial revolution make <i>your</i> job meaningful?</p>	Meaningfulness

52.	<p>P: Ja look... So,look it is not up to the fourth industrial revolution to make my job meaningful you know, for me, I've got to I've got to decide what I want out of life. And uhm, what is important to me. And any job—I'm happy to do this job at the moment, and what I like about this job is that I'm an owner so so [sic] I'm directly impacted by my efforts. Uhm... the business has got lots of opportunities. I'm able to influence the business because it's not too big. Uhm so ja [sic], I I [sic]... get a real thrill from trying to do things well. And I'm trying to a plan actions and execute actions, you know, of course, the important thing is you got to do the planning and then you got to do the right execution. And..., and [sic] so doing things well, and on top of that, taking people along with you, and seeing them enjoying success of plans coming together. Uhm.... And and [sic] that [sic] that's really life, you know, being comfortable in what you do, and you behave in terms of your personal life and also your professional life. And does your professional life at least give you a sense of achievement and, and and [sic] that I do have at the moment.</p>	<ul style="list-style-type: none"> <li>• 4IR does not make life meaningful - own decision</li> <li>• Happy to do current job and enjoy being an owner (directly impacted by efforts)</li> <li>• Business – lot of opportunities</li> <li>• Able to influence business</li> <li>• Doing things well</li> <li>• Include other people in planning – enjoy seeing people seeing the success of plan</li> <li>• Sense of achievement</li> </ul>
53.	<p>I: Okay, um, so if we—what will make your job meaningful in the future, other than what you've just mentioned?</p>	
54.	<p>P: Ja [sic] look... So, we have actually found _____ as a purpose driven brand, or phrase tagline called _____water for life. Which actually says that _____ is about providing solutions to water problems for domestic consumers. So, we're always aiming at a small to domestic side of industry. Uhm, and it's it's [sic] actually really nice to be part of a purpose driven organization. Uhm and... and [sic] that being a successful business is actually an outcome of being a successful purpose driven organization. So, if you solve people's problems, you will be successful financially. Uhm so ja [sic], I mean, if</p>	<ul style="list-style-type: none"> <li>• To provide solutions to water problems</li> <li>• To be part of a purpose driven company</li> <li>• terms of converting _____ from a tank making company to water solutions company – satisfaction (4IR is a tool to take in consideration but will not help particularly)</li> </ul>

	<p>if [sic] we can..., if we can successfully implement, let's say... part of the plans that we've got in terms of converting _____ from a tank making company to water solutions company, that'll give me major satisfaction.</p>	
55.	<p>I: So, would you say then the fourth industrial revolution, will help with taking it to a solution problem?</p>	
56.	<p>P: Look, the fourth industrial revolution is one of the tools that you will have to obviously take into account. And uhm... I don't say the fourth industrial revolution is a reason why we'll be successful or the reason why we will get a solution. But the fourth industrial revolution is a reality that we have to factor into our business plans, and we have to participate where it make [sic] sense. And uhm, and [sic]... that's what we doing [sic], and we'll continue to do that. If we see [laugh]—there's [sic] there is many opportunities for example, one of the [sic] one of our managers came to me and said: “no he wants to put radio frequency tags in all the tanks”, so I said: “Now what's that about?” You know, he says: “the stocktake is easy, and then selling is easy, because we have a little receiver at the gate and then goes out, cancel the tanks”. But then you know, this thing cost x, and then you have to look at the return and then you must also imagine is this going to be worthwhile, and we put our indicator every single tank, etc, etc. So yeah, the fourth industrial revolution will present lots of opportunities. You just got to be sensible enough to know which opportunities to pursue. Uhm ja [sic], in terms of will it help me... not not [sic] particularly, it's just it's a fact of life that that every businessman has to contend with.</p>	

57.	I: Okay, thank you. That's all the questions we have. [Laugh] Thank you for their participation and time.	
58.	P: It wasn't bad hey. 35 minutes.	
59.	I: Yes, yes it went by quickly.	
60.	P: Ja [sic], and I didn't even use your short answers.	
61.	I: Sorry. No, but it is good. Lot of information, it is perfect. Thank you very much Very helpful.	
62.	P: Is this your Masters Thesis?	
63.	I: Yes.	

### Transcribed interview of Participant 2

Participant 2		
	Transcription	Coding
1.	I: Thank you very much. Okay, before we start, I just want to ensure that you understand the consent form. And if you have any clarification needs or questions.	
2.	P: Okay. Yeah, I think there was no read through it. It's really, no, I think no problem. And I actually have no questions.	
3.	I: Okay, thank you very much. We're gonna [sic] start with the first question. What do you think the fourth industrial revolution is?	Comprehensibility
4.	P: Uhm, ja, I think uhm, you know uhm, in our engineering environment, it's obviously something we we [sic] think of, often, because it's mostly to do with technology. Uhm, and I think, you know, I think the next 10 years are going to be quite a big change for	<ul style="list-style-type: none"> <li>● Disruptive Technology</li> <li>● Self-driving cars</li> <li>● Interconnectedness (household appliances)</li> </ul>

	<p>everyone. Uhm, and actually quite disruptive, I think we hear about stuff like water, you know, self-driving cars, and maybe household appliances being interconnected, everything... just works automatically, and robotics and so on. So, uhm it's going to be I think it's all about things being interconnected and automated. Uhm, and I think it will, huge, it will lead to changes, obviously. Uhm, and things like artificial intelligence is, you know, something that will be uhm, at the forefront. Uhm, because to do automate stuff, uhm, you need a uhm, machine thinking like a human almost. Uhm, and I think the the [sic] biggest cause for this automation is because we, there's just so much information, uhm around the amount of information because things are so interconnected. And and [sic] data, I mean, internet, it's just so so so [sic] much information, you can't make sense of it. It's, it's, it's just overwhelming. So, in order to make sense of all this information, we just need to automate things. Uhm, and for that, you need the technology. So, that is my impression of what I think is the fourth industrial revolution, and I think it's going to change our lives.</p>	<ul style="list-style-type: none"> <li>● Automation</li> <li>● Artificial intelligence</li> <li>● Robotics</li> <li>● More information</li> <li>● Change lives</li> </ul>
5.	I: Okay, thank you. Do you believe the fourth industrial revolution is a positive or negative aspect in our lives?	Meaningfulness
6.	P: I think it's mostly positive... uhm, I mean, technology, technological advances are mostly positive, but it will depend on how we utilize it how we use it [sic]. Uhm, you know, it can overwhelm you, [laugh] if you're not careful. So, but I think mostly, it's positive.	<ul style="list-style-type: none"> <li>● Mostly positive</li> <li>● Depend on how utilised</li> <li>● Can be overwhelming</li> </ul>
7.	I: Okay. Uhm, so you are optimistic about the fourth industrial revolution?	Meaningfulness

8.	P: Yeah, I mean, no, I am, uhm—we have to be optimistic, because I don't think we can really avoid it. Uhm, so uhm, the, I mean, as I said, the incredible amount of information that is around and, and because it is so accessible to everyone, uhm, it actually forces us to to [sic] do something with this, otherwise, it becomes overwhelming you you [sic] cannot, otherwise you [sic] cannot make sense of what is important for me. [laugh]	<ul style="list-style-type: none"> <li>● Optimistic (have to be)</li> <li>● Large information (positive &amp; negative)</li> <li>● Accessibility</li> </ul>
9.	I: Yes	
10.	P: This is a huge amount of stuff around and how do I filter out what is important for me what what [sic] is useful, even for me, uhm and uhm, just the fact that people are just sitting in front of their screens the whole day, because there's just all this information all the time. I think 90% of it doesn't really help you go forward; it just keeps you busy. [laugh]	
11.	I: Yes.	
12.	P: Ja [laugh]	
13.	I: Okay, tell me about your experience of the fourth industrial revolution.	Comprehensibility
14.	P: Uhm, well I mean I work in the industry as I said before in the electronical engineering industry which obviously then we we [sic] are thinking about how we can actually make life easier because of this information overflow that we've got uhm, in my business we need to make sense of all the information and actually extract intelligence out of it. Uhm... and that is something uhm, that is not so so [sic] easy uhm, I mean we also work in the wireless communication industry so uhm, 5G and all these things that we talked about uhm, that will assist people and machine to communicate with each other	<ul style="list-style-type: none"> <li>● Information overflow</li> <li>● Help machines &amp; people communicate</li> <li>● Focus on how to extract intelligence from information</li> <li>● Wireless</li> <li>● 5G network</li> <li>● Change the way we work</li> </ul>

	<p>that is what we are working on and we need to also see how we can utilize that uhm... to to [sic] help society uhm, we are more on the intelligence side, so we need to see how can we actually extract information or intelligence out of all the information that is flowing uhm, whether it is now—but mostly wireless for us it is stuff that's happening wireless, so so [sic] phones that are connecting via the uhm, cell phone network, or 5G network uhm, or any other machine that is communicating in that way. We need to try and decipher what's going on there uhm, so that is ja, what my experience is uhm, and so uhm, on the one hand produce products that will in the end assist humanity to extract information out of this or make sense of what is going on in, in the world uhm of information and on the other hand we know that also it will also influence our employees I mean this whole fourth industrial revolution it will change the way we work as well but maybe that is some of the later questions that we are going to get to.</p>	
	<p>Meaningfulness</p>	<ul style="list-style-type: none"> <li>• Produce products to assist people</li> </ul>
<p>15.</p>	<p>I: Yes, uhm how do you feel about the fourth industrial revolution in your workplace?</p>	<p>Comprehensibility</p>
<p>16.</p>	<p>P: I think companies will have to embrace it. I don't think we... if we don't embrace it and run with it, uhm you will just—companies will just die. I think if if [sic] the workplace doesn't embrace it and change in order to use it to its own benefit; I think we will do companies won't survive.</p>	<ul style="list-style-type: none"> <li>• Have to embrace it</li> <li>• Necessity</li> <li>• Use to benefit</li> <li>• For competitive advantage</li> </ul>
<p>17.</p>	<p>I: So, you see it as a necessity in the workplace?</p>	
<p>18.</p>	<p>P: Definitely, it is a necessity. Ja, I think to be able to compete uhm, in in [sic] the world with other companies, because the other</p>	

	<p>companies, your competition is going to embrace it, that's for sure. And they're going to move faster. So, if you don't do it, I think you will just fall behind.</p>	
19.	<p>I: Okay, how do you see the fourth industrial revolution will shape the future of work?</p>	<p>Comprehensibility</p>
20.	<p>P: Uhm, I think in essence, it's going to automate a lot of processes uhm, and procedures. So uhm... I think it will [sic], so it will basically take over some—maybe some of the functions that humans would have done, we've performed. Uhm, that's the one thing and also, I think it will, uhm...we will be able to work from any location. As we've seen in this COVID thing, now people have been forced to work from home. Uhm, and they now realizing that it's really not that difficult, but but [sic] what I'm realizing is that it changes a lot a lot [sic] of things, it changes the way you need to organize your day, it changes what you need, you need a good internet connection, you need technology to be able to do it. Uhm, so I think definitely, the future of work is going to be not whether you're in a specific place, you can work from anywhere. Uhm, and it will definitely...[laugh] change the way we are—the type of jobs that we do. For example, if we say... we're going to automate stuff, they will be maybe a robot that's doing the work of what a human would have done. So, I think people would naturally think, okay, now I'm going to lose my job, maybe I won't have a job, but actually all it's going to do, it's going to change the types of jobs that we do. It's not—I don't think it will lead to more and more people not having a job, it's just gonna [sic] be different jobs because if you imagine you have a robot doing something or a computer program doing something that a human was doing, it's now automated. Somebody still has to write the program. Somebody has</p>	<ul style="list-style-type: none"> <li>● Automate processes &amp; procedures</li> <li>● Virtual workplace</li> <li>● Change the type of jobs we do</li> </ul>



	to manufacture the robot. Somebody has to maintain the robot, [laugh] it's going to break. And and [sic] also—so those sorts of things still needs [sic] to happen. Uhm, so the type of jobs we do will just maybe change.	
21.	I: Okay, so you see it actually has a positive influence in the future of work.	
	Meaningfulness	<ul style="list-style-type: none"> <li>• Positive if adapt</li> </ul>
22.	P: Oh, ja, ja. If we can adapt. [laugh]	
23.	I: Yes	
24.	P: If we can adapt.	
25.	I: Okay, what impact do you feel the fourth industrial revolution will have on your job?	Comprehensibility
26.	P: On my job as as [sic] a person, I mean, I'm basically managing people at this point although it is a technological uhm, company. Uhm so... I think maybe I can use some of these tools to I mean, to automate, I will need to move with the time so even uhm, evaluating people's uhm, work, how they work, the quality of the work, I can automate that. Uhm... Possibly and the uhm, challenge will just be to do for me, I think, is to actually keep contact with the people that work for me because people will be... maybe working from home they can work from anywhere. Uhm, a lot of the processes that we used to do face to face uhm, meetings will now be maybe automated. So, it will be a challenge to keep good human contact with people uhm... to find out how are they really doing [laugh], to have that sort of interaction, that will be a challenge, I think there I will be—I'll have to be a bit innovative to make sure that they—still this contact, even	<ul style="list-style-type: none"> <li>• Use tools to automate admin work.</li> <li>• Less contact with people</li> <li>• Have to be innovative to keep human interactions</li> <li>• More effort to connect with people</li> </ul>

	<p>even [sic] though people will maybe not physically be together. So, I think that that [sic] is something that will change, I uhm, will have to make a concerted effort to to [sic], to really connect with people.</p>	
27.	<p>I: Okay, so uhm your job will be to be more innovative, uhm, what other changes will need to be made to job description to stay relevant in the fourth industrial revolution?</p>	Comprehensibility
28.	<p>P: Uhm... I think uhm... I will have to..., maybe first of all, I will have to lead people to be able to cope uhm, in this uhm, new environment. So, for me, I'll have to do my research, I'll have to be at the forefront and make sure I'll understand what is going to hit us before it actually hits my—the people that work in my area for which I am responsible. So, I will definitely have to be uhm, proactive in that way. And make sure also that—I thin...uhm—that the changes that this is going to cause... uhm, is not just for the sake of change, uhm because it will bring automatic changes because things will be forced maybe onto us that we that may not add value. So, I will have to be sharp in order to really select and and [sic] enforce the changes that is really going to make a difference, and not ...just change for the sake of change.</p>	<ul style="list-style-type: none"> <li>● Lead people to cope with new environment</li> <li>● Do more research</li> <li>● Be proactive</li> </ul>
29.	<p>I: Okay, uhm how do you control the changes brought by the fourth industrial revolution?</p>	Manageability
30.	<p>P: Well, number one, I think I must embrace, it doesn't help to kick against it. So that would be... the first thing uhm, but as I said, I think now maybe not just the control—maybe goes [sic] about not just accepting everything that comes my way uhm, to really look at how it will impact my job and the people around me and the company, and make sure that the things that we take on board uhm, are really going to add value. Uhm, but [laugh] it will also not help me if I am stuck in</p>	<ul style="list-style-type: none"> <li>● Embrace it</li> <li>● Look at how will impact on job</li> <li>● Find a balance between value change and unnecessary change</li> </ul>

	old ways and and [sic] resist the change. So, it's going to be a fine balance. Uhm, so I'll have to exercise some control to make sure that we don't uhm, get bogged down in in [sic] making changes, that is not going to make a difference to the company in the future.	
31.	I: Okay, and what skills do you apply to stay relevant or have an active part in the fourth industrial revolution?	Manageability
32.	P: Uhm, I think I uhm, need to be in contact with this industry players that do... that work in the same environment as us... uhm, and make sure that I... stay connected with the... the younger generation, [laugh] I think they already think, to a large degree differently. Uhm, so to make sure that we we [sic] get enough younger, intellectual people on board, uhm... that would be a responsibility that I will have to make sure that we are geared for the future. Uhm, but I I [sic] think for me, skills that is important still would be active listening, making sure I <i>listen</i> to what people say, that connecting thing that I talked about earlier, which may be more difficult because we are working remotely everything is over some work. That's the one uhm, as I said, making sure I consult with industry players that uhm, and stay abreast with what's happening uhm, what is the latest trends, teamwork, I mean, make sure we have multidisciplinary teams always working together. So that would stay important. Uhm, people can easily get isolated if they are just connected via some internet link or some wireless link uhm, and so that would be important to to [sic] stay connected. And I think flexibility I think that's a skill that will be very important uhm, because otherwise if we—if I'm not flexible enough, I won't be able to change and also won't be able to induce changes around me... Uhm so ja, I think just basically people that are stuck in	<ul style="list-style-type: none"> <li>● Stay in contact with others in the same industry &amp; younger generations</li> <li>● Have intellectual people on board</li> <li>● Active listening</li> <li>● Consult with others to stay abreast</li> <li>● Multidisciplinary teams</li> <li>● Flexibility</li> <li>● Adaptability</li> <li>● Have to adapt or will not cope</li> </ul>

	their ways are not going to cope [laugh] they will have to be adaptable.	
33.	I: Yes, adaptability is also an important skill.	
34.	P: Ja.	
35.	I: Okay. Uhm...how do you feel the fourth industrial revolution is connected with the politics or BEE of the company?	Comprehensibility
36.	P: Hmm. Ja, that's an interesting question... I I [sic] think politician I mean, it's become a slogan, you know, the fourth industrial revolution and how, uhm how [sic] it's going to—that we need to embrace it, I'm not sure that politicians always knows [sic] what it really means [laugh] what the fourth industry, but it is become a slogan. Uhm, and it's important. Uhm... I, I don't know, if it will really change the BEE uhm, in the company. What the... the danger is that if we don't make sure that uhm, you know, employees of all races and cultures actually embrace this and skill up for this, I think it will affect our BEE status, that's for sure. So that would be important to make sure just—but that that is already a focus in terms of BEE in the company is to make sure that you use skilled people right across the across the [sic] board, and focus on the groups that have maybe been disadvantaged before. So that will remain I mean, it remains just... making sure that they everybody is exposed to this new the new [sic] way of working and the new technology that will hit us. Uhm so otherwise, I think politically, I don't see really, it's gonna [sic] have a big big [sic] impact.	<ul style="list-style-type: none"> <li>• Make sure all races and cultures embrace it</li> <li>• Not have a great impact</li> </ul>
37.	I: Okay, how do you feel the fourth industrial revolution impacted your life?	Comprehensibility
38.	P: I think currently is the impact is still small, uhm... it's still gonna [sic] come... uhm but uhm, it's definitely maybe I'm maybe [sic]—using the	<ul style="list-style-type: none"> <li>• Small impact</li> <li>• More workload due to interactions online</li> </ul>

	<p>whole COVID uhm, lockdown period, as an example, this little first-hand experience, I mean, definitely induced more stress [laugh], definitely more stress. And the—my workload is actually picked up. So, I think it—I was thinking, okay..., uhm, the workload might now be lighter, because I can do everything remotely, and this and that, and will be more effective. But actually, my workload is higher, because all all [sic] interactions are online. And it does make uhm, it... it does sort of fill up your diary very quickly. Uhm, whereas before, you may have walked past somebody and just had a quick chat, five minutes, and it's over and you've connected. Now it changes into a half an hour discussion, which maybe wasn't necessary. [laugh] So I think it's going to be some discipline that one needs. I mean, I'm now connecting the fourth industrial revolution with online work, which is not the only it's not the only [sic] factor, it's just one, but that's been my experience. I think the impact on me has been quite small, but I do see that it is definitely more stress <i>because</i> I think of the change. I mean, I think change does bring stress, and you need to adapt, and uhm so, but I think in my personal life, it doesn't it hasn't really made a big impact yet, but I suppose it will come.</p>	<ul style="list-style-type: none"> <li>• More stress</li> <li>• Impact still needs to come</li> </ul>
39.	I: Okay. Uhm so, how does the fourth industrial revolution impact your health?	Comprehensibility
40.	P: Health..., I think stress as I mentioned... uhm, is is [sic] a faster pace, I think the pace will be faster pace of work, because things will be automated a lot more. Uhm, so that that will bring most additional stress, I think so uhm, and and [sic] because you are basically connected uhm, with some sort of a device twenty-four seven, you you [sic] basically connected to your work twenty four seven, so it it [sic] will impact it it [sic] will impact family life as well. Uhm... and that	<ul style="list-style-type: none"> <li>• Stress</li> <li>• Faster pace of work</li> </ul>

	is I think already happening in many people's lives. So, it will be something that one would have to guard against uhm, because I think it will not be good for for [sic] your physical health but also not for psychological health, I think [laugh] definitely not good.	
	Meaningfulness	<ul style="list-style-type: none"> <li>• Connected to work 24/7 – impact family life (physical &amp; psychological health)</li> </ul>
41.	I: So, taking into consideration it impacts is your work life balance. What are your personal resources you utilize to cope with the fourth industrial revolution?	Manageability
42.	P: Uhm... what I find is that I need every day some quiet time without any device without any, anything that is too technological. [laugh]Uhm... There's some quiet time by myself. For sure that is, that is the one thing that I find works.	<ul style="list-style-type: none"> <li>• Quiet time without devices</li> </ul>
43.	I: Okay, uhm, how does the fourth industrial revolution connect with your religion?	Comprehensibility
44.	P: I think the, the whole thing of being connected uhm, is is [sic] actually positive for my religion, uhm, I can I have so much more resources to my—that I have access to. So, uhm it really enriches my religion, it strengthens it. Uhm... And I can make I can connect to Christians all over the world. And I you know, and and [sic] have a really enriching of my faith. I think that is that is. So, this is definitely positive. It can also be—I suppose to be dangerous, because you there are so many things out there. Sometimes you don't know what what [sic] is not true and what not. [laugh] But I think it's all over it does does [sic] have a positive effect.	<ul style="list-style-type: none"> <li>• More access to resources</li> <li>• Dangerous – false news</li> </ul>
	Meaningfulness	<ul style="list-style-type: none"> <li>• Connectedness – positive</li> </ul>

		<ul style="list-style-type: none"> <li>• Enriches &amp; strengthens religion</li> </ul>
45.	I: Okay uhm... And I just want to give a bit of background on the following question. So, when referring to the shamefulness, it's uhm, relating that the younger generation is more technological savvy than the older generation.	
46.	P: Okay	
47.	I: So, the fourth industrial revolution, impact on your shamefulness.	Comprehensibility
48.	P: Uhm, ja, I must say it, it, it, I think it is increased, uhm... I mean, if I make a mistake, it's for for [sic] everybody to see, [laugh] everybody can see it. So, if you're online, or you're on on [sic] a Whatsapp group, or you're on a workgroup somewhere, and you say something wrong, everybody sees it, everybody sees it [sic]. So, I think that definitely increases shamefulness. Uhm, in terms of the younger generation, be more savvy [sic] with, you know, with the technology, ag I accept that I, it's not a problem for me. I... uhm accept it as it is. And they uhm— I I [sic] use that to my advantage. [laugh] If I struggle with something, and they can do it quicker than I just give it to them to do that. That's it.	<ul style="list-style-type: none"> <li>• Increased (everyone sees mistake)</li> <li>• Not a problem younger generations are more tech savvy</li> <li>• If struggle ask for help – use as benefit</li> </ul>
49.	I: What will make your job meaningful in the future?	Meaningfulness
50.	P: Uhm, I think for me, what makes my job for me meaningful at the <i>moment</i> is having being able to have an impact in people's lives. So, it doesn't really matter what the impact is, but a positive impact. Uhm, whether it is just somebody, uhm just assisting somebody to to [sic] realize that they've actually done something really <i>well</i> , or whether they've really achieved something, even if it's something small uhm, to see somebody grow in their skill or in their job. Uhm,	<ul style="list-style-type: none"> <li>• Impact people's lives</li> <li>• Help grow people's skills</li> <li>• Connect with people</li> <li>• 4IR assists in that – more effective influencing people</li> <li>• Lead others through change</li> </ul>

	<p>that for me, is that's what life's about to see. To connect with people and make sure that you have a positive impact. I think the fourth industrial revolution... uhm, can assist me in that, I mean, if I use it the right—in the right way. Uhm... it can it can [sic] make me even more effective in terms of influencing people positively. So that's how I see it, I will be extremely happy if I can still do that and even do it more effectively. Uhm, and that that [sic] people will need it more and more... uhm to be... influenced positively..., especially if it goes about uhm... adapting to the change that this will bring. Uhm, a lot of people will be out of their comfort zone and including me. [laugh] So, I mean, one would need to really support each other, to make sure that people get through it properly.</p>	
51.	<p>I: Okay, so it will be meaningful if you will be able to help them and lead them through the change and how they work.</p>	
52.	<p>P: Ja, I think you summed it up. Well, ja.</p>	
53.	<p>I: Okay, thank you. That's all the questions uhm...</p>	
54.	<p>P: All the questions?</p>	
55.	<p>I: On the interview.</p>	
56.	<p>P: Okay</p>	
57.	<p>I: Thank you very much for your participation...</p>	
58.	<p>P: You're welcome. I, I made a few small changes in the written answers that I've I've [sic] already supplied you. Shall I forward that as well. Will it help?</p>	
59.	<p>I: Um, yes, please. That would be nice.</p>	
60.	<p>P: Oaky, okay</p>	



61.	I: I'm going to end the recording now.	
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### Transcribed interview of Participant 3

Participant 3		
	Transcription	Coding
1.	I: Okay, great.	
2.	P: That's fine.	
3.	I: Uhm, do you have any questions... or clarification... that you would like to?	
4.	P: Maybe, ja, maybe you can just give me uhm, just your topic again, so I can understand where to pitch my answers.	
5.	I: Okay, my topic is on the sanity, genesis of managers, uhm the sense of coherence in the fourth industrial revolution. So, I want to measure how they are handling, can I say the fourth industrial revolution? And how strong they sought levels all?	
6.	P: Okay, cool. Sounds interesting.	
7.	I: Okay, great. Okay, we're gonna [sic] start with the interview. So, the first question, why do you think the fourth industrial revolution is?	Comprehensibility
8.	P: Uhm, I think it's, it's all explained in two ways. Uhm, the first part for me is, you know, the development of technology at an exponential rate. And so infor—information technology, artificial intelligence, etc. Uhm, but the other component is also the automation of the workforce uhm, replacing what used to be manual labour with a computer or machine. Uhm, and I think that combined sort of... creates this cyber physical space. And, you know, we we [sic] like	<ul style="list-style-type: none"> <li>● Development of technology</li> <li>● Information technology</li> <li>● Artificial intelligence</li> <li>● Automation</li> <li>● Cyber physical space</li> </ul>

	being attacked. Now we are in a physical space, but also in cyberspace, which is, I think, for us, people our age, relatively normal, but maybe for older generation, quite weird to understand.	
9.	I: Okay, how do you perceive the fourth industrial revolution?	Meaningfulness
10.	P: In terms of being good or bad thing? What do you need to see?	
11.	I: Yes, a a [sic] good or bad? That's the next question. [laugh]	
12.	P: [laugh]	
13.	I: Do you believe the negative aspect?	
14.	P: Uhm, I uhm, you know, I don't really think there's a real answer to that. It depends on where you are in... society and social structure. Uhm obviously, there's a lot of lot of good things. Uhm, it's—if you think about the lockdown, we weigh in now, if it wasn't for the fourth industrial revolution, a lot of people would not have been able to work... Uhm, but also, I think it's [sic] it can exasperate inequality. So, if you think about people living in low-income communities who, do not have access to a a [sic] cell phone or a smart device, it's difficult for them to access their schoolwork or go onto an email to work or join a zoom call or something like that. So, I think like everything it has its ups and its downs. And probably the big challenge for the fourth industrial revolution would be to make it accessible to the lowest social groups in the world, or in in our country at least.	<ul style="list-style-type: none"> <li>• Depends on societal structure</li> <li>• A lot of good things</li> <li>• Helped during lockdown</li> <li>• Can exasperate inequality (access to technology)</li> </ul>
15.	I: Okay, so are you optimistic about the fourth industrial revolution?	Meaningfulness
16.	P: I won't say I'm optimistic. Uhm..., let's call it opportunistic. I think there is a lot of scope for stuff to happen. That can change for the good. Uhm, but I am... So, I'm a I'm a [sic] psychologist, I work with people face to face, that's my that's my [sic] bread and butter, right?	<ul style="list-style-type: none"> <li>• Opportunistic</li> <li>• Not optimistic</li> <li>• Worried about the lack of human interaction</li> <li>• Great to have the technologies</li> </ul>

	<p>Uhm, I'm I'm [sic] worried about the lack of human interaction that resulted from the fourth industrial revolution. So, I'm just thinking about lockdown again, where you couldn't see your families and stuff. So, it was great. You can speak to them over the phone or... video calls, but you don't have that human connection, that human interaction. And I think that's something uhm, we don't really appreciate or understand the value of uhm, and I don't see any form of artificial intelligence or information technology that can replace that. Now, you can have a version of someone, but it just won't replace that individual personal contact. So obviously, there's a lot of good to come. Uhm, it's—I think it's great that we have all of these technologies available and... it's steadily going to change the workforce. But there are some downsides that I don't think everyone always considers, especially the human aspect.</p>	<ul style="list-style-type: none"> <li>• Are downsides</li> </ul>
17.	<p>I: Okay. Uhm, so tell me about your experience of the fourth industrial revolution.</p>	<p>Comprehensibility</p>
18.	<p>P: So, I think... I sort of grew up with it. Uhm, I was born in the early 90s... and, you know, the cell phones... came out and I was probably in primary school and sort of being become a part of everyone's lives when I was in early High School, so or late primary school. It was sort of second nature to—I went on like the gen Z's where I grew up with a cellphone in my hand, but I find it relatively easy to interact with technology. If you work with a diverse age group of people, you can see that older generations quite struggle with all the different apps there are, and how to get on a zoom call. And I mean, I'm I'm [sic] probably the youngest in my team at the moment, and to get on a zoom call with him is quite funny, because half of them don't have to connect. And that's all kind of fine, easy, positive. But again, I don't</p>	<ul style="list-style-type: none"> <li>• Grew up with it</li> <li>• Easy to interact with technology</li> <li>• Older generations struggle</li> <li>• Easy positive</li> <li>• Fast paced life</li> <li>• Sometimes overwhelming to be connected all the time</li> <li>• Difficult to unplug</li> <li>• AI</li> </ul>

	<p>think that's the experience for everyone, and it creates this, especially in the workplace. So, if you think about people who are managing other people, your research topic, it's not people in their in their [sic] 20s, who are the managers of a large team, it's older older [sic] generation, so they need to navigate aging people, which in and of itself is a very big challenge but then they have to navigate all of that with AI and and [sic] zoom calls and using Slack and making sure everyone is is [sic] typing in on Monday.com to capture their spreadsheets and stuff like that. No so, I think it can be overwhelming for some people to have all these different components, and it's this fast-paced life, and it's difficult to switch off. Uhm, if if [sic] you have to be connected all the time.</p>	
	<p>Meaningfulness</p>	<ul style="list-style-type: none"> <li>• Sometimes overwhelming to be connected all the time</li> </ul>
<p>19.</p>	<p>I: Uhm, do you feel overwhelmed by the fourth industrial revolution?</p>	
<p>20.</p>	<p>P: Uhm... I think it comes and goes, I think the big problem is..., let's say 20 or 30 years ago, if it was a Friday, you know, you uhm, you [sic] worked nine to five job Monday to Friday. If it was Friday, your job was sort of over until you came back to the office on Monday. Uhm, where that's not the case anymore, you know, your clients can reach you anytime, any any time [sic] of the day. I work with colleagues who are based in other countries in different time zones, which means that I have to be on zoom calls sometimes at one o'clock at night, which is not always nice. So, that can be overwhelming. Uhm, waking up in the middle of the night with a few emails is not always great. So... I think it depends on how you manage it. So, I've said in the past, I find it overwhelming to be connected the whole time uhm, you sort of longed to go to a space without cell phone signal just so you can</p>	

	<p>unplug, because it's quite difficult to unplug, if there's no reason to. Uhm, but slowly, but surely, you can take your emails, your cell phone, switch off your notifications, and you can then decide when you want to be contacted. It's trying to balance that which is which can result in coping or being overwhelmed.</p>	
21.	<p>I: Uhm, so besides feeling overwhelmed, due to the fourth industrial revolution, uhm how do you feel about this uhm, new technology in the workplace?</p>	Comprehensibility
22.	<p>P: Uhm... look, my answer is quite loaded. Uhm... but I would say it's definitely a positive. So, I work in academia, I work with students, I work with other researchers. And my my [sic] job probably would not be as easy if it wasn't for technology. So... I think... it is made much of a lot easier. And in the sense that I can communicate with people in real time, you know—I know it's now ten past three, I know my colleagues in the states in New York are awake, I can email them and in half an hour, they'll get back to me. So, that's made it a lot easier. Uhm but, you know, if you think about the lower income groups, or the low-income positions—occupations, those are usually dependent on manual labour, a large workforce, if you think about construction, you could think about... uhm, or cell phone, automation, stuff like that, you you [sic] do need hands on deck. And... I don't I don't [sic] see how the fourth industrial revolution can benefit those people because all it's going to do is [inaudible, 9:08] groups, low literacy levels, it's just going to cause low-income levels. Nowhere the fourth industrial revolution is [inaudible, 09:15] [dogs barking] be something that is going to change the world is going to make sure that everyone has access to money and information. Uhm, but we don't see that, you know, it's it's [sic] still if you think about in in [sic] Cape Town,</p>	<ul style="list-style-type: none"> <li>● Positive</li> <li>● Technology made work easier</li> <li>● Can communicate with people in real time</li> <li>● Negatively impact others</li> </ul>

	<p>people who live in Khayelitsha lot of them share cell phones, so you would share cell phone with your neighbour but can't afford your own one. Uhm so, how does that improve someone's income? So, that's why I say if we can [inaudible] equal across all social groups, then it could work but the way the world is structured, I don't see how that's going to happen.</p>	
23.	<p>I: Okay, how do you see the fourth industrial revolution will shape the future of work?</p>	Comprehensibility
24.	<p>P: Uhm, I think so my... original research interest was career interests. So, deciding that's how I know _____, we work together on the psyche, and working on career interest in making informed career decisions. I think what what's going to happen is..., it's difficult to articulate, I don't think we're not going to have in ten to fifty years, I think, a lot of the jobs, that will be the high income... earning positions that don't exist yet, you know, so I think the industrial revolution is meant to create jobs that are beyond our comprehension at the moment stuff that we don't really—that we can't understand or put uhm, into words, because it's it hasn't, you know, it hasn't materialized yet. So, if you look at some example, during lockdown, Samsung did a a [sic] study with a bunch of teenagers in the UK, asking them what jobs do—they want to be when they grow up. So, these are teens, thirteen, thirteen, fourteen-year olds uhm, and I think out of the twenty, top jobs, about fourteen of them got positions that's not listed on and create interest. So, it's like being a YouTube influencer, and a drone pilot and stuff like that, you know. So, I think that's going to happen more and more is..., we're going to see these new occupations that did not exist... ten years ago. And that's going to be the way forward. So, something anything in... data analytics is</p>	<ul style="list-style-type: none"> <li>● Create jobs beyond comprehension</li> <li>● New occupations</li> <li>● Coding become more prominent</li> <li>● Change coming</li> </ul>

	<p>the way forward if you can if you can [sic] code, you're probably going to be rich, and had [sic] lots of jobs. Uhm and, and, you know, the the [sic] usual letter office work is going to be replaced by some automated artificial intelligence. So, ja, I think there's a lot of change coming, and it's difficult to predict what it's gonna [sic] look like, but uhm, I don't think we're gonna [sic] have the same jobs that that we had in the past ten years.</p>	
25.	I: Okay, with regards to the SACI questionnaire, uhm...	
26.	P: Uhm	
27.	I: _____, uhm, how would that change? Will that change to accommodate the uhm, new jobs that are going to be created? Or do you think it will just stay the same?	
28.	<p>P: It will have to change. So that's the reason the SACI was developed. Because in South Africa, we..., for many years, since the eighties, we used a few STS, the savvy, strong, interesting imagery, and the problem of those that are outdated, you know, they—I remember when I was in grade nine, I took a test and one of the questions was, do you want to work on a typewriter, and there, the computers were obviously a big thing already. Uhm so, if—and that's the big thing about all of our tests is going to have to think about organizational industrial psychology, think about vocational and career psychology, is going to have to adapt to the fourth industrial revolution. So, the SACI will probably have to be rewritten, but items that are relevant. Uhm, the SACI doesn't contain a lot of stuff about data analytics, or working with robots, or automating machines and stuff like that. So, you're your [sic] investigative type, that probably has to be bumped up a bit, your realistic type will have to be changed. Uhm, and the</p>	<ul style="list-style-type: none"> <li>• Change in psychological assessments to adapt to 4IR</li> <li>• Nature of occupations are going to change</li> </ul>

	nature of occupations, definitely going to change. So, if you think about a lot of people at the moment, are employed as social media managers for local companies. Uhm, twenty years ago, that was not even a job. And that's happened in our lifetime. So, it's just going to continue developing.	
29.	I: Okay. What impact do you feel the fourth industrial revolution will have on your job?	Comprehensibility
30.	P: Uhm, it's difficult to say... I'm so you sort of see it already now with—so I am the researcher, but also teacher [inaudible, 13:57], was supposed to teach a person, but teach online. So, I think that's going to be the first thing a lot more. I think universities are going to boom, we're going to have massive universities, because it's not going to be linked to infrastructure. If you think about UJ, how many seats they have, you can quadruple that if it goes online, like UNISA. So, because you don't need infrastructure, you just need to make sure that you or your students can access your video lecture, your podcasts and they can write test. So, I think that's one way. Uhm, maybe face to face interaction with students may uhm... may be reduced. Uhm, and you know, I think a lot of people think that's going to be a bad thing. Uhm, because you don't... know—if you think about self-study versus someone explaining something to you in person, people don't think you understand it always as well. But if you think about the next generation, they would [sic] thrive with that method of of [sic] teaching. So, they would thrive just as well. It's just for us. It's weird, it was not useful. Uhm... other than that, you know, if you thinking [sic] about rendering counselling to people, I don't think the virtual route will always work. Uhm, you can see at the moment because it COVID is a lot of people doing online counselling sessions. And if the	<ul style="list-style-type: none"> <li>● Online teaching</li> <li>● Going to have massive universities</li> <li>● No need for infrastructure</li> <li>● Some work replaced by AI but not all.</li> </ul>



	<p>reputa—is just not the same, people are more anxious because they clearly don't want to work this thing. Uhm, but that human connection, you can't really read the body language of the person sitting sitting [sic] in the screen in front of you. Uhm, in that sense, I think there will still be value in working with people, same for uhm, if you think about the medical field, you can have online consultations, but only so far, I mean, it's very difficult to uhm... administer some injection or put an IV in over a video call by nurse. So, I think... there are so professions that would necessitate human human [sic] interaction of of [sic]—that interaction will probably probably [sic] be replaced by video stuff, or AI. Uhm but, you know, not not [sic] all of it.</p>	
31.	<p>I: Okay, how will your job descriptions change to stay relevant in the fourth industrial revolution?</p>	Comprehensibility
32.	<p>P: [Laugh] So, my job description is research. So, I think that would probably say the same. Uhm, the only thing that would they'll probably add some auxiliary in front of it, like online research, or virtual research or something like that, my, my [sic] job description will probably not change. But I can see a lot of other people's jobs may.</p>	<ul style="list-style-type: none"> <li>• Research – stay the same</li> <li>• Additional – online/virtual research</li> </ul>
33.	<p>I: Okay. How do you control the changes brought by the fourth industrial revolution?</p>	Manageability
34.	<p>P: I think it goes back to that balance that I spoke about. So... one of the big challenges—I think for a lot of people... from, let's say, from a psychological and mental health perspective has always been connected uhm, with social media or your email or your work, so... uhm, you'll be a personal choice, and I control it. So, in my sense, I</p>	<ul style="list-style-type: none"> <li>• Finding a balance</li> <li>• Schedule notifications</li> <li>• Switch off emails</li> <li>• Cannot control</li> <li>• Can control adaptation</li> </ul>

	<p>would schedule ... notifications on my phone, I would switch off my emails and stuff that would bother me that's linked to, I mean—so if you think about this, logically, the fourth industrial revolution would all be through some sort of device factor, it'll be a Google Home, or Alexa in your house, it will be a laptop, cell phone, tablet, whatever. Uhm, basically just a way to then control it would be to just leave the device alone. So, that's one personal perspective, I don't think you can control the rate of... change in your workplace, I don't think you can change automation, I don't think you can change moving everything online. Uhm, so they will just have to adapt. So, I don't think you can control that. So, I think there are certain aspects you can control but definitely not all of the aspects, or to control it to that to that.</p>	
35.	<p>I: Okay, what skills do you apply to stay relevant or have an active part in the fourth industrial revolution?</p>	<p>Manageability</p>
36.	<p>P: Uhm...So as I said, I think I grew up with this, I don't have to really—the skills came naturally as I became familiar with uhm, certain devices. But one thing that I realised that the futures in is something like data analytics and coding. So, although I am [sic] I'm [sic] sort of can code through my PhD, then—actually_____ taught me a lot. Uhm, that's something you're trying to do to stay on top of it, because if you can apply the coding to that you use in [inaudible, 18:31], for example, you can use it in Python, or whatever you need to do to develop some programs. Uhm, and other than that, I think it's just staying informed of what's going on and understanding what is the different platforms that you can you can [sic] communicate on and I think... they say for twenty, thirty percent of the population before lockdown, before the whole global pandemic, nobody knew what</p>	<ul style="list-style-type: none"> <li>● Skills came naturally – grew up with it.</li> <li>● Data analytics and coding</li> <li>● Staying informed</li> <li>● Continuous learning</li> <li>● Staying connected</li> </ul>

	Zoom was or Microsoft Teams or a Whatsapp Video call, something like that, you know, so... uhm... the best tool, I would say, is just being informed about what is out there.	
	Comprehensibility	<ul style="list-style-type: none"> <li>• Coding and data analytics more prominent</li> </ul>
37.	I: Okay. So, learning as you go?	
38.	P: Learning as you go, I mean, it's impossible to get all the information in one shot, you know, so staying connected and, and found to be in the form of art, different options lead to information technology, about automation, about stuff like that, you know, so, ja, that's only thing can—I can think of.	
39.	I: Okay, how do you feel the fourth industrial revolution is connected with the politics or BEE of your company, or institution?	Comprehensibility
40.	P: I'm not entirely sure to be honest uhm, but let's put it this way, if there's an issue, you probably saw recently in the news there's—I worked for _____ uhm, it said there's an issue with management or some incident related to to [sic] an appointment or something like that, it'll take twenty-four hours before the whole country knows about it, or someone would send out a tweet. Uhm, and a journalists [sic] will read it and then publish a newspaper article. So, same for— if you think about Donald Trump, he doesn't use normal channels of media to get his point across, it's all through Twitter, right? So... I think the political landscape and, you know, let's call it BEE issues, perhaps with let's say, someone is uhm, unimpressed with their employment equity at work, you can just voice your concerns in public clients on social media channel, and it should be addressed. And I think it's a good thing, because it, it sort of forces transparency, and where if,	<ul style="list-style-type: none"> <li>• More ways to communicate</li> <li>• Easier to make political influence</li> <li>• Propaganda</li> </ul>

	<p>let's say you go in a personal capacity, HR, it's very easy for them to brush it aside, and not deal with the issue, but out in the public through some form of of [sic] information technology, it's it's [sic] much more difficult for them to brush it aside. You know, so... there's so many ways to communicate and get information out there instantly, whether it's making a statement on Facebook, posting a picture on Instagram or whatever, it's still to come, you know, TikTok, and Snapchat and all that stuff that I don't understand anymore. Uhm, it's it's [sic] very, very easy to make a political influence. And... I mean, if you think about the US election, as well, the allegations about meddling in the election through social media about fake news on Facebook and stuff, I mean, that that's sort of self-explanatory, you know, so I think there's a lot of potential to, you know, have fans and get the right message across, but then also to despair propaganda, in effect.</p>	
	Meaningfulness	<ul style="list-style-type: none"> <li>• Forces transparency</li> </ul>
41.	I: So, there's a positive and negative side?	
42.	P: Mmmm, like everything, probably. [Laugh]	
43.	I: Yes [laugh] How do you feel the fourth industrial revolution impacted your life?	Comprehensibility
44	<p>P: Uhm... I think it's difficult to say, because I'm sort of living in it. You know, it's the fourth industrial revolution is now. So, it's quite difficult to reflect on, maybe in a few years on, I'd be able to answer that question more comprehensively. Uhm, but I would say it definitely had a positive impact. As I said, it makes my job a lot easier to do. Uhm it makes me it makes it possible for me to communicate with people who aren't in my immediate vicinity. I can chat to family</p>	<ul style="list-style-type: none"> <li>• Possible to communicate around the world.</li> <li>• Made job easier</li> <li>• Some people do not benefit from 4IR</li> </ul>

	<p>wherever they are in the world, for example, uhm... It has made cell phones and computers cheaper; it has made cars cheaper. So, I think that's for me, it's a benefit. But again, I'm in a different... social class, compared to someone who's maybe working in that factory is not benefiting from it, too, uhm, is contributing to the fourth industrial revolution, but not getting the benefits of it. No. So I think it again depends on your perspective, and in a way you experience it.</p>	
	<p>Meaningfulness</p>	<ul style="list-style-type: none"> <li>• Positive impact</li> <li>• Made products cheaper</li> </ul>
45.	<p>I: Okay. How does the fourth industrial revolution impact your health?</p>	<p>Meaningfulness</p>
46.	<p>P: Uhm...Ja, I think the big thing, I don't know if you're familiar with blue screen, uhm but obviously, a lot of TV, a lot of... people now sort of fall asleep already something on this often. Uhm, and, and that's called the blue screen effect is severe fatigue, associated with constantly being on a screen—having screen time. Uhm so I think—I can't really say about my personal health, but I think a lot of people are... probably losing a lot of more sleep that their sleep health is is [sic] a bit worse. Uhm, and then obviously, as I said, there's a lot of studies on the negative effects of of [sic] social media, which is very strong. The fourth industrial revolution, in my view, so the association between social media and mental health, so high rates of depression and eating disorders among among [sic] teenage women, uhm and then also suicide rates increase among men, and all link to social media. So different social media experiences. So, you know, it's, I think those are the bad sides. But... I think can also help if you think about there are a lot of self help hotlines. So, it's like a WhatsApp chat room or online internet chat rooms where you can... seek help for</p>	<ul style="list-style-type: none"> <li>• Others:</li> <li>• Fatigue due to screen time</li> </ul>

	either medical or mental health advice. And that's again, the positive side of it. So, I think again, it just depends on where you stand.	
	Meaningfulness	<ul style="list-style-type: none"> <li>• Negative mental health impact</li> <li>• A lot of online help hotlines</li> </ul>
47.	I: Okay. What are your personal resources to cope with the fourth industrial revolution?	Manageability
48.	P: What do you mean there? I'm not entirely sure.	
49.	I: Uhm so resources you have available, so maybe your research skills to help you you [sic] update your knowledge, or... uhm you're very curious if I can put it like that to get to know more about what the fourth industrial revolution is about.	
50.	<p>P: So, I think that second one is definitely one of my main resources. So... uhm if I read about something new, uhm I'd be googling further just trying to figure out what it is about. Uhm, and then just, I think, I'm at a I'm at [sic] an age and a social circle...where a lot of people use different types of of [sic] technology. Uhm, so for example, in my previous position, at a different university, we all use Slack to communicate prior to this online platform where you post updates and work you send messages... of different channels, etc, right? Uhm, I didn't know about Slack when I worked there, you know. So, it's it's [sic] being exposed to different types of of [sic] technologies. That is, because I have different types of social circles that work in that for example, that exposes you to different types of technology. Uhm, then I don't know if I can say my research tools helped me, uhm, I think the fact that my job is ninety percent on a computer, you know, I write using emails, I analyse, whatever, I find it sort of easy to figure</p>	<ul style="list-style-type: none"> <li>• Curiosity – learning</li> <li>• Learn from others</li> <li>• Exposure</li> <li>• Computer literacy</li> </ul>

	<p>out what to do, even if I don't know how to—how something works, because I'm familiar with a laptop and the shortcuts and maybe some coding, that also helps me to sort of understand what to do. Uhm, now to say, if you understand one app, you know, to have one app on your phone, all of them follows and model where to upload something where to check for something, use it. So... uhm, I think it's that type of computer literacy that also helps. Ja, I think if you understand... one type of program on your laptop, it's quite easy to apply that to other types.</p>	
51.	<p>I: Okay, how does the fourth industrial revolution connect with your religion?</p>	Comprehensibility
52.	<p>P: So, I'm not very, very religious. But... strangely enough, I was at my my [sic] niece's Christening yesterday, and there was, I think, ten people in the whole church but... they... be before that, uhm, that session that morning, that a YouTube sermon, where they recorded the whole thing and send it out to the whole church community. And I think it's about seven hundred people. And because of COVID, there can't be in the church, they were able to watch it at home. And so, I think that's a really good thing... Uhm but I mean, other than that, I can't really comment. Uhm, I think it's just easier to get the message across if you'd want to, you can send WhatsApp messages or videos about whatever religion you follow, and people can watch it if they want, if they want to, or not.</p>	<ul style="list-style-type: none"> <li>• Not religious</li> </ul>
52.	<p>I: Okay, what will make your job meaningful in the future?</p>	Meaningfulness
53.	<p>P: [Laugh] I don't know if it's meaningful now, to be honest. Uhm... I honestly can't say, uhm you know, the one thing I think so in response to COVID, uhm I'm busy developing a... virtual intervention to deliver</p>	<ul style="list-style-type: none"> <li>• Developing a virtual program to help women</li> <li>• Providing more access to psychological</li> </ul>

	<p>to HIV positive women who've experienced sexual trauma, right so, this used to be a in person where you're coming for a therapy session, and you go through six weeks of therapy with this person... But obviously, with COVID, you can't be in a in a closed private space with someone because of of [sic] CORONA fears. So, we busy developing this virtual intervention to reach... uhm, the same population, but you deliver everything like we're doing now. Right... So, I think what would make my job meaningful in... is... more access to to [sic] psychological services or to intervention. So, where everything is very labour intensive, it's quite costly, because you have to employ someone full time and they can only do as many sessions per day... If you move up virtual, you can pre-record a lot of the content and people can listen to it and then just have half the session with the person thereby therefore doubling the amount of people you can reach, you know. You can also make it... data free service that you partner with Vodacom or MTN or whatever. And anyone that has a link can go on to that specific portal and access the service. So, I think that's the one big thing is... uhm, psychological services are quite located in—I think industrial psych too uhm, is located in private practice. And as you have to pay for the service. It's mostly reserved for middle class people, that have medical aid. And if we can sort of transform those into something that's virtual that doesn't require as much manpower and infrastructure, it can just increase access.</p>	<p>services – to make it cost effective</p> <ul style="list-style-type: none"> <li>• Increase access to psychological services</li> </ul>
54.	I: So greater access for all the classes, uhm the middle, lower and higher classes?	
55.	P: Ja. And I mean, so linked to that is not the issue. So... biggest concern is data prices in South Africa. I mean, it's, it's not as expensive as it actually in high income countries, it's a lot more expensive. Uhm,	



	<p>for example, our data is much cheaper than compared to the States. But if you want to access anything on the internet, uhm you need to have data and data cost money. So, if you don't have money, you can't access that. Uhm, if everything is moving online, how are the low-income people find out, you know, access stuff online, if they don't have data on their cell phones, or tablets or whatever? Same for you, you can just apply it on mobile as in like a job and having your CV you need to have an email address, if you don't have an email address, what what [sic] then. Uhm, it's it's [sic] just stuff to consider on that. Obviously, it can improve access, but that could mean that certain certain [sic] things need to be in place when they need to be free Wi Fi, all free devices that you can access certain services on.</p>	
56.	<p>I: Okay, uhm the final question, uhm, and you mentioned you or actually very tech savvy. Uhm</p>	
57.	<p>P: Uhm</p>	
58.	<p>I: So, you say the fourth industrial revolution does not impact on your shamefulness, in terms of what I mean here is usually the older generation struggles with.</p>	Comprehensibility
59.	<p>P: [Luagh] Ja, Uhm, no I would not say as much shamefulness, and to be honest, it is... I don't think a lot of people under... realize how big or how disparate their skills are. So... I have a colleague who is six years older than I am, and the difference between and I'm not extremely tech savvy. Now, I don't know how to... fix it at whatever, you know, it's just I just [sic] have a basic understanding of—I can Google how to fix something, you know, that's everyone is supposed to be able to do that. But just as a six year difference between me and my close colleague in terms of age uhm, and then—so she's the</p>	<ul style="list-style-type: none"> <li>• Not shameful – tech savvy</li> </ul>

	second youngest, and then the person that is mid forty. And... uhm the difference between us in terms of how to access information and this shamefulness they experience not being able to access and, you know, whether it's Microsoft Teams or just figuring out how to open a Word document is is [sic] insane. So, I definitely think it's, so it's an age thing, but then also social crossing. Uhm, because you're—can be my age, but they said you grew up in... the Rural Eastern Cape you didn't have exposure to these devices for most of your life. I think you'll also experience a lot of shamefulness because of the Fourth IR.	
60.	I: Okay, thank you. That's all the questions. Thank you very much for your attention. I'm just going to end the record.	

#### Transcribed interview of Participant 4

#### Participant 4

	Transcription	Coding
1.	I: Okay. Thank you for participating in my research study. How are you doing?	
2.	P: I'm very well, thanks, and you?	
3.	I: Good. Thanks. That's good to hear. Uhm... before we kick start the uhm interview questions, I would just like to confirm that you do not mind being recorded. And you are don't have any concerns or issues uhm you would like to have addressed?	
4.	P: No, I'm happy. Thank you.	
5.	I: Okay, great. Okay, we're gonna [sic] start. Uhm first question, what do you think the fourth industrial revolution is?	Comprehensibility

6.	<p>P: Okay... uhm ...It's probably... not a hundred percent correct answer, but in my mind, it's a mixture... of I would say, what was happening in the second industrial revolution, and the fourth is the third one. Uhm, it's a combination of of [sic] technology being uhm, mingled or intertwined with with [sic] development and the fast pace business that's happening. And using technology in in [sic] fast new ways, uhm less people involved and artificial intelligence... being used, that kind of thing.</p>	<ul style="list-style-type: none"> <li>• Using technology in new ways</li> <li>• Less people involved - automation</li> <li>• Artificial intelligence</li> </ul>
7.	<p>I: Okay, uhm, how do you perceive the fourth industrial revolution?</p>	<p>Meaningfulness</p>
8.	<p>P: I think uhm Cernon, to be honest, the COVID situation and the fact that we had to stay home, and they didn't go to the office like we used to. Uhm, that actually made me aware of of [sic] the fact that you can—you don't have to be... among people, you don't have to be at the office. Uhm, for the first time in our business, we actually started doing things, Teams meetings, or Zoom meetings. People have to rely on their on [sic] uhm, technology to get their work done. So, I'm positive about it. I think there's limits. And I think there's always a need for interaction with people. But, uhm if you use technology correctly, and uhm I think it's a positive thing. Uhm ja.</p>	<ul style="list-style-type: none"> <li>• Positive &amp; limitations</li> </ul>
	<p>Comprehensibility</p>	<ul style="list-style-type: none"> <li>• Helped during lockdown</li> <li>• Remote work</li> <li>• Rely more on technology</li> </ul>
9.	<p>I: Okay. Are you optimistic about the fourth industrial revolution?</p>	<p>Meaningfulness</p>
10.	<p>P: Yes, I am. But uhm I'm also... cautious, it's probably the right word. I I [sic] don't want I want—I am not one who would like to replace</p>	<ul style="list-style-type: none"> <li>• Optimistic but cautious</li> </ul>

	<p>people. And uhm, and because my feeling is, uhm... is always there's always a different situation, a different scenario, and you always have to adapt to what's happening, you always have to think, on your feet, and you have to maybe make a change here and there. So, we, if you rely on technology only, it's very good uhm, method of predicting stuff and uhm, making sure that things are happening, uhm, or that work gets done fast and quickly. But you always need... uhm, personal intervention. That's my feeling. So, I'm optimistic about it. But I'm also cautious to not... just go that route.</p>	
	Comprehensibility	<ul style="list-style-type: none"> <li>• still need human intervention</li> <li>• Have to adapt</li> </ul>
11.	I: Okay, so you would say that human contact is also important during the fourth industrial revolution.	
12.	P: Yes	
13.	I: Okay, tell me about your experience of the fourth industrial revolution.	Comprehensibility
14.	<p>P: Look at our business. Uhm it's still—we still—we've got two businesses, we've got a human resource business and we've got a procurement business. So, in both both [sic] of these operations, we—on the one side, it's purely human uhm, based, and personal intervention, working with people. So, we don't really have anything there that I can say is is [sic] relating to the fourth industrial revolution, but our other business we we [sic] basically... do uhm, quite a bit, to be honest, we we [sic] started off an online styling—online school clothes about eight years ago, which at that point in time, we were the only company in South Africa doing that. So, that was a something new and but the resistance we received from</p>	<ul style="list-style-type: none"> <li>• A lot of change</li> <li>• Thought were at the forefront but not</li> <li>• Use a machine to automate measurements</li> <li>• Greater amount of data and information</li> </ul>

	<p>parents was very, very surprising. So, our experience is that it was—it wasn't accepted as we thought it would be. Uhm, we thought, going online, just clicking a button and things getting delivered at your house, that's the way to go. But people still want to go into a shop, pick something up, feel it, fit it, then take it home and feel that they made a purchase. Whereas now it's all online. But since then things have changed. I mean, TakeaLot came into business, and Amazon has been this big sell. That's been changing. So, what we know are we now actually not even—we thought we were at the forefront of this, but we not anymore. So, what we now doing is uhm, we actually importing a machine that does the measurement of a of a [sic] person electronically. So, he basically download [sic] the app on his phone, he takes the camera off of the phone, and he does certain measurements and everything is done on his behalf, and he tells him this is the size that you should buy. So, this is all things that I think is is [sic] positive and is is [sic] probably were we—best we we [sic] can do at the moment with all this technology. Uhm, and then using that data, we then again can say to the person, you've bought this type of clothing, uhm we recommend that you do this and that. So uhm, basically just profiling a person from there.</p>	
	<p>Meaningfulness</p>	<ul style="list-style-type: none"> <li>• Positive experience</li> </ul>
<p>15.</p>	<p>I: Okay, uhm so talking about how the fourth industrial revolution uhm, made it easier to make procurements online. So how do you feel about the fourth industrial revolution in your workplace?</p>	<p>Comprehensibility</p>
<p>16.</p>	<p>P: Uhm positive, I think, uhm I think that's the way to go. I think people don't... want to do what they used to do, they want to have this quick instant gratification what they want, especially the younger generation. So, in our business, it's to our advantage, uhm we we [sic]</p>	<ul style="list-style-type: none"> <li>• Technology is an advantage</li> <li>• Everything in one warehouse</li> <li>• More convenient</li> </ul>

	<p>can centralize our our [sic] business. We don't have to have outlets anymore. Uhm, so everything is in one central warehouse. And we can use that uhm, technology to basically distribute from one central point. And people can be anywhere in in in [sic] the world, basically. But anyway, in South Africa, they can be on holiday, like can be away for the weekend, and they can still buy clothes uhm, which it's still. Ja, it's [sic] so it's convenience. So, in our business, it's actually very advanced—to our advantage that people can do that. Uhm, a lot of people especially over the December period, they said that at their holiday homes or wherever. And they realize that gee wiz next week, the school starts, I haven't done anything. And I can place their order, and it can be delivered at the holiday house. It can be delivered at home. So, it's a very—in our business it's very beneficial.</p>	<ul style="list-style-type: none"> <li>• More cost effective</li> </ul>
	<p>Meaningfulness</p>	<ul style="list-style-type: none"> <li>• Positive about technology in workplace</li> <li>• Beneficial in business</li> </ul>
17.	<p>I: Okay</p>	
18.	<p>P: And we I don't think we use it hundred percent, but we definitely get uhm, we're getting there</p>	
19.	<p>I: Okay, so you would say the fourth industrial revolution is making your work more cost effective.</p>	
20.	<p>P: Yes</p>	
21.	<p>I: Okay, how do you see the fourth industrial revolution will shape the future of work?</p>	<p>Comprehensibility</p>

22.	<p>P: Uh... ja... that's difficult. I don't know all industries. Me personally, being an accountant uhm, it's always interesting to see how... things change. Uhm, I don't know how it will or the future will obviously—it will. There will be every day in every every every [sic] basically Yeah, this this [sic] new technology, things get done. Uhm, probably faster, and people have less time. Uhm, people's days get busier. I mean..., for us, just as an example, we used to go from uhm, one meeting to another in between meetings... at least you had some breathing space. Now you go from one zoom meeting to the next without any breathing space or rest and you can just fill up your day. So, I think the future—the fourth industrial revolution is actually making things happen faster and faster. And I think it forces us to claim it. But... there's no way stopping it. I think we can't turn it around. Uhm, you either have to fall in... and or you're going to be left behind.</p>	<ul style="list-style-type: none"> <li>• Work is done faster – things happen faster</li> <li>• Have to adapt</li> <li>• More meetings and work online – fill up day</li> </ul>
23.	<p>I: Okay, uhm then would you say that is how you feel ag, sorry, what impact do you feel the fourth industrial revolution will have on your job?</p>	Comprehensibility
24.	<p>P: My job personally is uhm... within the company, uhm like I said, the company as a whole, yes, this changes, but my job personally has been the head of the finance department. I think the the [sic] change there is slower. And it's not it's not [sic] as fast as maybe on the procurement side. Uhm, you basically still have to have an accounting uhm, principles and background and things have to happen according to uhm, certain, uhm... regulations from from [sic] the accounting boards and whatever. So it's it [sic] is definitely influence on a job we we [sic] have to we have to change our reporting, we have to change the way we communicate, and but personally, my job, I think the, the</p>	<ul style="list-style-type: none"> <li>• Change is slower in the finance department</li> <li>• 4IR does influence job – change reporting, change communication</li> </ul>

	change is less than in our in our [sic] marketing department, and definitely in our procurement department.	
25.	I: Okay, you would, how would, how will your job description change to stay relevant in the fourth industrial revolution?	Comprehensibility
26.	P: Uhm sjoie, I don't think my personal job description will change much. Uhm, it will it will [sic] probably change the way we strategize. And how we uhm... how we plan our buying patterns, our, our stock holding patterns, which will have an effect on my on my [sic] job, but I am but... the job description will probably be the same, it's the way we get to the answer that will probably change a little bit.	<ul style="list-style-type: none"> <li>• Not change much</li> <li>• Change how strategize, planning buying patterns &amp; stock holding patterns</li> <li>• Job description stay the same</li> <li>• Change in the way get to the answer</li> </ul>
27.	I: So, you would say it's more the task you are doing that are going to change. Okay... uhm how do you control the changes brought by the fourth industrial revolution?	Manageability
28.	P: Uhm... [laugh] sometimes we don't control them. That's the problem. We a little bit uhm, sometimes things happen, and we see our competitors do something and we realized gee wiz we didn't stay up to date. Uhm, so sometimes it's a it's a [sic]... we react in on situations, but... uhm... ja, I don't... the changes we... ja, we pretty much... uhm try and stay ahead of or stay on top of the, of what's happening in the industry because we got such a variety of items that we procure, it's actually quite interesting to see how the uhm, product and and [sic] the... technology make these things, easier to access, easier to find. Uhm, more more [sic] people try and give you an opportunity to buy their product uhm, because there's there's [sic] so much social media, everything is so is so relevant, that you actually just want to—you actually get bombarded by all the information. Uhm, so we have to filter everything a lot more. So, to control the	<ul style="list-style-type: none"> <li>• Cannot control</li> <li>• Sometimes react</li> <li>• Try to stay abreast</li> <li>• Manage change through doing things according to parameters</li> </ul>



	<p>changes is is [sic] it's quite difficult. It's not easy, because we—like I said we're not always uhm, aware of new things happening. So, we try and stay abreast of everything, but sometimes we react which is not always a good thing. But uhm, having—have [sic] we have set contracts and uhm, we have fixed terms with with [sic] our client, we have—things are being done according to do certain parameters. So, we can manage the changes because it's not instant. And we but like. Ja, we sometimes do react, but we need to work on it.</p>	
29.	<p>I: Okay, uhm so what skills do you apply to stay relevant or have an active part in the fourth industrial revolution?</p>	Manageability
30.	<p>P: Actually, our management team we've got—we've made a a [sic]... uhm, we took a decision probably about in lockdown. Actually, we took a decision that everybody needs to read about the fourth industrial revela—revolution, we need to—so we do share with each other, uhm what we read, what we find on a, on a weekly basis, we've got a management meeting, we sit down and we just discuss what's what's [sic] new. Uhm, what we've picked up where people have made changes. And that's probably the skills we apply is to to [sic] be aware of what's happening.</p>	<ul style="list-style-type: none"> <li>● Read up on the 4IR</li> <li>● Share knowledge with each other</li> <li>● Be aware of what is happening</li> </ul>
31.	<p>I: Okay, uhm, how do you feel the fourth industrial revolution is connected with the politics? Or the BEE of the company?</p>	Comprehensibility
32.	<p>P: Uhm, no, I don't know to be honest. [laugh] Uhm, we've got, our BEE. We've got we've got [sic] people that all shareholders that's that's [sic] complying—makes us compliant, or actually very compliant. So... I must be honest, I don't think there's any connection at this point. Uhm, with politics or BEE of the company? No, definitely not.</p>	<ul style="list-style-type: none"> <li>● No connection</li> <li>● Does help with connecting to BEE compliance</li> </ul>

33.	I: Okay, so would you say the fourth industrial revolution is uhm, enhancing your connectedness uhm, individuals who are BEE status, making it more easy, easier to have contact with them?	
34.	P: Uhm yes, I do because our shareholders are companies with, for example, PHG is one of their main shareholders, a majority shareholder. And the individuals who are shareholders as well, like myself and some of the other colleagues of ours, uhm we do we do [sic] communicate, we do use the technology to connect with each other. So yes, that probably is a—is true.	<ul style="list-style-type: none"> <li>• Use technology to communicate</li> </ul>
35.	I: Okay, how do you feel the fourth industrial revolution impacted your life?	Comprehensibility
36.	P: Uhm, to me, being an accountant, I I [sic] like... uhm, I'm a conservative guy. So, it impacted my life quite dramatically. I didn't—I don't—I'm not... one, I don't mind change, but I'm not the one to make changes quickly or drastically. Uhm so... I am very cautious. And when it comes to fast and rapid change, because I I [sic] would like to make sure that whatever the change is, and whatever happens is planned, is is [sic] carefully uhm, thought through. So, I don't—it impacted my life in the fact that I had to make—I have to make decisions a lot quicker than I used to. And... I have to be... uhm, I have to be sure of what the outcome is going to be. Where in the past I could basically uhm, take my time, this is—there wasn't a rush to make a decision. Being normally a long cycle of planning, and then we started doing procurement. Now things are so happening so fast, and if we don't react fast, we might lose an opportunity. So, it did impact my life quite—my work life quite dramatically.	<ul style="list-style-type: none"> <li>• Great Impact (conservative person)</li> <li>• Have to make decision quicker</li> </ul>
	Meaningfulness	<ul style="list-style-type: none"> <li>• Don't like changing quickly or drastically</li> </ul>

		<ul style="list-style-type: none"> <li>• Cautious</li> </ul>
37.	I: Okay, how does the fourth industrial revolution impact your health?	Comprehensibility
38.	<p>P: Uhm, it didn't impact my health because I didn't—let me put it this way, it did not impact my health directly, but it did make me do is uhm, make me realize that I have to make time and and [sic] plan better. So, in order to keep healthy and because I'm an active person, and what happened especially during during [sic] the lockdown, period, whatever, you would start working in the morning and you would just never get up or you would never go somewhere because you keep on having online meetings, you keep working and working and and [sic] when you realize what the time is. It's six, seven o'clock in the evening, and you've started at seven o'clock in the morning. So, it made me realize in order to stay healthy, I have to plan better. Make sure that I stick to a program or stick to a plan and actually actually [sic] force myself to get up and go and cycle or run or whatever. Uhm so my health, it didn't impact my health, it might be more cautious and more conscious of planning and staying healthy.</p>	<ul style="list-style-type: none"> <li>• 4IR prompted health consciousness - plan better</li> <li>• Use technology to assist in training – use online programs to monitor health</li> <li>• Consistently working online</li> </ul>
39.	I: Okay, so how would you say that technology impacted your work life balance? Uhm yes, technology everything.	
40.	<p>P: Ja, luckily, for me, I am able to do [sic] to balance work and play if you want to call it that [laugh]. So, the technology didn't didn't [sic] affect that side of my of my [sic] life. Uhm, there's a lot of things where I use technology to to [sic] uhm, to assist me in in my training, for example, uhm, the stationary bike I use—we use Swift, and all these online programs that monitor your your [sic] fitness levels, your progression, uhm you're VO2 max, all those fancy stuff, which is something that I never cared about when I was younger. Uhm, but</p>	

	<p>now that technology technology [sic] is there, it's actually quite nice to have all these [sic] information available. So it but that's just a nice to have, uhm it didn't really impact my, ah ja, it's just, it's just nice to have and it's it's [sic] interesting to see, uhm and monitor yourself and... use the technology to your advantage.</p>	
41.	<p>I: Okay, uhm what are your personal resources you use to cope with the fourth industrial revolution?</p>	Manageability
42.	<p>P: I think uhm, family life, uhm my, my faith, my my social social [sic] life, meaning friends. And then my biggest coping mechanism is my training. Uhm, I I [sic] just do it to get out or to get away or to clear my head. And I do that on a daily basis. Every day after work, I go and do that. So, and that's how I cope. And it works very well for me.</p>	<ul style="list-style-type: none"> <li>● Family life</li> <li>● Faith</li> <li>● Friends</li> <li>● Training (to get out and clear head)</li> </ul>
43.	<p>I: Okay, how does the fourth industrial revolution connect with your religion?</p>	Comprehensibility
44.	<p>P: Uhm no, I don't. Nothing changed in that aspect. It's actually I think it helps [sic] technology helps uhm, in the way we interact with people, especially uhm, through these times when you couldn't couldn't [sic] go out or couldn't get together. It uhm, it [sic] made sure that we could continue with our basic uhm, religion aspects. But it didn't uhm—I don't say—I I [sic] can't say that there's any connection because of that. I think I missed the fact that we uhm, can't get together and things like that. Uhm, but I must be honest, I don't think there's a there's a [sic] direct in my life. There's no direct connection between my religion and the fourth industrial revolution.</p>	<ul style="list-style-type: none"> <li>● Nothing changes</li> <li>● Technology helps to stay connected during COVID</li> <li>● Helps with providing more information</li> <li>● Share information</li> </ul>
45.	<p>I: Okay, so how would you say the technology of the fourth industrial revolution uhm helped with getting more information about religion,</p>	

	uhm did it make you feel like you have more knowledge at your fingertips uhm due to the new technologies?	
46.	P: Definitely, I must be honest, definitely. And it make [sic] research and things like that uhm, aspects based on religion or related to religion a lot more easier. So, in that aspect, yes, definitely. And then there were these other things like uhm, worship for instance, if you if you [sic] uhm, hear something and you think it's nice, and you want to remember you can actually—you just remember one or two phrases and you can put it into Deezer or whatever, and it comes up and you you [sic] can actually listen to the song again, or uhm, some things uhm, like that. So, and then again, as I said, the sermons for instance, that that kind of stuff, uhm you can go back you can share it with people, which you think is would benefit from that. So, in that aspect yes, it's actually wonderful.	
47.	I: Uhm okay, how does the fourth industrial revolution impact on your shamefulfulness? Uhm what I mean by shamefulfulness is uhm normally, the uhm younger generations are more tech savvy, uhm than the older generations are bit uhm, not that knowledgeable about the fourth industrial revolution.	Comprehensibility
48.	P: Looking definitely what you're saying is hundred percent true. So, my daughter does a lot of things for me. Uhm, but I don't feel ashamed about it. Uhm, I—that's how life is I think uhm, I try where ever it affects my work, and I know I have to do that uhm, in order to stay abreast of of [sic] the uhm, working environment, I make sure that I learn or get up to date. But on a personal note, I'm not shameful about it, uhm I have to ask the younger generation or people to do that, uhm for for [sic] instance, Instagram, or Facebook, or whatever, that's not something I'm interested in. But uhm, there are times when	<ul style="list-style-type: none"> <li>• Don't feel ashamed</li> <li>• don't mind asking for help</li> <li>• learning opportunity</li> </ul>

	I need to do or go onto a Facebook page, in order to get information on a supplier or on a candidate that we interview or whatever. So, then I would use that but and if I don't know how to—I'm—I don't, you know, have a problem in asking. So, it didn't affect me in a shameful way at all no, but I realized that these things that I need to to [sic] get more information on,	
49.	I: Okay, so it's more of a learning opportunity?	
50.	P: Yes	
51.	I: Okay, uhm... what will make your job meaningful in the future?	Meaningfulness
52.	P: Uhm, okay, my job within the company is... it's basically uhm, there are two things basically strategy, how we strategize and plan and our business, especially on the financial side. Uhm but uhm, the other big thing is on the reporting side, so, because of the wealth of information we have avai—available these days, the way we uhm, report and the way we give information through, especially on financial information... inside to our own staff, but also to outsiders, and shareholders and other directors, uhm those are the things that I can can [sic] use technology to play a huge part uhm, in my job to make it more meaningful. And, uhm there's a finance and accounting can be very technical, and uhm, you have to you have to [sic] break it down. So that the ordinary person who deals with your business and would like to know information and you actually need to maybe buy something, or or [sic] staff members, you need to know where they are with their budget and wherever, they don't want to technical stuff. They want they want it [sic] plain and simple, but still they need the information in such a way that they can plan and do their job properly. So, in the—make my job more meaningful is to give them	<ul style="list-style-type: none"> <li>• Use technology to report important information (make it simpler)</li> <li>• Give and report information in simple and structured way</li> <li>• To have more time to look at new technology and changes</li> </ul>

	information and report information in a in a simple but structured way that assists them in being prepared.	
53.	I: Okay, so is there anything that you would like your job to do to make it for you personally, uhm more meaningful? Is there something you'd like them to implement more? Uhm, so that your job is for your more meaningful?	
54.	P: Not really. Uhm no, I've been uhm, doing this for so many years. So, uhm the way I handle things, but I would but—what I do try and do is... is [sic] uhm, get my staff more involved in day to day things because... uhm being in a in a in a [sic] position I am, it can become a a [sic] thing of uhm, not delegating , uhm doing things on my own and and [sic] getting so involved in nitty gritty stuff that I that I don't give attention to the bigger picture, which is actually what I should do. Uhm, and that I think is something that—it's not a problem. It's just something I must I must [sic] just do. Because I've got excellent staff and they know what they're doing. I must just use them differently and and [sic] that will create—it will create more opportunity for me aspe... to look at things like technology and changes and how other companies does [sic] things and how overseas companies does [sic] things. Uhm, so that's the kind of thing I think I would like to change and work on uhm, is to create more time for myself by by [sic] giving things I do to others.	
55.	I: Uhm okay, so maybe taking a bit uhm, more dispersing the workload a bit more.	
56.	P: [inaudible, 30:41]	
57.	I: Okay. That's all the questions we have this evening. Thank you very much for your participation.	

58.	P: It's a pleasure. I hope it helped you so.	
59.	I: Yes, it definitely did. I am going to stop the recording now.	

### Transcribed interview of Participant 5

Participant 5		
	Transcription	Coding
1.	I: Recorded. And I want to ask if you have any concerns or, uhm issues you would like to discuss before we start with the questioning.	
2.	P: No concerns, no issues, and I'm fine to be recorded.	
3.	I: Okay, great. Uhm, so okay, we're gonna [sic] start with the, uhm inter the interview. So, the first question is, why do you think the fourth industrial revolution is?	Comprehensibility
4.	P: Uhm, it's that fusion of digital, biological and physical worlds, where new technologies like artificial intelligence, computing, 3D printing, Internet, and robotics are used more and more?	<ul style="list-style-type: none"> <li>● fusion of digital, biological and physical worlds</li> <li>● robotics</li> <li>● artificial intelligence</li> <li>● computing</li> <li>● internet</li> </ul>
5.	I: Okay, uhm... then how do you perceive the fourth industrial revolution?	Meaningfulness
6.	P: Well, uhm I think it's all working relate to one another. In a way actually from from [sic] the human—in the human context, we are more and more reliant on technology and more more [sic] isolated from other human beings, that personal contact is falling away, and it's being replaced by technology, people are rather calling each other or Skyping each other or Teams meeting uhm, than getting together	<ul style="list-style-type: none"> <li>●</li> </ul>



	and, uhm having a you know a personal interaction, and it's like the kids that are now, uhm rather gaming each in their own room in their own house with each other than them going out and being social.	
	Comprehensibility	<ul style="list-style-type: none"> <li>• More reliant on technology</li> <li>• Interaction replacement by technology</li> <li>• Less face-to-face social interaction</li> </ul>
7.	I: Okay, so this, uhm, you're answer moves us to the next question, do you believe the fourth IR is a positive or negative aspect?	Meaningfulness
8.	P: Well, uhm, I think it has components of both. Uhm, it opens up a broader spectrum of knowledge uhm, to human beings, it's easier access to knowledge, it's easier access to information, it's easier access to contacting other human beings. But at the same time, it's also putting humanity at risk of a lot of social and psychological problems, uhm like isolation, no human interaction, which is very important...So it's got components of both.	<ul style="list-style-type: none"> <li>• Positive and negative</li> <li>• Putting humanity at risk - social and psychological problems (isolation, no human interaction)</li> </ul>
	Comprehensibility	<ul style="list-style-type: none"> <li>• More knowledge – easier to access to information</li> <li>• Easier access to other people</li> <li>•</li> </ul>
9.	I: Okay. Uhm so uhm, I'm looking at the positive and negative aspects, Are you positive about the fourth industrial revolution?	Meaningfulness
10.	P: Uhm I'm very excited about the possibility of broadening knowledge and accessibility for people were to use of [sic]	<ul style="list-style-type: none"> <li>• excited about the possibility of broadening knowledge</li> </ul>

	<p>technology. Uhm, you know, to train people to get knowledge out the—so that that [sic] I think is a very, very positive thing. Uhm it's a positive thing that, you know, uhm it will save time and money uhm, in a work situation. Uhm, but it's very uhm, I'm very concerned that what uhm, impact it will have at the end on the human psyche. Uhm, I'm very concerned that people will more and more uhm, have psychological problems. This has already been proven by psychologists where, with children, that's been a lot of time online gaming, they've seen a fourteen percent increase in depression. Uhm, but in a worse situation and a knowledge situation, it's a very positive thing. Uhm, I think we all just need to find a balance between you know, uhm access to that and in new your normal human life.</p>	<p>and accessibility for people</p> <ul style="list-style-type: none"> <li>• concerned about the impact on human psyche</li> <li>• proven by psychologists where, with children, that's been a lot of time online gaming, they've seen a fourteen percent increase in depression</li> </ul>
	Manageability	<ul style="list-style-type: none"> <li>• Find balance between</li> </ul>
	Comprehensibility	<ul style="list-style-type: none"> <li>• save time &amp; money – work</li> </ul>
11.	I: Okay, so would you say you're more optimistic about the fourth industrial revolution or more pessimistic?	Meaningfulness
12.	P: Uhm, cautiously more optimistic. [Laugh] It's amazing uhm, what—if you really think about it what—it's the human brain that is developing this, so that is <i>amazing</i> . And uhm, and I'm looking forward to see [sic] more what is going to come.	<ul style="list-style-type: none"> <li>• Cautious more than optimistic</li> <li>• Looking forward to seeing more</li> </ul>
13.	I: Okay, and then tell me about <i>your</i> experience of industrial revolution.	Comprehensibility
14.	P: Uhm I've. I've had uhm, multiple uhm, experience when I was still in the embryology field. The technology development in embryology field was immense. And uhm, you know, the broadening of all the technology and the knowledge and how that impacted on how we	<ul style="list-style-type: none"> <li>• Immense technology development in embryology field</li> <li>• Broadening of knowledge – more access</li> </ul>

could help patients was immense and I really like that. There for the patients—there was more access to information. And in my current work as a sales representative, I've got the same, more access to information for both me and my my [sic] clients, and especially now during the COVID-19 lockdown, uhm we've all been very active online in training programs, meetings and contact with *international* people that would not have been possible previously. Uhm, my personal computing and internet access at home have not been upgraded to 5G as I find more and more that the 4G and lower are inadequate for for [sic] what needs to be done, especially since I work from home. Uhm, I've been introduced to many internet platforms for communication with various people, academic platforms, international companies, clients and even family during lockdown we couldn't get together. Uhm, for birthdays, and we can at least then just do a Skype or zoom or a team meeting uhm, and at least have some uhm, measure of content. Uhm, in in [sic] my work that I'm currently in as a sales representative, the internet platforms that relate to our day to day operations and the company as has increased, we've got more technology uhm, for contacting clients and hospitals as well as control of our stock that's out there in our sales. Uhm, it's totally a digital world for us at this stage where all your work is done digitally from that from your couch. So uhm, and as and as [sic] you and I are talking I've got my computer open with the questions running on the internet and we you know, communicating on my phone. So, I think it impacts a lot in our everyday life without us realising it.

- Online training programs
- Contact with international people
- Virtual workplace
- Completely digital

15.	I: Okay, so speaking of, uhm being able to work at home and the technology that enables you to, uhm effectively do work, and how do you feel about the Fourth IR in your workplace?	Comprehensibility
16.	P: Uhm, especially now during lockdown made our lives a little easier as we couldn't go out to meet with our clients and hospitals. And uhm, so it has made it easier for us to contact them uhm, uhm... opened up a lot of communication and avenues if we can just get the doctors to—the doctors are a little bit scared of technology still [laugh]—a lot of them because they're very hands on. But it's made it easier for us to distribute information to get orders done, to get our sales done, to make sure that they've got what they need. So uhm, it's played a <i>huge</i> role for us in the last eight months, basically in uhm, in the workplace, because that was our only form of communicating with clients and getting our work done.	<ul style="list-style-type: none"> <li>● During the lockdown – made work easier</li> <li>● Easier to contact clients – opened up communications</li> <li>● Easier to distribute information</li> </ul>
17.	I: Okay, so you would say you feel good about it, uhm because that you do a lot more work also but concerned that other individuals are not moving with the times?	Meaningfulness
18.	P: Yes, yes. I think especially in South Africa uhm, we've got a lot of conservative people out there that still you know, stuck... uhm on on the [sic] on the past and uhm, they still scared with of the technology, they still scared of opening a computer and sitting there for an hour listening to try new they don't feel that they'll get in value.	<ul style="list-style-type: none"> <li>● Some people fear the new technology</li> </ul>
19.	I: Okay. Uhm...so moving on to the next question, how do you see the Fourth IR will shape the future of work?	Comprehensibility
20.	P: Uhm, what we've now found is that technology saves time and money—sorry about the dogs outside, barking up a storm [dogs barking]. Uhm, it saves time [laugh]. If [sic] I just applied to my	<ul style="list-style-type: none"> <li>● Saves time &amp; money</li> <li>● Less time traveling</li> <li>● Reach more clients</li> <li>● Remote consultations</li> </ul>

	<p>personal experience within the field of sales at the moment, I spend less time traveling thus saving cost to the company, I can reach more clients in a day, I control my stock remotely, I can control and expedite sales that I have [inaudible, 09:50]. Technology has sort of been forced into the foreground by the Covid 19 pandemic and companies are talking more and more of expanding on the tender technology in the future and making this the modus operandi... especially in the sales field... I think if you go uhm, to something like embryology that will not necessarily be the case as uhm, any medical uhm, I'm just speaking from personal experience, any medical field is a very... interactive—personally interactive uhm, field, obviously, because the doctors need to treat they—patients need to be physically present for operations... Uhm, but even there, we've seen that doctors will do the initial consultations now with the patients because of COVID uhm, remotely, to know—kind of try and limit exposure. So, I think this is a new thing that's now been forced into the foreground over the last few months. And I think... uhm, it's going to just grow in the future. People find it easier now...uhm, because it saves time and money, as I said.</p>	
21.	I: Okay, uhm then what impact do you <i>feel</i> the fourth industrial revolution will have on your job?	Comprehensibility
22.	P: Uhm, hopefully, that we will be able to reach more and more clients that we will be able, uhm you know to impart more and more knowledge to the clients out there. Uhm, if I take it in embryology which is still a very big part of my life, as well as uhm, the sales, that technology already proving that it does help uhm, in the treatment of the patients, because once again, access to not to to [sic] knowledge, access to better ways of treatment. Uhm, there's a simple example,	<ul style="list-style-type: none"> <li>• Reach more clients</li> <li>• Impart more knowledge</li> <li>• Help treatment in patients - greater access to knowledge</li> </ul>

	is a microscope that you can put the embryos in in [sic] the patients can every day just check on their embryos, which is—which helps them uhm, it's... it's has a huge, huge [sic] impact at this stage.	
23.	I: Okay, how will you—How will your job description change to stay relevant in the fourth industrial revolution?	Comprehensibility
24.	P: I think at this stage, uhm... my job description as a salesperson won't really uhm, change that much, I'll still be a contact person because that's basically what you are as a sales representative. You're the contact between the client and and [sic] the company that you work for. Uhm, it's just a way of contact that will now change.	<ul style="list-style-type: none"> <li>• Job description won't change but the way of doing things will change</li> <li>• Communication method will change</li> </ul>
25.	I: So more the communication method will change?	
26.	P: Yes, yes, the communication may simply change.	
27.	I: Okay, uhm how do you control the changes brought by the fourth industrial revolution?	Manageability
28.	P: Well, uhm we'll try to utilize it between eight and four [laugh] the normal working hours uhm, and not set on because it becomes very easy to sit on your computer all night instead of talking to your family members. So, you you [sic] have to... consciously realize that technology is uhm a tool, not a way of life. Uhm so it's a tool to do your job keep the communication up to a point after that, uhm it becomes an obsession.	<ul style="list-style-type: none"> <li>• Limit work hours on laptop – balance between work and personal life</li> </ul>
29.	I: Okay, so finding that balance between the work and your personal life?	
30.	P: Yes, yes.	

31.	I: Okay, uhm, what skills do you apply to stay relevant or have an active part in the fourth industrial revolution?	Manageability
32.	P: Well, I've uhm, learned a lot over the past [laugh] past [sic] few months, and because of this uhm, the internet especially we learned we've had quit a few platforms we had to because this company will use Teams, that company will change software flatforms that are being used, way of training is changing. Uhm, you make videos, you make presentations that are then sent out into the world. We uhm... we uhm, so your skills as a [sic] actor is actually coming out in that sence because you now have to present yourself and sit in these meetings and where previously you would have been one on one with a client now you have five, six, seven of them sitting in front of you, so to speak. Uhm, so it is a big mind change as well... Does that. Answer your question?	<ul style="list-style-type: none"> <li>● Internet platforms</li> <li>● Actor skills – now have to present yourself virtually with more clients simultaneously</li> <li>● Training sessions to improve skills to use the technology to reach clients</li> <li>● Use online resources to upskill</li> <li>● Presentation and communication skills to present to clients over internet</li> </ul>
33.	I: Uhm, I'll just probe deeper. Uhm so would you say you... uhm, partake in more training sessions to improve your skills that uhm, you can still work in this new era?	
34.	P: Yes. Uhm, we've had about twenty training sessions all uhm, to do with this—with it using the technology to get to our clients. Definitely.	
35.	I: Okay. So that you utilize the resources available to you to upskill yourself?	
36.	P: Yes. Uhm, you use the resources resources [sic] that's available online, from the companies, the information about products, the uhm, videos about products, videos about how to use the products, and then you had to, we had to learn the skills to get them all together into a presentation for clients, and then how to talk to your clients over over [sic] uhm you know, over the Internet, uhm via technology	

	<p>instead of one on one. So, there's been a lot of training sessions on how to utilize that without what they call losing interest of the client, and how to add value, and what is—what uhm, you are trying to sell to them.</p>	
37.	<p>I: Okay, uhm... that's great. And then how do you feel the fourth industrial revolution is connected with politics, or the BEE of the company?</p>	Comprehensibility
38.	<p>P: That's a very interesting one, we had it, where uhm, we do a a [sic] session for all the embryologist in the country. Uhm, and usually we could only reach say Gauteng at what—in one session, we then ended up doing the whole country in one session which opens up and and [sic] all the BEE, uhm accreditation for these for these [sic] sessions to give points in—get professional developmental points for them. So, it's easier access to more people and a broader spectrum of people—you could then include more doctors, more uhm, races of all, you know...all kinds. So, uhm what is all BEE status to the company and to show that the company is reaching out to more uhm, people and more various people and races.</p>	<ul style="list-style-type: none"> <li>• Easier to access people to increase BEE accreditation – include broader spectrum of people</li> <li>• Increase connection to different ethnic groups</li> </ul>
39.	<p>I: Okay, so you would say more interconnection between the different uhm, ethnic graphic groups?</p>	
40.	<p>P: Yes, definitely.</p>	
41.	<p>I: Okay, how do you feel the Fourth Industrial Revolution impacted your life?</p>	Comprehensibility
42.	<p>P: Well, a uhm lot more sedentary, I'm sitting at home where before you would leave the house in the morning and only come out, and you'd be all over, you know, outside driving, uhm spending a lot of time on the road. So, technology is really changing and that I can</p>	<ul style="list-style-type: none"> <li>• reach more clients during the day from comfort of home</li> <li>• more opportunities</li> <li>• saves time</li> </ul>



	reach more clients during the day from my own comfort of my own home... So uhm it's so more more [sic] opportunities... and it saves time.	
43.	I: Okay, perfect. Um, how does the 4IR your impact your health?	Comprehensibility
44.	P: Uhm, I'm a lot less... moving. [laugh] And you sit a lot more because you're sitting in front of computers, uhm you not moving about, walking, driving places, getting in and out of cars, and in and out of uhm, buildings. Uhm, and it took me about two months not to have a headache every afternoon after sitting in front of the computer every day. Uhm, so yes, it definitely impacts your life, you are a lot more—and your health—because you a lot more sedentary you have to actively now go and seek exercise somewhere else.	<ul style="list-style-type: none"> <li>• Moving around a lot less</li> </ul>
	Meaningfulness	<ul style="list-style-type: none"> <li>• Negative impact - Headache after sitting in front of a computer every day</li> </ul>
45.	I: Okay, so you have to make more strategies on how to get out and be more active.	
46.	P: Yes, yes.	
47.	I: Okay, uhm, what are your personal	
48.	P: Where I used to walk around about 15 kilometres every day before I uhm, walk a kilometre these days. It's a lot.	
49.	I: [Laugh]Yes. Okay, uhm what are your personal resources to cope with the for Fourth IR.	Manageability
50.	P: As I said before, we try and limit it to certain hours of the day, the working hours. Uhm, after that we shut off and we spend more time in evenings together, making sure that we eat together as a family,	<ul style="list-style-type: none"> <li>• try and limit it to certain hours of the day</li> <li>• interact more personally with family</li> </ul>

	<p>uhm, that we interact more personally with, you know, with immediate family members in the house. Uhm, over weekends, we try, we don't watch TV, because, you know, that's this more screen time. So, we try and play more games, it's actually in that same immediate family. Uhm, been a very positive thing, since that we now play games together is to get away from technology.</p>	<ul style="list-style-type: none"> <li>• play more games to limit technology contact</li> </ul>
51.	<p>I: Okay, so it uhm, exposed you to take strategies on to be more connected with your family?</p>	
52.	<p>P: Yes, yes. I think we took a lot for granted before, uhm because you had more time together and more time, or maybe not. We just didn't think about it that way, uhm because you were out all day. This is [sic] now forced us to think we can't all just sit here with we're going to get squid eyes.</p>	
53.	<p>I: [Laugh] Yes. Definitely. Uhm, so how does the fourth IR connected [sic] with your religion?</p>	Comprehensibility
54.	<p>P: I don't really think it's, it's got any impact on my religion. Uhm, it's not something uhm, that I see as... against any religion or contradicting any of the teachings of a religion.</p>	<ul style="list-style-type: none"> <li>• No connection</li> </ul>
55.	<p>I: Okay, uhm how does the fourth IR impact on your shamefulness? Uhm in shamefulness I refer to usually the younger generation is known to be more technological savvy while the older generation is more uhm bit of a lack of that skill. So that's the shamefulness I am referring to.</p>	Comprehensibility
56.	<p>P: [Laugh] I am luckily one of those people if I don't know why I don't I don't [sic] have a problem with asking. And, I know I've got a house full of teenagers that I will regularly call in come and help me I don't know what's going on. And they laugh at me and we just carry on. So,</p>	<ul style="list-style-type: none"> <li>• No shamefulness</li> <li>• Don't mind asking for help</li> </ul>

	it's not really impacted like that. I don't base my... who I am on whether I know about technology or not. So, it doesn't impacted [sic] anything.	
57.	I: Okay, uhm then what will, what will make your job meaningful in the future?	Meaningfulness
58.	P: Uhm... I'm... not sure what that is, uhm I think meaningful in the sense that I can reach more people through technology that would be great, uhm that I could get the knowledge out there. Uhm, you know, get more knowledge to more people. Also, I think that's great	<ul style="list-style-type: none"> <li>• Reach more people through technology</li> <li>• Provide more knowledge</li> </ul>
59.	I: Oaky, sorry, I'm just writing this down.	
60.	P: Fine.	
61.	I: Okay, thank you very much for your participation. Once again, we have reached the end of the interview questions.	
62.	P: Okay.	
63.	I: I'm going to stop recording	



### Transcribed interview of Participant 6

Participant 6		
	Transcription	Coding
1.	I: Thank you very much for partaking in my study. How are you doing?	
2.	P: I'm well thanks, how are you? [laugh]	
3.	I: I'm good. Thanks. Uhm... how was your day so far?	
4.	P: Uhm, lots of meetings, but good, and yours. [laugh]	

5.	I: Uhm, so before we start, I just want to ensure that you give consent to being recorded and... partaking in my study.	
6.	P: I do give consent.	
7.	I: Okay. Thank you. And do you have any questions or need clarification regarding your participation in the research study?	
8.	P: No, I think your documentation... was enough. I think I do understand.	
9.	I: Okay, great. So, we're gonna [sic] start with the first question. Why do you think the fourth industrial revolution is?	Comprehensibility
10.	P: I think I've got an idea. [laugh] In my world, it pretty much is cloud compu—computing. So, we use that a lot. Uhm, that is pretty much how technology changes our world. That is how, what I understand of it.	<ul style="list-style-type: none"> <li>• Cloud computing</li> <li>• Changing the world</li> </ul>
11.	I: Okay. Uhm how do you perceive the fourth industrial revolution?	Meaningfulness
12.	P: Uhm well, firstly, am I right—correct in saying that is what what [sic] Fourth Industrial is? [laugh]	
13.	I: Yes. Sorry. Uhm yes, it's also artificial intelligence and combining the physical and technology worlds together. So...	
14.	P: Okay	
15.	I: ... it's more of... biomed—biotechnology, cloud computing, as you mentioned. Yeah. So, you're on the right track.	
16.	P: Okay. Okay. Cool. [laugh]. Uhm, I perceive it well, in my my [sic] industry, in in [sic] my world, definitely cloud computing, computing [sic]. So uhm, we we [sic] automate a lot of stuff. So, we gets [sic] computers, and scripts and stuff to do stuff where back in the day	<ul style="list-style-type: none"> <li>• Perceive it well</li> </ul>

	humans would do it. So, it makes life a little bit easier. Uhm it also makes things... a little bit... quicker, and you are not dependent on human interactions anymore.	
	Comprehensibility	<ul style="list-style-type: none"> <li>• Makes life easier</li> <li>• Makes things quicker</li> <li>• Not dependent on human interactions</li> </ul>
17.	I: Okay. Great, how uhm, next question, do you believe the fourth industrial revolution is a positive or negative aspect?	Meaningfulness
18.	P: I think it's a positive aspect... I think it's like some strain off human on humans. And I also think it takes out human... interaction and possibilities of of [sic] human faults or human mistakes out of the equation.	<ul style="list-style-type: none"> <li>• Positive aspect</li> </ul>
	Comprehensibility	<ul style="list-style-type: none"> <li>• Lessen strain</li> <li>• Decrease human error</li> </ul>
19.	I: Okay, are you so you would say you are optimistic about the fourth industrial revolution?	Meaningfulness
20.	P: Ja, I would say so.	<ul style="list-style-type: none"> <li>• Optimistic</li> </ul>
21.	I: Uhm, and then tell me about your experience of the fourth industrial revolution.	Comprehensibility
22.	P: Uhm, my experience, as I said, cloud computing for instance. So, in my line of work, we do our work on the Vodacom website and the app. And how things have changed is we can do automation testing. For instance, back in the day, I would have a person sitting testing stuff manually, we now we write we write [sic] automation scripts, so everything gets done manually, literally, the people just check if there	<ul style="list-style-type: none"> <li>• Automating processes – easier</li> </ul>

	is a fallout, then we get a notification to say something is not working. And then we check so it's more diligent.	
23.	I: Okay. Sorry, I'm just writing as you speaking [sic].	
24.	P: No worries.	
25.	I: And how do you feel about the fourth industrial revolution in the workplace?	Comprehensibility
26.	P: I am a project manager. So, for me, uhm it does make... my life a little bit easier, it speeds up the process quite a bit. And so, it makes that, you know, we can staff a little bit more we can put stuff into production a little bit quicker. And also, it's more accurate.... So, in my world it is only positive.	<ul style="list-style-type: none"> <li>• Make life easier</li> <li>• Speeds up processes</li> <li>• More accurate</li> </ul>
	Meaningfulness	<ul style="list-style-type: none"> <li>• Positive in workplace</li> </ul>
27.	I: Okay, so it greatly affects uhm, your work and it makes it more accurate? Uhm would you say that's a true statement?	
28.	P: That's correct.	
29.	I: Okay. How do you see the fourth industrial revolution will shape the future of work?	Comprehensibility
30.	P: Uhm I do think it will, it will make production of stuff quicker and faster. However, you will never be able to computerise everything on Earth, there will always need to be some human intervention in some way. Uhm, so I do think it will grow... and will definitely make us produce stuff much quicker and faster.	<ul style="list-style-type: none"> <li>• Faster and quicker production</li> <li>• Human aspects stay an important component</li> </ul>
31.	I: Okay. Uhm so you would say that a human, uhm, aspect will also be very important in the future of work?	

32.	P: Definitely. Because even if you have a robot, you still need to program that robot.	
33.	I: Yes.	
34.	P: And a human needs to do that.	
35.	I: Definitely. What impact do you feel the fourth industrial revolution will have on your job?	Comprehensibility
36.	P: Uhm, I do think—like, I'm a I'm a [sic] project manager. So, I must make sure that everything happens in a certain period in a certain way, and it's cost effective. Uhm, I do think if everything is computerised, there will not be a need for me anymore. So, you know, if stuff is computerised, my job for probably forfeits eventually.	<ul style="list-style-type: none"> <li>• Job can be computerised</li> <li>• In future job might become redundant</li> </ul>
37.	I: Okay, so you would say that, uhm in the near future, your job might become redundant?	
38.	P: Ja, I don't think in the near future, but I think in the future, yes.	
39.	I: Thank you, and then how will your job descriptions change to stay relevant in the fourth industrial revolution in the near future?	Comprehensibility
40.	P: Uhm I... don't... think my job description will change as much in the near future, uhm we will still have projects, we still need to deliver on certain time. So, I think there will still be a job for me for now. Uhm, but I do think if stuff gets automated, and you don't put thought and you take again, the human aspect out of... my job, then there will not be a need for a human to track these things. That's my job. [laugh] I'm a human tracker. [laugh]	<ul style="list-style-type: none"> <li>• Not change a lot in near future</li> <li>• Can be automated</li> </ul>
41.	I: [Laugh] Okay, uhm, how do you control the changes brought by the fourth industrial revolution?	Manageability

42.	P: For us, uhm because we are in a tech world, technology change often. So, we do many course change [sic], we do a lot of courses and stay up to date with new technology all the time. Uhm, so ja, I guess, it's just to stay up to date with all the latest tech and see what is there and we need to adapt with all the new stuff out there. The new ways of doing things...	<ul style="list-style-type: none"> <li>• Attend coursed and stay up to date with the latest technology</li> <li>• Adapt</li> <li>• Knowledge</li> <li>• Reading and understand change</li> </ul>
43.	I: And then...	
44.	P: Knowledge that is how we control it...	
45.	I: Oh, okay knowledge...	
46.	P: And... so the work does take steps to ensure that uhm, the employees are up to date with the current knowledge	
47.	I: Yes, Is there something—Sorry...	
48.	P: the current tech—the current technology, because we are in a tech world and literally our languages and our technology and how we develop and how we call it that changes often like yearly.	
49.	I: Okay, is there anything you do uhm, by yourself to ensure that you stay up to date with the current developments?	
50.	P: Uhm, a lot of reading... uhm and try and understand what is changing in our world, and how you know, people deal with stuff, that is especially new tech. Uhm so again, a lot of training, a lot of courses, a lot of reading.	
51.	I: Okay, thank you. And then... what skills do you apply to stay relevant or have an active part in the fourth industrial revolution?	Manageability
52.	P: Uhm... I'm currently busy with my AWS practitioners exam. I don't know if that is uhm, relevant at all. But that is, that is to become a	<ul style="list-style-type: none"> <li>• Upskilling to become cloud practitioner</li> <li>• Learning</li> </ul>



	<p>cloud practitioner. [background noise] Sorry, that's my dogs [laugh]. Uhm... skills that apply... Uhm I do again, I think it's just reading and uhm, knowledge sharing with other [sic]. So, we are a big company we are about eight hundred people so if you see something change in the industry, in in [sic] the environment, then obviously you try and talk to other people to try and find out what they are doing and how they're dealing with, it's a collaboration.</p>	<ul style="list-style-type: none"> <li>• Knowledge sharing</li> <li>• Collaboration</li> </ul>
53.	<p>I: Okay, great. Uhm, how do you feel the fourth industrial revolution is connected with the politics or the BEE of the company?</p>	Comprehensibility
54.	<p>P: Uhm... in the company I work for is not really connected. Uhm, I don't think, you know, if it changes for one person, regardless of your skin colour, or what you believe in, it will change everyone. So, I don't think it has a big change on our politics or the BEE in our company. Maybe others but not in my existing company.</p>	<ul style="list-style-type: none"> <li>• Not connected</li> </ul>
55.	<p>I: Okay, great. And then how do you feel the fourth industrial revolution has impacted your life?</p>	Comprehensibility
56.	<p>P: Uhm, I think it has impacted in a good way. Uhm, If you look at technology like Facebook, and Instagram, and all social media, I think we are more connected than we were before. In my business world, definitely things are going much quicker. So, we we [sic] used to have product or project development that might go for months on end, we now have a very quick turnaround on.</p>	<ul style="list-style-type: none"> <li>• More connected through social media – connect with people</li> <li>• Quicker</li> <li>• Changed workload (changed how things are done)</li> <li>• Changed scope of work – focus more on process development</li> </ul>
	<p>Meaningfulness</p>	<ul style="list-style-type: none"> <li>• Positive impact on life</li> </ul>
57.	<p>I: So, has that impacted your workload, uhm, a lot?</p>	

58.	P: Uhm, it has changed, my workload changed. So, I wouldn't say it impacted maybe less or more. It changed what I was doing. So, for instance, ten years back, I would track people because I was only dependent on people. Now I would track our dashboards to save our automation regression scripts, for instance, ran every day. So, it definitely changed my scope of work.	
59.	I: Okay, so uhm, before our—well with the new technology, you focused on people, and now it's more uhm, technology aspects that you need to take into consideration.	
60.	P: Yes, and process development, ja.	
61.	I: Okay... and how does the fourth industrial revolution impact your health?	Comprehensibility
62.	P: [Laugh] Uhm... I do think we tend to sit in front of our computers all day every day. So, I think health wise it may be is not the best most positive impact.	<ul style="list-style-type: none"> <li>• Longer working hours</li> <li>• Use fitness watches (encourages exercise)</li> <li>• Made exercise easier through online programs</li> </ul>
	Meaningfulness	<ul style="list-style-type: none"> <li>• Not so positive – sit in front of computers all day</li> <li>• Positive impact on exercise</li> </ul>
63.	I: Okay. Uhm, would you say that technology is making your work hours a bit longer and in one place for a longer time period?	
64.	P: Yes, we you can achieve more uhm, then back in the day, but now because you can do more, you withdraw, you know, you sit and do more because you can achieve more?	

65.	I: Do you use any technology for example, the uhm fitness watches uhm to help with your training uhm... or exercise?	
66.	P: Yes, I do. So, I've got a fitness watch. Uhm, a Pola [inaudible, 13:15] that I use every day of my life. It tells me when I have not been walking for fifty-five minutes then it gives me a notification to tell me to stand up. And, also during lockdown, for instance, which made life easier as we I enrolled in a GEF together program. So, I don't even have to go to the gym. I can gym literally by looking at a program that's online. Yes, it definitely changed my my [sic] workouts.	
67.	I: So, would you say that positively uhm, had an impact on your exercise and your health?	
68.	P: Yes, I would say so.	
69.	I: Okay, great... And then, uhm, what are your personal resources you use to cope with the fourth industrial revolution?	Manageability
70.	P: Okay what would you mean by that?	
71.	I: Okay, resources is [sic] anything that's available to you maybe your internet connection, doing research, your research skills, uhm... anything that you have available to you to help you uhm, move with the times and with the new technology?	
72.	P: <i>Uhm</i> , well, I've got fibre, which I guess is a positive thing. [Laugh] And ja, for my... machine we've always got OIS updates that runs regularly, and I've got my Windows updates that run regularly without my machine being updated. I won't be able to do my work and connect to all the applications that I need to.	<ul style="list-style-type: none"> <li>• Fibre – internet</li> <li>• Automatic updates of programs</li> </ul>

73.	I: So, would you say that apps help you a lot with how uhm... to help you do your work?	
74.	P: Yes.	
75.	I: Okay... Uhm how does the fourth industrial revolution connect with your religion?	Comprehensibility
76.	P: Uhm, it happens so, you know, I do a lot of sports on Sunday mornings are sport days, so I can't really go sit in a church. So uhm, we have a virtual church session, it definitely helps me to still go to church and still stay connected.	<ul style="list-style-type: none"> <li>• Virtual church sessions</li> <li>• Stay connected</li> <li>• Access to more information – make own opinions</li> </ul>
77.	I: Okay, so would you say that technology helped you to stay connected with your church community, and gaining that information uhm, necesar—necessary on Sundays?	
78.	P: Yes.	
79.	I: And would you say that uhm, technology helped to have access to more information about your religion?	
80.	P: Ja, definitely! Uhm, you know back in the day, you only... you listen to what you preacher said and that was it. Now you can do your own research, you don't have someone to tell you. Uhm, just have one opinion. So, you can actually make your own opinions, I think it's positive.	
81.	I: Okay, and how does the fourth industrial revolution impact on your shamefulnes? What I'm just going to give a context about the question is, uhm shamefulnes I refer to uhm, the younger generations are more technology uhm savvy. And then the older	Comprehensibility

	generations, quite sometimes struggle with technology. That's what I mean, with shamefulness.	
82.	P: Uhm... uhm, I think my generation was the, you know, we were a little bit of both. So uhm, we grew up with our technology. And, you know, we we [sic] were the first to get cell phones and high school and those type of things. And I think for us, for me, it helped <i>quite</i> a bit, firstly to stay in touch and, and what's going on in the world? Uhm ja, I'm not sure if that really helps you answer your questions.	<ul style="list-style-type: none"> <li>• Grew up with technology</li> <li>• Don't experience shamefulness</li> </ul>
83.	I: And so, you wouldn't feel any shamefulness with technology and how to work technology. If a uhm, younger generation person shows you, oh, you can do it, you can use this technology, instead of that one.	
84.	P: No, no, no, no, no. Not at all. My niece just told me I'm not allowed to be on Tiktok because I'm too old. So [LAUGH]. So no, no, no, shamefulness, especially at work. Uhm, as I said, you know, there are so many technology changes so often, and the more new [sic] people join the firm, uhm the more they know, so it's actually, it's great to actually learn from them. It's stuff we, I wouldn't know. No, no shamefulness.	
85.	I: Okay, great... And last question... what will make <i>your</i> job meaningful in the future?	Meaningfulness
86.	P: Uhm, I... am very project deadline driven. So, if a computer can tell me I am going to be done on this day, and he will be done by that day because he is a computer that will make my life meaningful, because then I don't have a human interaction or dependent on any human failures or faults.	<ul style="list-style-type: none"> <li>• Not to be dependent on human failures or faults</li> </ul>

	Comprehensibility	<ul style="list-style-type: none"> <li>• Computer makes accurate projection of the time needed to complete a project</li> <li>• Eliminate human error</li> </ul>
87.	I: Okay, so would you say that technology are [sic] helping you to eradicate the human error aspect of your projects?	
88.	P: Yes, definitely.	
89.	I: So, therefore, giving a [sic] accurate projection of the time needed to complete a project.	
90.	P: Yes, that's perfect.	
91.	I: Okay, that is all questions I have. Thank you very much, once again, for your participation	
92.	P: Only my pleasure.	
93.	I: I'm just going to stop the recording.	

Transcribed interview of Participant 7

Participant 7

	Transcription	Coding
1.	I: Good afternoon, uhm, _____, how are you doing?	
2.	P: I'm good, thanks, and you?	
3.	I: That's good, good. Uhm keep on going, especially in this time.	
4.	P: Yes, it is. That's all we can do.	

5.	I: Yes, and so before we start, I just want to confirm that you are comfortable with being recorded during this interview session. And that you do give consent to be part of this research study.	
6.	P: Yes. I have no problem being recorded, and I don't mind taking part.	
7.	I: Okay, thank you. Do you have any questions or need clarification on your participation, or anything mentioned in the informed consent form?	
8.	P: No, no, everything is clear, thanks.	
9.	I: Okay, great. Are you ready to start?	
10.	P: Yes.	
11.	I: Okay, great. Question one. What do you think the fourth industrial revolution is?	Comprehensibility
12.	P: Uhm, well, I, I think just to sum it up, almost in one word is it's the digitization, uhm so it's computers and all the uhm, connectivity around that? Uhm yes.	<ul style="list-style-type: none"> <li>• Digitization</li> <li>• Connectivity</li> </ul>
13.	I: Great. How do you perceive the fourth industrial revolution?	Meaningfulness
14.	P: Well, I think mainly positive... uhm I think it can help us a lot in our everyday lives and also at work. But having said that, it, we must also be very careful how we use it and how we apply it.	<ul style="list-style-type: none"> <li>• Positive</li> <li>• Be careful how to apply it</li> </ul>
	Comprehensibility	<ul style="list-style-type: none"> <li>• Help in everyday lives</li> </ul>
15.	I: Okay, so how would it help uhm, in the work? Would you say that it is a positive aspect?	Meaningfulness
16.	P: Well, I think uhm, I'm—now with the onset of COVID. Uhm, and the lockdown, we all sort of got a little bit of a pre taste of of [sic] what it	<ul style="list-style-type: none"> <li>• Positive</li> </ul>

	can do for us. Uhm, you know, it didn't abled everybody to work from home. And in our industry, we could just carry on with our work, although we were in a different location. So that is, to me, the major, uhm, positive about that.	
	Comprehensibility	<ul style="list-style-type: none"> <li>• Carry on with work during lockdown</li> <li>• Connecting people in various locations</li> </ul>
17.	I: I guess you'd say it's the connecting of people in various places.	
18.	P: Yes, and I mean, uhm when I was much younger, we talked about globalization and uhm, connecting everybody across the globe that, you know, it would be one big [laugh] happy family almost. And I think we almost had that point where, I mean, you can call anybody or chat to anybody, uhm at very little expense if you are connected by the internet. Ja, so it's the internet. That's really the big, big positive. Ja.	
19.	I: Okay, uhm are you optimistic about the fourth industrial revolution?	Meaningfulness
20.	P: Yes, I think because I think the the [sic], uhm, advantages outweighs the the [sic] negative uhm, aspects of it of course, like anything uhm, you have to be aware of the fact that there are some negative aspects and you must just be aware of it and uhm, we must all take responsibility to to [sic] uhm, try and avoid the negative aspects like, ag, we can talk about that later maybe.	<ul style="list-style-type: none"> <li>• Optimistic</li> <li>• Advantages outweighs negative aspects</li> </ul>
	Comprehensibility	<ul style="list-style-type: none"> <li>• Can be used in negative way (commit crimes)</li> </ul>
21.	I: Okay, so you would say that uhm, although there are disadvantages, we can, uhm, utilize the resources and our responsibility to uhm, work through the negative aspects or avoided it?	



22.	P: Yes, it is but also now knowing people [laugh] you will always get people that you know, we'll see how they can use... the internet and and [sic] the whole... digitized environment uhm, to commit crimes or to use it to somebody else's detriment and their advantage. Uhm, but I think all in all it it it [sic] can be a huge positive.	
23.	I: Okay. Perfect, uhm, tell me about your experience of the fourth industrial revolution.	Comprehensibility
24.	P: Okay, uhm, me being of the older generation. [laugh] It was quite uhm, an adaptation for me... But you know, what, uhm, as you learn to work with it and get used to the different types of of of [sic] connectivity and... things in the workplace and see how it can can [sic] help you and your you just have to keep on learning and. And, and figure out how things work and forget about your fear of technology because ja, your technology is a bit of an issue for me, I'm a technophobe. But uhm, I've discovered that it can help me a lot, it saves me a lot of time. So ja, I'm all for it.	<ul style="list-style-type: none"> <li>● Adaptation (being in the older generation) - Continuously working and learning about the technology – get more comfortable with</li> </ul>
	Meaningfulness	<ul style="list-style-type: none"> <li>● Get over fear of technology</li> </ul>
25.	I: Okay uhm, how do you feel about the fourth industrial revolution in the workplace?	Comprehensibility
26.	P: Now, as I said, I think uhm, it's going to change the workplace a lot in the next couple of years. Uhm, we've already seen the changes, uhm we've discovered that we can work remotely. Uhm, so I think, the good old office, as we know, it will probably disappear within the next couple of years, and people will start working remotely, and the office hours will probably also change a little bit, because people are now able to work from home and they will sort of integrate the work and, and family life. Uhm, and once again, there are positives, and	<ul style="list-style-type: none"> <li>● Change the workplace a lot</li> <li>● Work remotely</li> <li>● Virtual workplace</li> <li>● Working hours will change</li> <li>● Integrate work and family life</li> <li>● Dehumanised workplace</li> </ul>

	there are negatives to that. So ja, but ja, I think our office as we know, it will disappear, and I think quite soon.	<ul style="list-style-type: none"> <li>• Removes human interaction</li> </ul>
	Meaningfulness	<ul style="list-style-type: none"> <li>• Positive and negatives in workplace</li> </ul>
27.	I: Okay, so you would say that the workplace is becoming more virtual?	
28.	P: Exactly.	
29.	I: Okay. So, would you say that you feel positive how the technology is changing uhm, the workplace? Uhm, how do you feel about that?	Meaningfulness
30.	P: Ah, I've got some reservations, it's great to to [sic] have a virtual workplace, it's great to be able to work remotely. Uhm, and it helps a lot, uhm, in certain instances, which just, you know, advantage—to your advantage to be able to to [sic] work at different settings. But in my work, where people are my main... concern, I would say, I feel that it dehumanised my workplace a little bit. Uhm, I like to be in personal contact with people in the office. And at the moment, I really feel that I don't get to see people that often and and [sic] interact with them. And on that personal level, and I don't like it.	<ul style="list-style-type: none"> <li>• Reservations about technology in workplace - cautious</li> </ul>
31.	I: Okay, so it actually removes that interpersonal contact, uhm, between the co-workers and your co-workers.	
32.	P: Yes, exactly.	
33.	How do you see the 4IR will shape the future of work	<p>Comprehensibility</p> <ul style="list-style-type: none"> <li>• Work remotely</li> <li>• Virtual workplace</li> <li>• Working hours will change</li> <li>• Integrate work and family life</li> </ul>

		<ul style="list-style-type: none"> <li>• Removes human interaction</li> </ul>
34.	I: Okay. Uhm now taking this into consideration what impact you feel the fourth industrial revolution will have on your job?	Comprehensibility
35.	P: Ja, as I said, I don't <i>really</i> think uhm, it will have a huge impact in the sense that my job might disappear in the new—in the near future, like a lot of other jobs might disappear, or being replaced by by [sic] robots, or something. I think you always need will always need somebody to manage people. Uhm, but ja, it's going to affect it a little bit, as I said, uhm, probably the removal of the interpersonal contact, which is my main concern, but otherwise, I don't think it's going to impact that much.	<ul style="list-style-type: none"> <li>• Won't have a huge impact – will not disappear</li> <li>• Always need someone to manage people</li> <li>• Remove interpersonal interactions</li> <li>• Helped during lockdown</li> </ul>
36.	I: Okay, would you say that the technology actually, uhm, will—uhm, helped you in a sense during lockdown, or the new things they are implementing?	
37.	P: Yes... Definitely, definitely. We, as I said, we were able to carry on without training, uhm we <i>actually</i> save a lot of money because we have offices around the country, and we can have weekly meetings uhm... very easily. Now we as... in the past, we would have now had to go on a plane and meet somewhere in a central location. Uhm, so ja, it's it's [sic] quite positive in that regard.	
38.	I: Okay. Uhm, so would you say, how will your job description change to stay relevant in the fourth industrial revolution?	Comprehensibility
39.	P: [Laugh] That I don't know. [Laugh] We'll have to wait to see. [Laugh] But so far, nothing has changed much.	<ul style="list-style-type: none"> <li>• Nothing changes to stay relevant – have to wait and see.</li> <li>• Won't change at core but additional changes</li> </ul>

		<ul style="list-style-type: none"> <li>• Keep up with technology</li> <li>• Had to learn very quickly to learn the new technology</li> </ul> <p>Have knowledge of the new technology</p>
40.	I: Okay, so you say you would rather uhm, need to have the knowledge of new technology and how to train people uhm, virtually? Is that how it will impact your work?	
41.	P: Yes, I think that is quite, so you have to uhm, keep up with technology uhm, that was also my main uhm—I won't say drawback, but I had to learn and learn very quickly to use all the technology. And as we've just experienced that technology can sometimes, uhm, fail in the most inopportune [laugh] moment. So, you have to, you know, go with Plan B, and have a plan B be ready. But ja, the knowledge of the technology is very important. And you have to keep, you know, abreast with the newest developments.	
42.	I: Okay, and did you have to do any courses, or how did you stay relevant with uhm, the current knowledge?	Manageability
43.	P: I think we all just learned as we as we [sic] went along, uhm you know, trial and error. We know, we didn't have any quest—uhm, courses, we just googled a lot uhm, and ja well, I would say, you know, short YouTube videos, uhm also helped a lot. So yes, in a certain sense, I think we did, we did attend courses.	<ul style="list-style-type: none"> <li>• Learning</li> <li>• Trial and error</li> <li>• Googled</li> <li>• YouTube videos</li> </ul>
45.	I: Okay. Uhm how do you control the changes brought by the fourth industrial revolution?	Manageability

46.	P: That's another difficult question. [laugh] which I don't really know how to answer...[laugh]	
47.	I: If I can maybe push you in a direction? Or...	
48.	P: You're welcome	
49.	I: ... to give more clarity, if it is, uhm, as as [sic] you said, you do research to uhm, maintain with the ma—to get actually new knowledge about the new developments, and and [sic] use those resources, do you have, maybe other resources you rely on to gain that new knowledge to become more comfortable with the technology?	
50.	P: Yes, I would say I read a lot, I read a lot. Uhm, I read, uhm, a lot of articles related to my job, and also to the technology. Uhm, and then also, I mean, I speak to my colleagues, we exchange new ideas and different ways of doing things that we've discovered along the way. So ja, I would say those two resources would be my main.	<ul style="list-style-type: none"> <li>• Reading about the new technology and articles related to job</li> <li>• Speak to colleagues – exchange new ideas</li> </ul>
51.	I: Okay, great. Uhm, what skills do you apply to stay relevant will have an active part in the fourth industrial revolution?	Manageability
52.	P: Well, I would say mainly computer skills, uhm and knowledge of the different programs that I use. In my day to day job, ja.	<ul style="list-style-type: none"> <li>• Computer skills</li> <li>• Knowledge about programs</li> </ul>
53.	I: I'm just writing...	
54.	P: You welcome.	
55.	I: Writing down—jotting down uhm, what's being said. Okay, how do you feel the fourth industrial revolution is connected with the politics or the BEE of the company?	Comprehensibility

56.	P: Ja... well, you have to assist me there. I'm not really sure what they mean by this.	
57.	I: Okay. So would you say uhm, the fourth industrial revolution uhm, increases the communication with the regarding the politics, uhm such as the culture or the, uhm just the environment in the workplace, and also with BEE it helps you to uhm reach those participants?	
58.	P: Oh okay, yes, ja, ja [sic] uhm, yes, obviously. But then having said that, uhm I also feel that maybe the industrial fourth industrial revolution is excluding a lot of the uhm, disadvantaged communities because they not although they all have cell phones, but they're not really able to afford all the modern technologies, like Internet, uhm you know, they can afford maybe a few gigs of data or something like that, but I do feel that they are excluded. So... uhm, reaching underprivileged areas, or people I would say is still not really positive of the fourth industrial revolution. I think people are still excluded. But yes, uhm communication reaching other communities reaching people in remote areas, uhm in your office makes it a lot easier.	<ul style="list-style-type: none"> <li>• Excluding the disadvantaged communities</li> </ul>
59.	I: Okay, how do you feel the fourth industrial revolution impacted your life?	Comprehensibility
60.	P: Obviously, it makes your life easier. Uhm, it makes it easier to connect with friends and family. On a personal note now, is that what you mean? Or in the in the in the [sic] office space?	<ul style="list-style-type: none"> <li>• Easier to connect with family and friends</li> <li>• Don't communicate with near family because more on phones</li> </ul>
61.	I: Yes, personal notes.	
62.	P: Okay. So, it makes it easier to, to contact your family, to share photographs, to share videos, you know. So especially if you live far	

	<p>apart, uhm that makes it easier... <i>but</i> once again, uhm, and I find that a lot with my children that we sort of do not communicate that often because they're forever on their phones, and I just once again feel that, you know, that human interaction is is [sic] left by the wayside, and they forever on their phones chatting to somebody out of the room. While I'm sitting right next to them [laugh]</p>	
63.	I: [Laugh]That is the new generation.	
64.	P: [Laugh]I think you can relate to that, hey?	
65.	I: Yes, definitely.	
66.	P: [Laugh} Your mom is probably the same?	
67.	I: Yes, no she gets irritated when I'm on my phone while we were watching movies. [Laugh]	
68.	P: So so [sic]...	
69.	I: Sorry, continue	
70.	P: Lack of human interaction, sorry.	
71.	I: Okay, yeah. Okay, next question. How does the fourth industrial revolution impact your health?	Comprehensibility
72.	<p>P: Uhm, I wouldn't really say that much. Uhm because, okay, let's just directly I think ,uhm... to a certain extent, because uhm you know, sitting down all day working behind your computer, you know, after the day's slouching in front of the computer, you feel your neck, shoulder, neck muscles as a bit of a spasm. Uhm, other than that, I try to uhm, limit my screen time... at home and spend maybe more time reading just to do something different. Uhm, but then also, it can be very positive with all the developments in the health sector. So, it's</p>	<ul style="list-style-type: none"> <li>• Wouldn't say impact that much</li> <li>• Sitting at work behind computer all day – slouching</li> <li>• Positive with all the developments in the health sector</li> </ul>

	not my personal health, but you know, you never know what happens and you need some new technology uhm, new cure that's been helped along by technology. So ja, I think it can be positive in our health, but my personal health not really that much.	
	Meaningfulness	<ul style="list-style-type: none"> <li>• Positive with all the developments in the health sector</li> </ul>
	Manageability	<ul style="list-style-type: none"> <li>• Try to limit screen time</li> </ul>
73.	Personal resources	<p>Manageability</p> <ul style="list-style-type: none"> <li>• Reading</li> <li>• Update knowledge using internet</li> </ul>
74.	I: Okay. Uhm... How does the fourth industrial revolution connect with your religion?	Comprehensibility
75.	P: That's another very [laugh] not very clear question uhm, can you maybe just give... me a few hints there what you mean?	
76.	I: Okay, so uhm, does the fourth industrial revolution help you to get the information you need about your religion? Or do you feel that people are actually uhm, I'm just gonna [sic] say Afrikaans “verafgod”, uhm, technology.	
78.	P: Okay.	
79.	I: So, your perspective on that.	
80.	P: Uhm, once again, being of the older generation, uhm. I still, you know, use the traditional ways of, of of [sic] exercising my religion. But once again, and I think uhm, this COVID situation is once again impacted a lot of our lives and <i>because</i> of the internet and the	<ul style="list-style-type: none"> <li>• During lockdown could continue with religious gatherings</li> </ul>



	<p>connectivity, we could carry on with our religious gatherings, although virtual, so it was actually quite nice to be able to to [sic] still have that connection and and [sic] carry on with my religious uhm, activities to a certain extent. Uhm ja... and you know, what... Uhm, the computers and other... electronic equipment does not rule my life. I am still as I said, the older generation so when I get home, I put my phone down, I sometimes don't even know where it is [laugh]. Uhm, so I try—does not have that big an impact on me, but I see certain, especially the younger generation, uhm, you know, they get so involved with the social media side of things, and and [sic] ... I think they lose perspective of what's important in their lives being liked by two thousand people, when you post a photograph of yourself in your swimming costume is way more important than, uhm you know, then chatting to ah ah [sic], uhm, nearest and dearest. So, they sort of lose lose [sic] perspective. And ja, it's not really religious, but I think the whole social interaction thing is a bit, sometimes a bit skew.</p>	
81.	<p>I: Okay. How does the fourth industrial revolution impact on your shamefulfulness? I'm just going to give a little bit context...</p>	Comprehensibility
82.	<p>P: Yes, please [laugh]</p>	
83.	<p>I: Regarding this question, so as you mentioned, the older generations or not a nicely, I'm not saying everyone, uhm, are not very good with technology or struggle with a new technology, technological developments. Uhm so sometimes you feel a bit, okay, the younger generations are so good with the technology and you struggle, maybe a bit.</p>	
84.	<p>P: Ja, so you you you [sic] almost on the one side, feel a bit left out. And the other side, you do not really want to uhm, acknowledge that</p>	<ul style="list-style-type: none"> <li>• Don't feel ashamed</li> <li>• Don't mind asking for help</li> </ul>

	[laugh] you struggling [Laugh]. I don't have that issue. [Laugh] I just go straight ahead and tell them listen, do you all know, and anybody at work knows that I'm not the greatest with technology. Because I feel If if [sic] they are aware of it, I can help me. Ja, so I'm not really ashamed that I don't know. You know, I don't... get along with technology that well, but ja, I just of the opinion, tell people that you're struggling, and they will help you.	
85.	I: Okay so...	
86.	P: I I [sic] felt that a lot of people, the younger ones, I mean, they, they might laugh in private, but they always willing to help me. So ja.	
87.	I: Okay, so being forthright with your uncertainties about some technology technology [sic]—technologies. [Laugh]	
88.	P: [Laugh] That's a real [inaudible, 22:40].	
89.	I: There my Afrikaans came a bit in [laugh] sorry about that, uhm.	
90.	P: No problem, I am not always on my best in English always. So sometimes, ja I understand.	
91.	I: Last question, what will make your job meaningful in the future?	Meaningfulness
92.	P: Uhm... I always say, and I'm coming back, or going back to two previous answers maybe that I love my job, because I work with people. I hate my job because I work with people. [Laugh] But if you take away the human the personal interaction, uhm I don't think I will like my job that much. So if if [sic] somehow even if I like I said, I think in the new future, the actual physical office space is going to disappear to a great extent, I... sure wish that we will still be able to have that personal contact somehow, even if it's just, you know, once	<ul style="list-style-type: none"> <li>• Love to work with people</li> <li>• To be able to have personal contact in the future</li> <li>• Human interaction and interpersonal relationships</li> </ul>

	or twice a week or so, but I would really not like it when the physical office space disappears, and everybody works from home.	
93.	I: Okay, so maintaining that human interaction and interpersonal relationships in the future.	
94.	P: Yes, yes. That is what what [sic] makes my job worthwhile every day.	
95.	I: Okay. That's all from my side. If you would like to comment on something or want to mention something, you're more than welcome or ask any questions.	
96.	P: I'm good. I think I think it's a very interesting subject that you have here.	
97.	I: Yes.	
98.	P: And I, I would love to see your results.	
99.	I: Oh, yes, you are within your rights to uhm ask for a can I say, summary of the results of my study. And I'm more than willing to provide it for you.	
100.	P: Ja, that would be really interesting.	
101.	I: Yes.	
102.	P: Once it's all uhm... all neat and up in your report or whatever. So, whenever you read it, yes.	
103.	I: Yes, no, definitely I will uhm give it to you after I submit my research, so then that would be within this year.	
104.	P: I was just going to ask you, when is all this do you know? Are you finishing your studies this year or next year?	

105.	I: This year? I will hopefully that's my goal to finish it this year.	
106.	P: Okay, I'm sure you'll will be able to do it...	
107.	I: Yes, no, definitely. So, I'm going to stop the recording now.	

### Transcribed interview of Participant 8

Participant 8		
	Transcription	Coding
1.	I: How are you doing?	
2.	P: Okay I'm fine. Thank you. I'm very good. I'm just seeing if I can make you that. Hold on.	
3.	I: Okay. If I can do something on this side.	
4.	P: Now I can I can [sic] hear you. It's fine.	
5.	I: Okay, great. Did you have a nice day so far?	
6.	P: Ja, not the best but it was okay. [Laugh] And you?	
7.	I: Agh, busy working here is that's all.	
8.	P: Okay, it's good that you're keeping busy.	
9.	I: Yes, yes I just want to relax, but almost time for that. Okay. Sorry, before we start, I just want to ensure that you did understand what was said in the consent form. And you...	
10.	P: Ja	
11.	I: Do you have any questions or need clarification?	

12.	P: No, I'm fine Cemonn is all signed, I'll give it to your mom when I see her. [Laugh]	
13.	I: Thank you very much. And, uhm, yes, so there's no any [sic] questions needed? Okay. Okay,	
14.	P: All good.	
15.	I: The first question, what do you think the fourth industrial revolution is?	Comprehensibility
16.	P: Uhm, it's basically the advancement of the technologies that's, you know, uhm digital, and fiber and all of that stuff. So, ja, I just think it's, it's [sic] just like where we going [sic] with with[sic], uhm technology, essentially, I would say, is my my, my[sic] take on a it, ja.	<ul style="list-style-type: none"> <li>• Advancement of technologies</li> <li>• Digitalisation</li> <li>• Fiber</li> </ul>
17.	I: Okay. How do you perceive the fourth industrial revolution?	Meaningfulness
18.	P: Well, I think it's for the be—it's good, because it's probably making life better for people. In some respects, it's just that because of the advancements in the way we're able we're able [sic] to access information so much easier. And so ja, for the most I think it's good, obviously, I think it's not good in terms of jobs. Uhm, you know, because, you know, computers are essentially taking over where people used to do these things. And I mean, you've got computers that are basically thinking for us now, and we're not thinking for ourselves anymore. But but [sic] on the other hand, certainly in terms of medicine, and that, it's it's [sic] definitely an advancement, ja.	<ul style="list-style-type: none"> <li>• Good</li> </ul>
	Comprehensibility	<ul style="list-style-type: none"> <li>• Makes life better</li> <li>• Access information easier</li> <li>• Not good in terms of jobs – computers taking over jobs</li> </ul>

		<ul style="list-style-type: none"> <li>• Advancements in medicine</li> </ul>
19.	I: Okay, uhm, so do you believe the fourth industrial revolution is a positive or more negative aspect?	Meaningfulness
20.	P: I would say more positive than negative.	<ul style="list-style-type: none"> <li>• More positive than negative</li> <li>• More advantages</li> </ul>
21.	I: So, you say there's more advantages, uhm, provided by the by the [sic] fourth industrial revolution?	
22.	P: I guess. Ja. I guess so. [Laugh]	
23.	I: [Laugh] Okay. Are you optimistic about the fourth industrial revolution?	Meaningfulness
24.	P: I think I am [laugh]. It's you know, you don't know for sure until we see it, you know, how it plays out. But, I mean, in reality, you know, we'll we'll [sic]—I know, but I think, you know, for the most probably is, we always are going to have to be advancing as a society, you know, so, ja, I think it is for the most good so probably say I'm optimistic. Ja. [laugh]	<ul style="list-style-type: none"> <li>• Optimistic but don't know for sure until it plays out.</li> </ul>
25.	I: Okay. Tell me about your experience of the fourth industrial revolution?	Comprehensibility
26.	P: I haven't got much experience. Um, I mean, essentially, I have a smartphone, and I work on computers, but I wouldn't say I'm using it to the level that it can be used. So, for me... uhm, my experience is minimal to a degree, you know, I'm just carrying on regardless, or obviously, with certain advantages, but ja, probably not as advantaged as others [laugh] maybe.	<ul style="list-style-type: none"> <li>• Not much experience (experience to a minimal degree)</li> <li>• Have a smartphone &amp; computers</li> </ul>

27.	I: [Laugh] So how do you feel about the fourth industrial revolution in the workplace?	Comprehensibility
28.	P: Uhm, I think it's probably good. It can make life more efficient. And uhm, you know, help, help[sic] uhm—the thing that concerns me is that it might take people out of jobs. So, you know, that's, that's [sic] not good. But the ja—in terms of the technology probably would make, I mean, I've just read such an interesting book about how they identify people, shopping habits and all this, so for business it's good but it's also like, takes away our freedom in a way and, you know [laugh] our privacy.	<ul style="list-style-type: none"> <li>• Make life more efficient</li> <li>• Concern – take peoples jobs</li> <li>• Takes away freedom and privacy away</li> </ul>
	Meaningfulness	<ul style="list-style-type: none"> <li>• Good thing in workplace</li> </ul>
29.	I: Yes. Oh, I'm just writing this stuff down. So, if I'm just quiet for a bit, I'm just writing everything.	
30.	P: That's okay. Jy weet mos ek is rustige mens. [laugh]	
31.	I: [Laugh] How do you see the fourth industrial revolution will shape the future of work?	Comprehensibility
32.	P: I'm not sure Cemonn uhm, I think it might just make make [sic] the workplace more efficient. Uhm, you know, but other than that, I'm really not sure. To be honest. [Laugh] Ja.	<ul style="list-style-type: none"> <li>• Make workplace more efficient</li> <li>• Job redundancies and new jobs</li> </ul>
33.	I: Okay, uhm so you would say there are positive and negative things that will shape the future of work, such as job re—redundancy, and maybe the creation of new work?	
34.	P: Yes, ja. So, ja, I think certainly, you know, in certain ways that definitely will enhance like efficiency and stuff like that, you know. Ja.	

35.	I: Okay. What impact do you feel the fourth industrial revolution will have on your job?	Comprehensibility
36.	P: Not much. [laugh] On my job, not much. Uhm, you know, uhm, I guess I just work in a, in a [sic] business that's not that sort of technologically advanced. So, we are retail business, I don't think me personally, it's going to affect me a huge amount, ja.	<ul style="list-style-type: none"> <li>• Not much – in a business that is not technological advanced</li> <li>• Make work easier &amp; efficient</li> <li>• More access to information</li> <li>• Make communication easier</li> </ul>
37.	I: Does that technology make your work easier for you?	
38.	P: Definitely. I would definitely think that [sic] it. Just even the access to sort of information and to, you know, being able to communicate with other people, you know, definitely makes it a little bit, you know, more efficient.	
39.	I: How will your job description change to stay relevant in the fourth industrial revolution?	Comprehensibility
40.	P: I don't think it will. I don't think it will, ja	<ul style="list-style-type: none"> <li>• Not any changes</li> </ul>
41.	I: How do you control the changes brought by the fourth industrial revolution?	Manageability
42.	P: I, I [sic] don't think I, I [sic] can't, I'm not in a position to really control them. Uhm, do you mean in the workplace, or just generally in my life?	<ul style="list-style-type: none"> <li>• Not affected by new technologies</li> </ul>
43.	I: I'll get to in your life, but later, so it's my more your work environment.	
44.	P: Ja, no, I don't think I don't think [sic] I'm in a position to change it much. You know.	



45.	I: Okay. So, you would say that you're not really affected by the new technologies?	
46.	P: No.	
47.	I: What uhm, skills do you apply to stay relevant or have an active part in the fourth industrial revolution?	Manageability
48.	P: Well, I think one needs to just educate yourself with technology and just keep updated with the new trends and how to use the technology. Uhm... uhm...What was the question again? I wrote, I kept, how do you con—What skills do you apply?	<ul style="list-style-type: none"> <li>• Educate yourself</li> <li>• Keep updated &amp; informed</li> <li>• Continuous learning</li> </ul>
49.	I: Yes.	
50.	P: Okay. Ja, I just would say education mainly, and just keeping myself sort of informed, ja.	
51.	I: Oaky, you would say continuous learning attitude.	
52.	P: Yeah, essentially.	
53.	I: Okay, how do you feel the fourth industrial revolution is connected with the politics or BEE of the company? Uhm I can explain if you're a bit unsure about this question.	Comprehensibility
54.	P: Ja, I am a bit cause [sic] that one wasn't sure at all.	
55.	I: Okay. Uhm so, what I mean by uhm, this question is that uhm, technology can help communication in the organization, and then which can play part of the politics during uhm, the environment of the organization. So, technology can maybe uhm negatively affect that or positively helping with communication or technology can help reach BEE employees or it's not actually very helpful in that regard.	

56.	P: I don't think in my particular work. It's gonna [sic] make a huge difference, you know, because I don't think we, we [sic] using technology in this, you know, to that degree, you know, also just being in retail. So uhm... in terms of politics within the organization, or BEE, I don't think it can make a huge difference, ja. I mean, it makes a huge difference that people are able to access or find suppliers or stuff like that, but not, not with into sort of staff relationships, I don't think it can make a huge difference. I'm trying to think if it can, but I don't think so.	<ul style="list-style-type: none"> <li>• Not relevant in my work</li> </ul>
57.	I: How do you feel the fourth industrial revolution impacted your life?	Comprehensibility
58.	P: Uhm well, I think it's made life easier. And it's made live more simple [sic] in a way, because, uhm you know, we have access to so much of this. And even if, God forbid, I would need medical care, and that just all of that is just made so much better by this—the Industrial Revolution, you know, the fourth industrial revolution. So, I think it just is gonna [sic] improve our lives to, to [sic] a large degree, and just make life a little bit. Maybe in enhance it, you know.	<ul style="list-style-type: none"> <li>• Made life easier &amp; improve lives</li> <li>• Made medical care better</li> </ul>
59.	I: Okay, so uhm speaking of medical care, how does the fourth industrial revolution impact your health?	Comprehensibility
60.	P: Uhm not, not per se, just not now. But if, I mean, they can do remote surgery, and they can do all kinds of things and diagnosing and, fortunately, I'm not in this situation now where I need any of that, but I think if I would, you know, it's now there—available, you know, I mean, just, for example, you know, having a daughter who was disabled when she first got diagnosed with no access to information other than going to the library, and looking on macro fish, for information about her disorder, where is now you know, just all	<ul style="list-style-type: none"> <li>• Not directly affected – but if needed will be able to use the new developments in medical care</li> <li>• More access to information about illnesses</li> <li>• Smart watch makes access to exercise information easier – provides extra</li> </ul>

	that is so much more available, treatments, you know, options, you know, so ja, it hasn't affected me yet, but it might, might [sic] in long term.	information to make life easier
61.	I: Okay, uhm, do you use that uhm smart- like Fitbit watches uhm for your exercise routines? [Laugh]	
62.	P: [inaudible 12:27] Ja it is actually on the charger. [Laugh]	
63.	I: Okay, great. [Laugh] How did that uhm, affect your workout, and the information it provide [sic]?	
64.	P: I would not say it effects my workout, but it just makes it interesting to kind of know, where I'm at, you know, my heartrate my uhm how much I've walked how far we [inaudible 12:39] It just makes the information a little bit better.	
65.	I: Okay, so I just provide that extra information to make the life more efficient.	
66.	P: Ja, so, you know, just so we know what we doing better? But, I mean, I could have done what I'm doing, I would have probably done more or less the same without it. But now I just have the information of what I've done.	
67.	I: Okay. Uhm... what are your personal resources uhm, used to cope with the fourth industrial revolution?	Manageability
68.	P: I'm not sure I understand the question.	
69.	I: Okay	
70.	P: Resources is in, as in [sic] access to technology or...	
71.	I: Yes, access to technology, also looking at maybe the positive side of technology, uhm or use your ability to do the research to stay up to	

	date with everything that is happening in the fourth industrial revolution.	
72.	P: Ja, so my uhm... ja my personal resources essentially... uhm you know, I wouldn't say they huge because I'm not in I'm not [sic] the kind of job I do and the kind of stuff is not it's not [sic] necessary, but obviously I have the fitbit I have the smartphone and I have the laptop and you know, but ja I I [sic] can say you know, I have much more resources than that. [laugh]	<ul style="list-style-type: none"> <li>• Devices enable access to more information</li> <li>• No resources needed to cope with 4IR – not much affected</li> </ul>
73.	I: Okay, uhm, how does the fourth industrial revolution connect with your religion?	Comprehensibility
74.	P: I don't think it does. I kind of feel that they separate uhm, obviously like if I have a question specifically within my religion that I need to know I can use the technology to you know, investigated but like personally I don't think it affects it particularly, you know, it doesn't affect my belief system or have field or any of that.	<ul style="list-style-type: none"> <li>• Technology and religion are separate</li> <li>• Use technology to get more information about religion</li> <li>• Does not affect belief system</li> <li>• May not use technology on Sabbath</li> <li>• Used technology to teach Hebrew</li> </ul>
75.	I: Okay, and with a lockdown did uhm, your synagogue use technology to still provide uhm, services or how?	
76.	P: Because we can't use technology on the Sabbath.	
77.	I: Oh, oh sorry. [Laugh]	
78.	P: [Laugh] But they certainly like our rabbi did sort of Bible study every night. We call it a Shiur or so every night, there were different Bible studies, our rabbi's wife has been teaching boys to learn to read Hebrew online and stuff like that, but uhm ja actually, religious services we couldn't attend. And we couldn't be part of in any way	

	because we couldn't use technology on the Sabbath. So ja,so [laugh]. Oh, didn't help us at all the technology in that point?	
79.	I: Okay.	
80.	P: So what our Rabbi sometimes did, he give [sic] us some time before the Sabbath to listen to, or maybe you know, that Chazan, you know, that's the guy sings in the synagogue, he would sing us a song before the Sabbath that we could listen to, but obviously not during ja.	
81.	I: Oh okay. How does the fourth industrial revolution impact on your shamefulfulness? I'm going to give a bit of a background on this question.	Comprehensibility
82.	P: Ja.	
83.	I: Uhm, it's with normally, or usually, the older generations are not that technological, uhm savvy, or equipped. And so, and the younger generations are, and so sometimes, people feel they do not have the abilities to work with the technology. So, they feel a bit shame about that.	
84.	P: Oh okay. No, it doesn't affect me at all.	<ul style="list-style-type: none"> <li>• Doesn't affect</li> <li>• Fairly tech savvy</li> <li>• Don't fee ashamed</li> <li>• Don't shy to ask for help</li> </ul>
85.	I: Okay.	
86.	P: I mean, I'm fairly techno savvy, uhm not not [sic] hundred percent. But I'm also not scared to get help if I needed. So, for the most. I'm quite proud of myself that—what I'm capable of doing [Laugh]. I don't I mean, obviously, I may be slower at it and all of that, but I don't in	

	any way feel. Um, I don't I'm not ashamed of what I do know, and what I don't know. [Laugh]	
87.	I: Okay, great. [Laugh]	
88.	P: Maybe, I'm just windgat I don't know. [Laugh]	
89.	I: [Laugh] Uhm well, that's actually good [Laugh]. Uhm, what will make your job meaningful in the future?	Meaningfulness
90.	P: I think in my own personal situation, that only thing that will make my job more meaningful will be me personally, I don't believe it to be the technology or the, you know, I think it essentially still rests with me, you know, how—well I guess how I use the technology in that. But ultimately, I think it's it's [sic] just down to me personally, ja.	<ul style="list-style-type: none"> <li>• More personal investment rather than technology making it more meaningful</li> <li>• To be challenged more – don't want to use technology, want to use brain</li> <li>• Interpersonal interactions</li> <li>• Be able to help colleagues in personal life as well.</li> </ul>
91.	I: Okay. And what will make it for you more meaningful if, for instance, you will enjoy your job more if uhm, you get to do this and implement that. So uhm, making your job more uhm, engaging for you, and you feel like you're contributing to a greater good, for example.	
92.	P: Ja so, like I say, I don't know if the technology, is what would be, I think it would be, I mean, in a certain way, I like being challenged. So, I almost don't want to use the technology, I want to use my brain [Laugh]. And sometimes, uhm yes, and so to me, I sometimes do change things at work just to make things more efficient, but not so much with technology, but with myself, you know, obviously, maybe the technology is involved, but it's almost feel [sic] it's more about me in a way, uhm ja, I'm not sure how to say that. [Laugh] Uhm, I mean,	

	yes, there's technology involved, but but [sic] ultimately, I still feel it's like the onus comes down to me as a person, you know?	
93.	I: Okay. Uhm, so not necessarily focusing on the technology, but what would you like uhm, to be incorporated in your job to make it <i>more</i> meaningful for you?	
94.	P: Uhm, uhm...	
95.	I: I can give an example. Uhm so people would like more flexible working hours or be more uhm, taking part in maybe the social responsibility of the organization or community work. Uhm, those are just examples; people would find their job more meaningful.	
96.	P: Look, I'm quite—I have a very flexible job. I'm kind of very much in control of my office, uhm I have bosses who really in a way respect me and like, uhm, depend on me to a degree so that already makes it meaningful for me, and interpersonal interactions, I think would make it meaningful as well, you know, interacting with other members of staff and that and even just, if I can help people, like even in their personal stuff, sometimes I feel because I'm older, I'm a bit of a mama. So, I can kind of give advice and stuff. But, uhm, so that all that is meaningful, uhm, over and above the actual job, you know, uhm, even when I have to talk to clients, and that I think you're—the meaningful part is the interaction with people potentially, you know, the job itself is quite a nice job in the sense that I work four days a week, and I can come a bit late and leave a bit late or, you know, something I don't think I need in the job anything more meaningful, other than the sort of extra sort of aspects of the interactions in that I guess.	

97.	I: So, more working while actually communicating and building that relationships with other people?	
98.	P: Mm hmm. ja. Uhm like, I think uhm, respecting people, and if I can help people, I'm a bit of a nurturer by nature. So, you know, I kind of sometimes feel like if I can help in that sense, you know, that's sort of my purpose, you know [laugh]	
99.	I: So, do you think that technology will affect those—being able to build relationships uhm, regularly will you say that technology will actually, uhm, make it less in the future?	
100.	P: I think in my own personal work, I don't think that technology is going to make a difference. But I think in life generally, I think it will—I think, because firstly, people are losing jobs, we don't have as much more interaction, we interact with computers and phones and stuff. I mean, you see how people don't talk to each other. They're so engrossed in their telephones. So, I think technology on that level is destroying personal relationships, ja, but in my own personal job, it's, it's [sic] not. Ja.	
101.	I: Okay, great. That's all the questions I have for you.	
102.	P: Oh excellent. Okay, then wasn't to... uhm sjoe, I feel fine. [Laugh] I hope didn't make a fool of myself [laugh]	
103.	I: [Laugh] No, not at all. Thank you very much for your participation. I'm just going to stop the recording.	



## Transcribed interview of Participant 9

Participant 9		
Code	Transcription	Coding
	P: Perfect hundred percent—if we run out of time now, I mean, I'm always happy to make take more time somewhere else. All right.	
	I: Okay, no problem. How are you doing? How was your day?	
	P: I'm fine. [Inaudible 0:16] I'm just back to back.	
	I: Ah shame	
	P: I couldn't find another time. So glad when you message me to keep the same time.	
	I: Yes	
	P: I just couldn't find another time.	
	I: I'm so sorry about the inconvenience. [laugh]	
	P: [Inaudible 0.33] no no no [sic] inconvenience at all. And so, this, are we set up now for half an hour.	
	I: Uhm yes, it depends on what how much time we need. Yes.	
	I: Okay, that's fine, my next meeting is at one o'clock. And if you do need more time, we just find more time next week, we can carry on. Let's see how quickly how quickly [sic] we can move.	
	I: Okay, Okay, perfect. No problem at all. Uhm so before we start, I just want to ask. Uhm do you understand what was said in the consent form? Uhm do you have any questions or need any clarification?	
	P: No, I am, I am[sic] fine. So, I just looking for it here, and ja, ja I'm fine, I fine[sic]	
	I: Okay,	
	P: I made it, I think. Good.	
	I: Okay, great. And you don't mind to be [sic] recorded?	

	<p>P: No, I don't mind being recorded all. Uhm for that, but, but you will see I'll have done a few of these now be very careful to separate myself from my organization.</p>	
	<p>I: Okay</p>	
	<p>P: And I looked at your questions, and I can answer everything independently it doesn't need organization related.</p>	
	<p>I: No, it focus more on you and your uhm view on this things. Okay, so first question. [Laugh] What do you think the fourth industrial revolution is?</p>	<p>Comprehensibility</p>
	<p>P: Uhm... the fourth industrial revolution is where we are—where we find ourselves now, where we really uhm it's it's[sic] about the technologies about disruption uhm AI, robotics, cryptocurrencies, all these elements that are coming that are in our environment that are really technologically driven. Uhm the... the area where I come from with regards to fourth IR is really the human behavior. So how do we in that uhm, space, not lose a human uhm, and and [sic] take the pendulum all the way to the technological side? Because at the end of the day, they're still humans who need to drive it. And not everything can be done by tech—technology on its own? There we go, that's it, ja.</p>	<ul style="list-style-type: none"> <li>● Disrupting technologies</li> <li>● AI</li> <li>● Robotics</li> <li>● Cryptocurrencies</li> <li>● Not everything can be automated</li> </ul>
	<p>I: Okay perfect. Uhm, how do you perceive the fourth industrial revolution?</p>	<p>Meaningfulness</p>
	<p>P: Uhm... I think it's exciting. I think it's, uhm I mean, it's really relative to all the other revolutions where I mean, there the lightbulb and the dishwasher, and all of those things were exciting. Uhm, we're moving to the next phase of, uhm there's a lot of opportunity. But if it's used for good, then it can really move uhm our world into a better place. Uhm... I do think there's a lot of opportunity. Uhm, what scares me about the fourth industrial revolution is the elements of people. Uhm, if people don't become almost a dependence on technology, their dependence on</p>	<ul style="list-style-type: none"> <li>● Excited</li> <li>● Worried about the loss of human elements</li> <li>●</li> </ul>

	<p>that their, I think parts of the human are actually getting lost. Uhm, in that, I mean, teenagers talking to each other through a whatsapp group, but they're sitting in the same room. Uhm... you losing [sic] elements there, uhm basically like a GPS, you know, people stop looking around, they don't know. So ja, I think it's exciting on one end, and it needs to be needs to be well managed. But uhm... it is a bit scary that a lot of the human element is getting lost in the process. Uhm, I just hope we don't swing so far to when in, and it's very difficult to come back. Uhm, what's interesting in the industrial revolution—well fourth industrial revolution is that we're actually finding a lot of people who are going back to basic so because technology is—so you finding [sic] a lot—so the whole—uhm you know, vegan vegetarian, that whole uhm, trend, actually saying it's moved back to basics. So, it's not a bad thing, uhm, in that sense, as well, because it's challenging people to think, but what is technology do for us that us actually good, what does it do for us that is bad? Uhm, I do some work in climate change as well. If you can't hide a technology actually recycle better, but in a more sustainable way. Okay, uhm you got me going, next question.</p>	
Comprehensibility		<ul style="list-style-type: none"> <li>• More opportunities</li> <li>• Needs to be well managed</li> <li>• People moving back to basics</li> <li>• Help with recycling</li> </ul>
I: That's very interesting. I'll pick your brain a bit on that bit later. Uhm, so would you believe it's more a positive or negative aspect the fourth industrial revolution?		Meaningfulness
P: Uhm... I think I'm, I'm [sic] more on the... positive side, just because I see the good that can happen because of it. Uhm ja, I do see it as a		<ul style="list-style-type: none"> <li>• Positive side</li> </ul>

	<p>positive. I'm just thinking I like in COVID, how people could still work. Uhm, a lot of people could still earn income. Businesses could still keep running to a certain extent I, there was a lot of devastation. But even worse, in this day and age, that wouldn't have been possible at all. Uhm, so ja, I do think there there[sic] are a lot more positive than negative.</p>	
	<p>Comprehensibility</p>	<ul style="list-style-type: none"> <li>• Work during COVID – could still earn money</li> </ul>
	<p>I: Okay</p>	
	<p>P: But we need to find a balance.</p>	
	<p>I: Okay. But yes, I agree. Definitely. [laugh] So are you optimistic about the fourth industrial revolution?</p>	<p>Meaningfulness</p>
	<p>P: Yes, I am. Uhm, but for all the reasons above.,</p>	<ul style="list-style-type: none"> <li>• Optimistic</li> </ul>
	<p>I: [Laugh] Okay, great. Uhm, tell me about your experience of the fourth industrial revolution.</p>	<p>Comprehensibility</p>
	<p>P: Uhm... I for me my experience it has uhm, actually unlocked for me a, lot more thinking of human behavior and how human behavior is uhm, work with technology, and how you can get the most out of people when technology is used positively. So, for example, uhm... an HR system or a finance system, or uhm, you know, AI, now, we don't need to sit capturing data we've got to Bot and capture the data. Then now in my space, my manager can get a lot quicker into the information and analyze and be more strategic, and then capturing data for three days and then having three minutes to give me a view on the data. And ja, so ja, that's my [sic] that's my take, and what [sic] and what I take out of it, it also bought people time, and to do things that they love. Uhm, ja</p>	<ul style="list-style-type: none"> <li>• Unlocked a lot more information for work</li> <li>• AI</li> <li>• Automation of processes</li> <li>• Made work easier and more efficient</li> <li>• More time available to do things that enjoy</li> </ul>
	<p>I: Okay, great. How do you feel about the fourth industrial revolution in the workplace?</p>	<p>Comprehensibility</p>
	<p>P: Okay, I think ja, I think we've answered that in the other question, but uhm... so I think in the workplace, it has breaks down boundaries, and</p>	<ul style="list-style-type: none"> <li>• Breaks down boundaries</li> <li>• Virtual workplace</li> </ul>

	<p>the same sort of takes away, people can work across cross boundaries. Uhm, uhm... You aren't as limited by your location, you have access to information, which you wouldn't have access to before access to tools, so automation, uhm innovation, uhm ja it un—unlocked a lot of possibilities in the workplace. Uhm, also in the workplace, I think it has helped people to find a better way of working for themselves. So, if you are introverts, you will want to work from home maybe or from a quiet room everything technology can connect people when you need them. Uhm ja, so I think that that's been [sic] that has been good in the world.</p>	<ul style="list-style-type: none"> <li>● Access to information</li> <li>● Unlocked possibilities in the workplace</li> </ul>
	<p>Meaningfulness</p>	<ul style="list-style-type: none"> <li>● Positive in workplace</li> </ul>
	<p>I: Okay, how do you see the fourth industrial revolution will shape the future?</p>	<p>Comprehensibility</p>
	<p>P: Uhm... oh... Know you want me to become a future [sic]. [Laugh] I see it shaping, there is somebody at the gate to give me something.</p>	
	<p>I: Okay. No problem.</p>	
	<p>P: Okay, next question.</p>	
	<p>I: Okay, how do you see the fourth industrial revolution will shape the future of work? Uhm you don't have to? Definitely. Yes. You don't have to give a definite answer it's just what you think.</p>	
	<p>P: Don't worry I'm giving my opinion. So, I do you think uhm it'll it'll [sic] I think it'll [sic] turn the world into a place where, personally, I believe if it's used, it was used for the right reasons, technology will help people have more have more [sic] balanced lives. Uhm so yes, we will advance and everything, but we will we will be [sic] able to use technology to fill the gaps of when we usually work. Uhm, so that we we [sic] almost work less, but we're able to get more outputs, uhm and have more balanced lives, because things aren't going to be as manual. And innovation is going to be a lot easier. Uhm, ja, that's what I think.</p>	<ul style="list-style-type: none"> <li>● People will have more balanced lives</li> <li>● Advance</li> <li>● Use technology to fill gaps</li> <li>● Work less and get more outputs</li> <li>● Automation</li> </ul>
	<p>I: Okay, so less input, but more output.</p>	

	P: Exactly, exactly. Ja, that's way down the line.	
	I: Yeah'	
	P: Yes, I don't think I'll see that [Laugh]	
	I: I yes, I think the future holds various opportunities.	
	P: Exactly.	
	I: Next question, what impact do you feel the fourth industrial revolution will have on your job?	Comprehensibility
	P: Ough, on my job, so I think it'll make employee experience a lot better. Because organizations will be able to respond quicker to people's needs, uhm will be able to prepare more. Uhm, I think also, it's going to create that virtual working world. Uhm, that allows people to be anywhere so uhm, you are able to not live in a place where you're able to afford to live there. And not live in a very expensive place. Because that's where the offices, uhm even now to finding this people because they working remotely, they can actually buy a house now, which they weren't able to buy before. Because to buy a house near Sandton is very expensive.	<ul style="list-style-type: none"> <li>• Improve employee experience better</li> <li>• Faster work pace</li> <li>• Provide more information</li> </ul>
	I: Yes.	
	P: Uhm so I, I, I[sic] think that's what it's going to change for people, I think, I think people are actually going to benefit a lot more because they can—yeah, that—they'll be able to have more value out of what they make, and they work. Ja, I hope that answers it properly.	<ul style="list-style-type: none"> <li>• Beneficial</li> </ul>
	I: Yes: And with your job, will, it also makes it easier with the virtual workplace?	
	P: So, so [sic], uhm, my job is very much contact with people.	
	I: Yes.	
	P: And I think my job is going to be quite difficult to try uhm, and reinvent that personal touch the connection with people that you can't get over technology, it's not possible uhm, no matter how much you try to connect, you can only connect on certain levels. Uhm, so in my space, I	<ul style="list-style-type: none"> <li>• Difficult to reinvent interaction between people</li> <li>• Adaptation</li> </ul>

	<p>think it's very difficult. And it'll definitely to be reinvented. And, ja, uhm I'm adapted to the new way.</p>	
	<p>I: Okay. So, it actually goes into the next question, how will your job descriptions change to stay relevant in the fourth industrial revolution?</p>	<p>Comprehensibility</p>
	<p>P: Hmm. So I think—I don't think the job description will necessarily change, I think the <i>how</i> the job is done, uhm will change. So, I think my job will require more of a technical background just to create a better understanding of how do we leverage technology, how in leverage, uhm..., uhm... analytics and all of that to engage with our people uhm, see what our people are doing. So, I don't think it'll make nearly actual job description won't change, but also have an extra layer of, you know, technical knowledge which is required, uhm to be able to innovate and find those new things that are going to drive engagement and a good experience at the place that you work. Ja.</p>	<ul style="list-style-type: none"> <li>● Job description won't change – how things are done going to change</li> <li>● Require more technical background</li> </ul>
	<p>I: Okay. Uhm so then how do you control the changes brought by the fourth industrial revolution?</p>	<p>Manageability</p>
	<p>P: Okay, so uhm, I make sure that I am [sic] I'm learning a continuous learning is important, uhm you've never stopped learning. So, and specifically choosing areas that are uncomfortable for me. So more, uhm, tech [sic] type learning, because I won't be able to know how to adapt or change if I don't understand what the the[sic] tools are being used or what's being developed in what's out there. Uhm, I won't evolve with it. So, that's so the learning and very key. And other thing as well is connecting with people face to face, virtually, and learning from their experiences and then determining, you know, what is, you know, how can I respond to that, to ensure that they have uhm, a good experience. So, the other—the key thing for me and adapting now is actually the learning that I can bridge the two. Think mindset, I don't know, the world</p>	<ul style="list-style-type: none"> <li>● Continuous learning</li> <li>● Gain knowledge about technical areas and tools</li> <li>● Connecting with other people</li> <li>● Adaptability</li> <li>● Mindset</li> </ul>

	is all part of the same world, but the two mindsets uhm, ensure that we grow. Ja.	
	I: Okay. What's, so the skills you applied to stay active; is continuous learning and ensure you get the exposure that's needed?	
	P: Ja	
	I: Okay. Are there any other skills? [Laugh] Are there any other skills that you think might also help? Or do you think you mentioned every skills you have?	
	P: Uhm, I think, uhm, I think so. So very difficult, because I think the the [sic] streets, the EQ elements, is actually going to change, and that is only through experiences that that [sic] is going to change. That's not something you can actually put into a course and study that. So that's where I said, exposing myself to experiences other people, what are they seeing how they experiencing [sic] things, because then I'll be able to adapt how we deliver projects, what they're going to look like, what are people's needs, are, you know, doing needs analysis analysis [sic] that have changed, the need of people has changed, the expectation of people has changed the all these things have changed. So uhm... I do believe very strongly that uhm, that EQ, which is technically intangible, is going to adapt in a different way. Uhm, and that's something that I need to just be aware of, so that I can ask people better questions. And ja, and the key thing is question asking, because in my environment, if you ask the wrong question, you're going to get the wrong answer. Um, ja.	<ul style="list-style-type: none"> <li>• Exposing to experiences</li> <li>• Research skills</li> <li>• Analytic skills</li> </ul>
	Comprehensibility	<ul style="list-style-type: none"> <li>• EQ is going to adapt differently</li> </ul>
	I: Yes, that's perfect. So, what I also picked up is also a bit [laugh]	
	P: [Laugh] That is my husband.	
	I: Hallo, good afternoon [laugh]	



	I: That was very funny [laugh]. What I picked up is also a bit of research skills that is required to stay relevant.	
	P: Yes, that is hundred percent definitely. And, and it's a different type of research. So, it's it's [sic] the research the analytics, but it's really through talking. Uhm, and then also, you're—the data that you get out of surveys. And, uhm, you know, that's very important as well. Ja.	
	I: Okay, great. And next question, moving on to how do you feel the fourth industrial revolution is connected with the politics or BEE of the company?	Comprehensibility
	P: The triple B, the triple BEE	
	I:Yes. if I can maybe just give a bit of background because it is a difficult question. So, Fourth Industrial Revolution makes com—communicating better. So, it can influence the culture of the company. So there indirectly influence of politics and BEE may be reached more disadvantaged individuals.	
	P: So, how am—I can give you example, like real example. So, number one was with triple BEE, the key thing is our reporting is a lot easier, because we now do not need to do departmental visits with uhm, or we don't need to do our verification in person anymore. Everything is on systems, everything. So, our reporting is a lot easier and much quicker. Number one, so from a reporting perspective, number two, how it has also helped as well as that we can have a lot more connections with, with uhm, previously disadvantaged people within the the [sic] demographics, I'm assuming you understand the triple BEE quite well.	<ul style="list-style-type: none"> <li>• BEE reporting is a lot easier &amp; quicker - automation</li> <li>• More connections with disadvantaged people – get more information about their experiences</li> </ul>
	I: Yes, yes to some extent.	
	P: Well, so so [sic] in essence, uhm like we talked about African Coloured, Indian and White. So, the triple BEE is really and the transformation is really looking at the African, Coloured, Indian only. And the key thing there that we found to be able to do a lot more	<ul style="list-style-type: none"> <li>• Able to do distant learning</li> <li>• Career fair</li> <li>• Leadership sessions</li> </ul>

	<p>conversations to actually understand how do we recruit, retain, train, create experiences for different cultures. So, that's been a key thing uhm, what happened with what I think what I think [sic] technology has been <i>incredible</i>. Uhm, in a South African context because uhm... through... I mean, our people we've been able to we've been able to [sic] connect our employees uhm, through the stage, everyone's got an [sic] connection to MTN, everyone's got a laptop, everyone's got it there. And if we weren't in this day and age, we wouldn't have been able to do that, wouldn't have been able to talk to anybody, we wouldn't have set our reach is so much easier, you can put somebody in your house in a second, and have a meeting with them or chat to them or see how they're doing. Uhm, with the communities that we work with, as well. I mean, we've been able to do career fair, we've been able to do uhm, distant learning, we've been able to do uhm, after just leadership sessions. Uhm, and that's been really fantastic and wouldn't have been possible without this day and age. So, I think uhm there are a few limitations. Uhm but [inaudible 11:17] that's my next 251call. So, I'm telling him, I'm on my way. Uhm ja, so the thing is, the thing is, uhm, I I [sic] think it's very positive. I think there's a lot of work that can still be done with regards to connectivity in communities. Uhm, but that is all happening and—it's happening because of this this [sic] age that we're in now. And the revolution ja, so I think it can only be positive.</p>	
Meaningfulness		<ul style="list-style-type: none"> <li>• Positive connection to BEE</li> </ul>
I: Okay, great. Agh shamed Do you need to go now?		
P: I need to go.		
I: Okay.		
P: But how many questions are left?		
I: Six, so we can do that on a later stage if that would be better?		

	P: Ja, or what I'll do. I'll ping you later. And I'll say I've got another fifteen minutes and if you're around,	
	I: Yes.	
	P: We just do it otherwise you set something up. Let's see what we can get done today.	
	I: Okay.	
	P: And then I will set a time for next week if we need to meet again All right.	
	I: Okay, now that's, I'm here all day.	
	P: I'm so sorry that I'm not know. I'm everywhere but	
	I: Okay	
	P: Good bye	
	P: Okay, let's go through his last questions quickly.	
	I: Okay, uhm, next question, how do you feel the fourth industrial revolution impacted your life?	Comprehensibility
	P: Mine, uhm... it definitely pushed me out of my comfort zone, because I uhm... love human interaction, I love being very practical and thinking about solutions uhm, in a more... physical way, if I can put it that way, and ja, just completely stretches me, all in the sense of, sometimes something's not tangible. Uhm, but it actually worked, or there are other ways of doing it, some tools to do something. Uhm, it's almost like the thinking of like..., ten fifteen years ago, I used to, uhm—we used to do pull up banners and print a lot of things and stuff. And like, now, you got to you got to [sic] accept that you've done something, and it's just gone as a tweet, or an Instagram or a, like an email. It's just very different. So, it's pushed me out of my comfort zone to go. Not everything has to always be physical, hard work uhm, you can use technology to your advantage. And that's why going back to one of the other questions, I do think it is going to—but the more I get used to it, I start finding better	<ul style="list-style-type: none"> <li>● Pushed out of comfort zone</li> <li>● Use technology to advantage</li> <li>● See benefits</li> </ul>

	balance in my life. Uhm so ja, that is I've been pushed out of my comfort zone. But yes, I'm seeing the benefits of it already in my life. Uhm ja.	
	I: So actually, providing more variety in your life.	
	P: Ja. Ja, definitely.	
	I: Okay.	
	P: And also, my kids are growing up in it.	
	I: Yes.	
	P: So, I need to get with the program. Otherwise, you know, I... I struggle to communicate, I struggle to relate to them. So, so ja.	
	I: Okay, great. Uhm, next question, how does the fourth industrial revolution impact your health?	Comprehensibility
	P: My health?	
	I: Yes.	
	P: Uhm... so I can tell you a story. So, like, now, with apps with apps [sic] and stuff, you know, you're able to book your, like your gym classes and all of that. So then that would used [sic] to irritate me in the past, did you get to spinning class and if you aren't the first twenty people to get there, then you don't get a bike, and then you can't spin and then you have to go and do something else in the gym. Now it is quite nice, because you book your class, and then you know, you're in that class, you can plan your day around that class. So, I think it's helped me... uhm dedicate better to do physical activity. Uhm, so it help [sic] me structure my day between work and stuff. Also, you know, uhm you do with physical classes being recorded, you can do it anytime when it suit [sic] you. So that's definitely changed. Uhm, online ordering, so uhm, it's often an online order, you make healthier options, and you don't always choose junk food. Whereas if you walk through the shop, you just sometimes just put chips in your basket that you'd have never put in your basket. So that's how it's impacted my my [sic] wellbeing positively.	<ul style="list-style-type: none"> <li>• Apps made exercise more accessible – healthier options</li> <li>• Helped to plan day – better work-life balance</li> <li>• Watches track health and exercise</li> <li>• Helped with prioritising and tools to look at health</li> </ul>

	Meaningfulness	<ul style="list-style-type: none"> <li>Positively impacted wellbeing</li> </ul>
	I: Okay, that's good. So uhm I'm not having that temptation of putting unhealthy food into your basket.	
	<p>P: And, and and [sic] also don't use it often. But uhm, I mean, you've got all of these good like watches, and they can track your health and keep you and uhm, I've been through a lot of the online platforms, discovery and all of that you uhm, you actually tracking it and you're far more aware of your health. Uhm, so I find that I reboot myself more often. Uhm, I don't get into these dips uhm as much. Which is very possible when you start working and you know, other things becoming important. That when I when I [sic] say important it is inverted commas, it's not really important.</p>	
	I: Okay, so just so more prioritising. [Laugh]	
	P: [Laugh] More important.	
	I: [Laugh] Ja. Would you say helping you to prioritize more and better?	
	<p>P: Ja, prioritize. Plan, commits, uhm, hold myself accountable? It's not like it's it's [sic] not like in school that you've got like the team, and everybody in when you when you[sic]—4IR helped me with lots of tools to look after myself better. Ja.</p>	
	I: Okay. And then, next question. So, what are your personal resources you use to cope with the FIR? Just can give an example being more optimistic or yes something in that line, or you think of something else uhm that you use to cope with the changes brought by the fourth industrial revolution,	Manageability
	P: Uhm, planning. So uhm...definitely the more you plan, the more you can manage the change, prompt uhm, you yourr [sic] awareness to what needs to change. Uhm, that's very important. Uhm I think ja, that's one of my key things is planning because, especially when you don't know	<ul style="list-style-type: none"> <li>Planning</li> </ul>

	about something, it's planning the time to research so that you can effectively use it.	
	I: Ah okay, yes definitely.	
	P: That's what I'm talking about planning, probably being the key thing.	
	I: Okay	
	P: Does that answer the question?	
	I: Yes, it does. Definitely [laugh]. Uhm, next question. Uhm, how does the fourth industrial revolution connect with your religion?	Comprehensibility
	P: Uhm... so... like, in COVID, we were able to do church over zoom. Uhm, definitely from that. Uhm, I mean, there's a lot of great apps to push messages on a verse of the day or, uhm, what I [sic] what myself—I also love is, I love the fact that that [sic] church sermons or praise and worship and things like that are on YouTube or on other streaming channels. Uhm, and that is definitely—so in in[sic] my mind, is the Bible's accessible. So much more access to other resources to help strengthen your faith. Uhm so that's definitely what I would say link.	<ul style="list-style-type: none"> <li>• More connection to resources</li> <li>• More access to information – strengthens</li> </ul>
	I: Okay, with it makes it a bit stronger, and gives you more access to the information about religion. Okay, uhm... how	
	P: Information and participation. Information but also participation, even though I'm in my own in my study, the fact that I can listen to a sermon or listen to a praise and worship as I'm actually engaging... uhm, more often... ja, so that's how that's how[sic] it impacted me very positively.	
	Meaningfulness	<ul style="list-style-type: none"> <li>• Positively impacted religion</li> </ul>
	I: Okay, so overall positive?	
	P: Ja.	
	I: Okay, and then the next question, how does the fourth industrial revolution impact on your shamefulness? So just to give a bit of	Comprehensibility

	background, usually the older generation struggle a bit more with the technology and the changes uhm in our technology usually takes where whereas[sic] the younger generations are more tech savvy.	
	P: Ja.	
	P: That's I can I can [sic] give you a good example. So... uhm I work obviously with a lot of first year second, year third year auditors who come in and they get so irritated with me when I'm busy showing them something and then I'm using my mouse... and they they [sic] got all the shortcuts on the computer and they know everything for the Excel and they building box in the background and all and you know what? I just I just [sic] look at them like okay, teach me, show me how, uhm, and I'm very much I go... I need to learn if I don't know. So, it doesn't intimidate me, I don't fear it. Uhm anything I feel like I'm okay because I don't feel I'm completely attacked technology [inaudible 8:53] And I must say.... I I [sic] find it okay, because the generation the younger people coming through is also happy to teach me	<ul style="list-style-type: none"> <li>• No shame</li> <li>• Don't mind asking for help</li> <li>• Willing to learn</li> </ul>
	I: Yes.	
	P: Ja, uhm, and I'm willing to learn and I'm curious enough to ask questions.	
	I: Okay, great. Last question...uhm, what will make your job more meaningful in the future.	Meaningfulness
	P: Uhm... ja. How deep do you want to go with this question? No, I'm joking. [laugh]	
	I: [Laugh] You can say anything you'd like.	
	P: I'm joking is because yesterday we did a whole session on purpose	
	I: Oh	
	P: And, and [sic] how you how your [sic] purpose is often changing because of different stages of your life and all of that. So uhm, if she asked you a question today, so the whole purpose the, you know, it's	<ul style="list-style-type: none"> <li>• Be outdoors more</li> <li>• a battery pack on a computer that can last</li> </ul>

	<p>okay, so that's and so what am I—my job more meaningful uhm, I would love I would love [sic] to be outdoors more. Uhm, I know it sounds weird and I don't know how—but I'd love to have a battery pack on a computer that can last for a long time that I can go do my work and just be the outdoors the whole time doing it. Uhm... ja. Uhm, and I must say I would, I would [sic] love to get back to working with people and not just over a computer.</p>	<p>for a long time that I can go do my work and just be the outdoors</p> <ul style="list-style-type: none"> <li>• working with people face to face</li> </ul>
	<p>I: Okay</p>	
	<p>P: and, and I don't know how close how I mean, no one knows that next year is going to look like so.</p>	
	<p>I: Yes.</p>	
	<p>P: So ja.</p>	
	<p>I: That's it.</p>	
	<p>P: Did I help you?</p>	
	<p>I: Yes, I've got a lot of information it will really be great to help with my uhm writing out my dissertation.</p>	
	<p>P: And I'll print out I'll print[sic] out that other questionnaire that weekend and just boxes and send it back.</p>	
	<p>I: Perfect. Okay.</p>	
	<p>P: And then if it any questions or whatever, you just drop me a mail or you WhatsApp, me or we quickly phone and you can ask, and I will do so.</p>	
	<p>I: thank you very much for your participation.</p>	

**Transcribed interview of Participant 10**

**Participant 10**



Code	Transcription	Coding
1.	P: Okay, cool.	
2.	I: Uhm, so I'm going to convert to speaking English, so how has your day been?	
3.	P: Crazy as per usual? Just the way I like it. [Laugh]	
4.	I: That's a good thing. Uhm, so before we start, I want to, uhm, confirm that you do give consent to being recorded.	
5.	P: Yes, I do.	
6.	I: And that you do understand what is said in the informed consent form?	
7.	P: Yes, I do.	
8.	I: Okay, great. Do you have any inquiries or questions or anything before we start?	
9.	P: No, I think when we go through the questions, you're gonna [sic] get some... not so intelligent answers, and some that might be useful. So hopefully, I can help. [Laugh]	
10.	I: I'm sure you can. Okay, so the first question, why do you think the fourth industrial revolution is?	Comprehensibility
11.	P: It's, first of all, it's long overdue. Nevermind, what I think about it, uhm I think it's, I mean, just the fact that we only sitting on the fourth [laugh] industrial revolution, I think humans have moved so fast uhm, in the last couple of years with technology that there had to be some kind of jump to the next level. Uhm, and that next level is obviously where we are now, from all the nanotechnologies and and [sic] right through to the cloud. Uhm, and all the technology that enables the	<ul style="list-style-type: none"> <li>● Nanotechnology</li> <li>● Cloud</li> <li>● Artificial intelligence</li> <li>● Machine learning</li> <li>● Internet of things</li> <li>● Technology that improves lives</li> </ul>

	betterment of human life. Uhm, and it's it's... [sic] long overdue label, I think that's attached to segments that's already been in place over the years.	<ul style="list-style-type: none"> <li>• Already around for couple years – only now being labelled</li> </ul>
	Meaningfulness	<ul style="list-style-type: none"> <li>• Long overdue</li> <li>•</li> </ul>
12.	I: Okay.	
13.	P: Does it make any sense?	
14.	I: Yes, so you would say that uhm, it should have actually been implemented earlier?	
15.	P: Yes. Because I mean, there's always been elements of this floating around in the last couple of years, but it's never... gone under one... <i>label</i> , I would say. You had cloud forming on the one side, you had all these nanotechnologies, and you had all these, uhm you know, artificial intelligence... uhm, mechanisms, being applied in different industries in different ways. Uhm, mm—might have been rudimentary, but it existed in some way or form. It's now just kind of excelled due to the actual the actual [sic] nature of it. And now we've got a label for it.	
16.	I: Oaky. How do you perceive the fourth industrial revolution?	Meaningfulness
17.	P: Well, it's multifaceted. Uhm I think, if I look at, uhm in my world, artificial intelligence, machine learning uhm, in my career now getting involved with cloud, we've got a strong driver to move to cloud, Amazon. So, we, uhm we're a strong supporter of making use of uhm, like Amazon AWS services. Uhm, and a [sic] I mean, that's where the world is moving moving [sic] towards. I mean, I come from a background of, uhm you know, might be jumping the gun here, but uhm, we are managed on site infrastructure. Whereas now you just literally fire something up in the cloud. It's fantastic. So how do I	<ul style="list-style-type: none"> <li>• Positive</li> <li>• Supporter of the use of cloud and Amazon services.</li> <li>• Perceived as brilliant new developments</li> </ul>

	perceive it? I think it's positive. Uhm, especially in Internet of Things, and the combination of machine learning and cloud is just absolutely brilliant. Because it also your question, please tell me if I don't answer your question. I tend to babble.	
	Comprehensibility	<ul style="list-style-type: none"> <li>• Multifaceted</li> <li>• Fantastic technological developments</li> <li>•</li> </ul>
18.	I: Oh, no. babble. Oh, will—I will ask to follow up questions, if I just need a bit information. But-	
19.	P: Absolutely	
20.	I: That did answer my question. Thank you very much.	
21.	P: Cool.	
	Do you believe the 4IR is positive or negative?	Meaningfulness <ul style="list-style-type: none"> <li>• Positive</li> </ul>
22.	I: Okay. Uhm, so would you say you're optimistic about the fourth industrial revolution?	Meaningfulness
23.	P: Absolutely. Absolutely.	<ul style="list-style-type: none"> <li>• Optimistic</li> </ul>
24.	I: Okay, great. Uhm tell me about your experience of the fourth industrial revolution.	Comprehensibility
25.	P: Well, it for me, it's, there's two aspects, my career... uhm, and and [sic] in my personal life, you know, what I've seen. So uhm... let me backtrack personal life. Uhm you know, in the old days, when you had problems reading, and and [sic] you had, uhm, you know, kind of, let's say, for example, dyslexia, in my case, I've got a son that that's high functioning autistic, and he's unable to read, he's highly intelligent.	<ul style="list-style-type: none"> <li>• Personal: technologies that help with problems of reading – Alexa, he can access information – improving life</li> <li>• Can have a normal life</li> <li>• Career:</li> <li>• Great experience</li> </ul>

	<p>Uhm... and he memorizes a lot of things that he can't read. But so, by having a couple of Alexa's in my house, that learns his voice, and the questions and he can literally access any information that he needs to without needing [sic] to read, uhm so all this, the implications of that. For me personally is where you would be stuck previously, in the olden days with somebody that has certain learning challenges. Uhm now, it's it's [sic] you can go on with your life, normally, and he can have a normal life because of that. From a career perspective, uhm my experience has been great. I mean, I've done my first Amazon uhm, cloud practitioner course, and I and I [sic] realised the power in that is far reaching, uhm, it could have—to give you an idea around that is, I've got a couple of senior guys that would think now that it makes uhm, the developers done because they just have to do a couple of clicks and building whole infrastructure, or a whole the whole [sic] architecture landscape and fire it up in seconds. Uhm, whereas in— I see the positive because it enables more people and enables companies that don't necessarily have the capital uhm, to actually start a business uhm, and and [sic] grow it with the infrastructure uhm... without having those huge capital expenses. So, I think it enables a...what's the right word? Uhm, people that do not necessarily have the major financial backing to start businesses really easy if it's in the tech space, or any any [sic] space for that matter.</p>	<ul style="list-style-type: none"> <li>• Technology provides power</li> <li>• Decreases capital expenses – more cost effective</li> <li>• AI is more effective than people juries</li> </ul>
	<p>Meaningfulness</p>	<ul style="list-style-type: none"> <li>• Positive – enables more people &amp; businesses</li> </ul>
<p>26.</p>	<p>I: Okay, It's move on cost effective.</p>	
<p>27.</p>	<p>P: Oh, absolutely. And it'll make our lives better... improve our lives.</p>	
<p>28.</p>	<p>I: I definitely agree.</p>	

29.	<p>P: I mean, just, if you think of machine learning and artificial intelligence, I read this article about uhm, where they need to find—that might be of interest for you. It was a it was a [sic] book that I read, actually. So, it had to do with judgments that's been made in legal courts about people uhm, being either guilty or not. Uhm, the panels that they use in the States—it's a book that I read I would have it on audio books—were they found that a human uhm, preconditions, ideas or per—perceived con—ideas about people influence the outcomes negatively, even if it was a panel of, uhm independent, what do you call them in the States?</p>	
30.	<p>I: Jury.</p>	
31.	<p>P: Jury, yes. What they found was, if you throw that through an artificial intelligence uhm uhm [sic], algorithm, that the outcome that the the [sic] machine learning was was [sic] actually more effective than somebody sitting behind a judge—ah you know a judge sitting down... ah—overseeing a hearing, for example. So... uhm, I [sic] I'll actually find that the book and forward it to you.</p>	
32.	<p>I: Thank you, that'd be very interesting. So uhm, do you say that artificial intelligence will be a better jury then people?</p>	
33.	<p>P: Yes, definitely. What the book, the book uhm, actually proves.</p>	
34.	<p>I: Okay, that's very interesting.</p>	
35.	<p>P: Yeah, yeah. It was one of the aspects in the notes. Also, I'll find it and then I'll send it to you.</p>	
36.	<p>I: Okay. Thank you very much. I'd greatly appreciate it. Uhm so how do you feel about the fourth industrial revolution in <i>your</i> workplace?</p>	Comprehensibility

37.	<p>P: Well, I think if, in my workplace, uhm it's revolutionary. Uhm, it's going to change the way uhm, we execute... uhm... solutions for clients, it's a lot faster to get infrastructures up and running and provide scalable solutions for people. I mean, I'm an IT software development. So it's it's [sic]—if you look at Cloud, it has a very specific uhm, uhm...is the right word, <i>benefit</i> for our industry, a necessary next step that you need to be part of, you can't actually continue being in this business without uhm, utilizing that. You know, cloud, for example.</p>	<ul style="list-style-type: none"> <li>• Change the of executing solutions for clients</li> <li>• Benefit for IT industry</li> <li>• Have to adapt to new technologies</li> </ul>
	<p>Meaningfulness</p>	<ul style="list-style-type: none"> <li>• Revolutionary in the workplace</li> </ul>
38.	<p>I: Okay, so you say in your industry, you have to adapt to the new technologies, otherwise...</p>	
39.	<p>P: Absolutely</p>	
40.	<p>I: you become redundant.</p>	
41.	<p>P: Yes, that's exactly what I'm saying.</p>	
42.	<p>I: Okay, great. And then how do you see the fourth industrial revolution will shape the future of work?</p>	<p>Comprehensibility</p>
43.	<p>P: Well, I think it's like any a a [sic] Industrial Revolution, if you look about—look at, it it [sic] creates new job opportunities for people that... uhm, it creates new work. We don't even know what kind of jobs are are [sic] going to be out there, but if you think of development, like uhm, development, as it is today, it will change. The developer might not be somebody that actually writes code in the future, might be somebody that spins up solutions on the cloud, and you've got a [sic] artificial intelligence bot or something doing something else in the background. Uhm, so our industry will be fundamentally changed uhm,</p>	<ul style="list-style-type: none"> <li>• Creates jobs and new work</li> <li>• Fundamental change in IT industry</li> <li>• Have ideas but do not know for sure</li> </ul>

	and new jobs will come out of it. It's the same with every Industrial Revolution, that's that's [sic] happened in the past. So how that's going to look, nobody knows. People have ideas about it, but don't think we have the full picture.	
44.	I: Okay, so we will actually just have to see how it looks like. [Laugh]	
45.	P: Yeah, it's like an industrial revolution, you can be stuck as a developer, for example, and think, oh no, what's gonna [sic] happen to my job. But on the other hand, it's going to create new opportunities for you because of that in-depth knowledge that you've had, that you might give over to some kind of computer that's going to just develop the code for you.	
46.	I: Thank you, what impact do you feel the fourth industrial revolution will have on your job?	Comprehensibility
47.	P: Well, being being [sic] in a leadership and management position, that's your job is always questioned if you're not technically strong, so... uhm, for me, it's the same question even before the fourth industrial revolution, need to be relevant, understand the technologies out there, and be able to uhm, lead teams that make use of those technology. So, for me, this is just a natural next fit, I need to understand how cloud work—cloud works. I need to understand artificial intelligence works with machine learning Internet of Things. It's it's [sic] a necessary next step. It's it's [sic] a normal progression for me. So uhm yeah.	<ul style="list-style-type: none"> <li>• Understand technologies</li> <li>• Lead teams that make use of technology – have the skills and necessary knowledge to lead</li> <li>• Need to understand how cloud works, artificial intelligence, machine learning and internet of things</li> <li>• Normal progression</li> </ul>
	Meaningfulness	<ul style="list-style-type: none"> <li>• Positive impact on job</li> </ul>
48.	I: Okay.	
49.	P: Positive.	

50.	I: Okay, positive. And that you will actually need that knowledge and skills to lead uhm, your subordinates effectively during the fourth industrial revolution.	
51.	P: That's correct. Yes.	
52.	I: Okay, great. Uhm, how will your job description change this day relevant in the fourth industrial revolution?	Comprehensibility
53.	P: Well, I think uhm... so for me... a a [sic]—and that's luckily my competitive advantage, if I many say that? I'm all about uhm, growing people, leading people, I don't like to be called a manager, I like to lead people, so I lead them. And I think the human aspect will never change, uhm we will never—you'll never be able to [laugh], what's the right word, duplicate the soul. And connecting with people, we, uhm—that will never change. So, the human, there will be a stronger focus on human uhm, human growth. And I think that's where I [sic] where my focus will remain.	<ul style="list-style-type: none"> <li>• Human aspect of job description will never change - leading people</li> <li>• Stronger focus on human growth</li> <li>• Growing peoples' careers – keeping people relevant</li> </ul>
54.	I: Okay so you say it, rather, your job description will focus on uhm, the interaction between the employees and growing these employees?	
55.	P: That's—it it's [sic] always about growing people's careers in the in [sic], for example, industrial revolution, in keeping them relevant, and stimulated and helping them grow their careers. And and [sic] obviously, personal growth. That's always been a focus of mine. So, I don't I don't [sic] see that changing. I see a stronger focus towards that.	
56.	I: Okay, great. Uhm so you say more training and development will be needed for the employees?	



57.	P: Absolutely. Luckily, with my company, that's part and parcel of of [sic] how we do things. So, it's it's [sic] training as part of your uhm [laugh]— you always have to train...	
58.	I: Fantastic.	
59.	P: being encourage [sic] and pay for all relevant training, everything.	
60.	I: Okay, that's fantastic to hear. Uhm, how do you control the changes brought by the fourth industrial revolution?	Manageability
61.	P: I don't think you can control that, you can just lead people in the direction that you or that you feel will help them uhm, be once again, relevant, but I don't think you can control it. Uhm... you can just embrace it, and and [sic] in in [sic] my case, lead by example, you know, do the latest course on cloud computing, and then encourage your your [sic] members, so lead by example, but I don't think you can control it. I don't know that answers your question.	<ul style="list-style-type: none"> <li>• Can't control – just embrace it</li> <li>• Do the latest courses on cloud computing</li> <li>• Constantly upskilling &amp; learning</li> </ul>
62.	I: No. Yes, definitely. So, you'd say actually just upskilling yourself and...	
63.	P: Constantly.	
64.	I: keep on learning?	
65.	P: Yes, that can never change.	
66.	I: Okay...Sorry, I'm just writing it down.	
67.	P: Oh, please.	
68.	I: Just taking notes... So, if I'm quiet is just writing a quickie down. Uhm, so what skills do you apply to stay relevant or have an active part in the fourth industrial revolution?	Manageability

69.	<p>P: Well, specifically uhm... my... I think, skills pew. I think it plays in my case, uhm...I can simply say, I mean, there's there's [sic] a technical answer, and that and that [sic] is remai—understanding the cloud technologies out there in computing, and what kind of solutions exist. Uhm, but when you talk about skills uhm is li—literally homing in on your leadership and development. That's really it. I don't know how to say that. I think that's really the key, uhm... key skill is people development. Uhm, that's really skill.</p>	<ul style="list-style-type: none"> <li>• Technical skills</li> <li>• Understanding cloud technologies and what solutions exists</li> <li>• Leadership skills and development</li> </ul>
70.	<p>I: Oh, yes. I think that's a skill leadership is and developing those employees. That's a very good.</p>	
71.	<p>P: That's right.</p>	
72.	<p>I: And how do you feel the fourth industrial revolution is connected with the politics or BEE of the company?</p>	Comprehensibility
73.	<p>P: Uhm...so I think it's mutually exclusive from each other. Uhm I [sic], I see it moving differently, BEE in our space, uhm we very strong on our uh, upliftment programs, we've got grad programs, two, I think we've got two grad programs—actually three, where we we [sic] work with certain universities. Uhm, it's actually a professor at UJ that we usually work with, uhm, get his name, uhm Jewish professor, uhm. Anyways, and then we've got a 'we think code - born to code program' that we that we [sic] uhm... we basically invest in, and we've got also grad programs. So, from a BEE it is almost ir—ire—irrelevant in our space, because of our training and development programs, you just naturally have a large volume of people coming in, and those with the right skills go through the program. So... uhm politics, obviously, politics always gets involved, and it messes things up. But then again, politics is the collection of humans making decisions and putting a label on it. So...</p>	<ul style="list-style-type: none"> <li>• Mutually exclusive</li> <li>• Irrelevant in organisation</li> <li>• Computers helping graduates to learn coding</li> <li>• Young people get work life experience</li> </ul>

	<p>uhm... very good question. But in our space, I think doesn't really make a difference... I think... we grow, we've got a very effective development programs in place, which almost makes BEE irrelevant, because it just naturally happens.</p>	
74.	<p>I: Okay, so how does the technology play a role in these programs and invested in your company?</p>	
75.	<p>P: Huge, huge. I mean, the kind of programs that we support, for example, is uhm, pure pure [sic] learning or pure living. If you go uhm to born to code, on our website, you'll see a little bit more about it. We uhm—kids, basically, if you've got a matric and you can pass the test, and then the top 100 for this year, you're literally going to two year program that's paid for, and in that program, you're literally going to sit with peers, not in front of a teacher, but in front of a computer and learn. And this program then uhm, allows those kids or young young [sic] people to come into the workplace for three months at a time, during their period. And then they get that real-life work experience as well. So uhm, I think it's just the technology is part and parcel of that whole supportive process.</p>	
76.	<p>I: Oh, wow. That's amazing.</p>	
77.	<p>P: I work for great company. [Laugh]</p>	
78.	<p>I: [Laugh] It sounds really great. So, you've mentioned how the fourth industrial revolution improved your son's life.</p>	
79.	<p>P: Yes.</p>	
80.	<p>I: Are there any other technologies of the fourth industrial revolution that impacted your life?</p>	Comprehensibility

81.	<p>P: Oh, because I'm a techie at hart [laugh]. And at home, we kind ... I play a lot with smart home setup. So, we connect like lights and all sorts of things to to to [sic], ah Alexa, for example, I can switch on lights, I can play my favourite music by just talking uhm, I can switch things on and off. So personal wise, uhm, it's made a huge differen—difference. I mean, the kid doesn't want—if you your kid doesn't have to ask you what what [sic] time, you you you [sic] know, what's the time or if they can't read? Or, you know? Uhm where—how far is the moon from South Africa or from Africa, or the earth? Uhm you know, at a certain point in time, you know, you've got all this knowledge at hand. You don't have to think about it. You know, if my daughter does sum uhm, math calculation, and she doesn't have to ask me for an answer. She says okay, Alexa, just give me the answer, what is five times five. Uhm, so I think it's made a <i>huge</i> impact in my personal and and[sic] professional life.</p>	<ul style="list-style-type: none"> <li>• Smart home set-up</li> <li>• Connect everything at home</li> <li>• All the knowledge at hand</li> <li>• Helps with the education of children</li> </ul>
	Meaningfulness	<ul style="list-style-type: none"> <li>• Made a huge positive difference</li> </ul>
82.	<p>I: Okay, well, that sounds amazing with actually helping with the education of your children.</p>	
83.	<p>P: Oh, absolutely, absolutely.</p>	
84.	<p>I: Okay.</p>	
85.	<p>P: That's why we've got Alexa in every single room. [Laugh]</p>	
86.	<p>I: Oh, wow, that's very amazing [Laugh]. Uhm. how does the fourth industrial revolution impact your health?</p>	Comprehensibility
87.	<p>P: Uhm... I don't know if I've I've I've [sic] experienced that yet. I think going forward, obviously, if you look at the technology in in [sic] the medical fraternity, if you want to call that—how that's going to decision</p>	<ul style="list-style-type: none"> <li>• Developments in medical field will be a benefit</li> </ul>

	making—all those nanotechnologies in in [sic]... operation stuff, I think that will have an impact. But I think, on my health, uhm... just mental health [laugh] a lot more positive, because you don't you don't [sic] have to have all the answers at hand when your kids are asking it from educational point of view. So just being happier, [Laugh], generally think that impacts your health, so. [laugh]	<ul style="list-style-type: none"> <li>• Able to track children's whereabouts with smartwatches -keeping daughter safe</li> </ul>
	Meaningfulness	<ul style="list-style-type: none"> <li>• Mental health – more positive – don't have to have all the answers at hand</li> </ul>
88.	I: I know that sounds very good. Uhm, do you use a Fitbit? Or those smartwatches?	
89.	P: No, no I had to get one for our daughter with a GPS tracker, because we live in an estate, and when she goes to friend, I want to see which areas she goes into, and that she doesn't get close to any gates of the estate. So, I know exactly where she is all the time. So, I don't but—I have a very active daughter that likes to ride bike for kilometres. So, she needs to have that.	
90.	I: Okay, said actually helped you, uhm, just keeping your daughter safe?	
91.	P: Absolutely. She can call me from it, she can press the SOS button. And we know exactly where she is.	
92.	I: That sounds really good. Uhm, the fif—the fifteenth question we [sic] on. Uhm, what are your personal resources to cope with the fourth industrial revolution? Just to give a bit of a background of	Manageability
93.	P: Yes please	
94.	I: This question is, uhm, your personal resources what you have available? So, it can be your eagerness to learn which I have picked up.	

95.	P: Yes.	
96.	I: through your other questions. So, I just put that eagerness to learn and...	
97.	P: Oh absolutely, yes	
98.	I: and then also utilizing uhm the internet and actually... uhm, making sure you have that contact with the technology and informing and learning yourself on this. So, it can be resources from, uhm, your learning and ability to self—learn yourself, or it can be financial resources that you use to, uhm, maybe take part in programs and stuff like that.	
99.	P: Ja, uhm, I don't know how to answer that. I think learning drives my uhm, need to to [sic] constantly, uhm—so before COVID I spent sixty hours a week in traffic. So, I would have an audible subscription and listen to all the latest books on technology, leadership, people development. So uhm I think money helps obviously, to enable these things, I'd tap into that to make sure that my learning continues. Our company is a big supporter of that. So, I never have to do a formal course and pay for it, uhm that gets covered. So, I just need to choose the course and do it. Uhm, so I tap into that... uhm, actually I don't know how to answer more. So, very interesting question.	<ul style="list-style-type: none"> <li>• Learning</li> <li>• Use technology to update knowledge on leadership and people development</li> <li>• Financial resources</li> </ul>
100.	I: Yes, yes. Uhm...Don't... I have all that I need. [Laugh] Thank you.	
101.	P: Okay cool.	
102.	I: if you think you can just say; oh, I remember that. [Laugh]	
103.	P: Yes. Cool.	

104.	I: Okay, so how does the fourth industrial revolution connect with your religion?	Comprehensibility
105.	P: Oh...I mean... my belief system supports human. I mean, I'm a Christian. Uhm, and I believe that if progress is encouraged by it. I mean, it's once again, not mutually exclusive. We are build [sic] to to [sic] improve how we treat people, how we uhm, both medically and psychologically uhm, develop people. I mean that. So uhm uhm [sic]... I think in my case, uhm it is it's [sic] the way it has to be, we have to improve on how we do things. And we, I mean, that's how our brains were made, that's how God intended us to be [sic] to constantly evolve and improve uhm, on how we do things better for society. So, uhm it connects <i>very</i> deeply to that... so my belief, basically support human advancement, and this is part of it. It's not contrary contrary [sic] or contradictory or in conflict with each other. It's supportive.	<ul style="list-style-type: none"> <li>• Belief encourage progress – built to improve how we treat people</li> <li>• Have to improve how we do things</li> <li>• Supports human advancement</li> <li>• Supportive not contradictory</li> <li>• Inform more people about religion</li> <li>• If you don't embrace it, going against religion</li> <li>• Have the Bible on your phone as an app</li> </ul>
106.	I: Would you say it's actually your religion uhm, encourages this development?	
107.	P: Encourages.	
108.	I: After the technology?	
109.	P: <i>Absolutely</i> and, it can...	
110.	I: Yes, it can—actually information about the religion can reach more people through the technology.	
111.	P: <i>Exactly!</i> It's not it's not [sic] fighting with it [sic] it's actually supporting it. [Laugh]	
112.	I: Yes, I definitely agree. It can actually be used to, uhm, inform everyone about your religion.	

113.	P: Yes. Yes, exactly. More people are reached, more everything. I mean, it's just it's a—that's a very—I think it's a very contentious point, because I think you get a lot—lots of people that feel this is a this is major conflict. And and [sic] I don't believe there is—I think it's all in your head, if you feel that, that [sic] there is a conflict between that development and we are—we have to progress as humans and that's that's [sic] has to be in our DNA because that's what's been given to us, it's a God given gift. If you don't embrace it, you kind of going against your religion, or your belief system.	
114.	I: Okay, so would you say that you actually just have to look at how people use it, then it will be actually very beneficial instead of a conflict uhm, towards your religion?	
115.	P: Yes, so so [sic] like anything in life, you can—you get people that have good intentions, and bad intentions or bad... uhm... Anything can be applied in a good and in a bad way. I mean, that's just human to the history. It was there from [Laugh] Adam and Eve. But if you believe that, but right, now, uhm you can apply something for the greater good, or you can apply it for the great for great [sic] destruction, I believe you can get more good out of this advance, and than you can get out of the negative stuff. So	
116.	I: So, it's having more positive mindset?	
117.	P: Ja, ja Absolutely.	
118.	I: In what way do you mean that uhm, some people see it as a conflict with their religion?	
119.	P: Oh, you know, what's gonna [sic] happen to you souls? If there's a robot that can think everything through for you? And what is going to happen to you? I mean, are they going to be taking over the world and	



	<p>what—you know, they don't have souls. So, what—you know, it's just, they can never replace a human? And I don't say they will but I think there's people that are afraid of that, you know, you know [sic] and maybe use religion as an excuse.</p> <p>I don't know, I think I think [sic] that's often the case. That's more than that, you know? I don't know, what do you think, tell me.</p>	
120.	<p>I: I think maybe people who actually have more, how can I say faith in technology rather than uhm, God, but I think it's just how people utilize the technology. I don't think it's necessarily bad, it can actually help you with your religion, because you can have the Bible on your phone as an app.</p>	
121.	<p>P: Literally literally [sic] you know, absolutely. But once again, it's a mind. Once it goes—you always take it back to the person, is the positive or is the somebody that's got—it's about the humans [sic] interpretation about will the specific person—it's not about the technology and that's true for anything really.</p>	
122.	<p>I: Yes, actually, the whole view about technology, it depends on how you interpret it.</p>	
123.	<p>P: Exactly.</p>	
124.	<p>I: Yes. Because some people will say that the negative view of technology because jobs will be lost, but then on the other side, new jobs uhm, will be created.</p>	
125.	<p>P: Yes. No, I mean, exactly that. So, no, very positive.</p>	
126.	<p>I: Definitely Okay, great. Uhm, so this is a question, but I know it doesn't greatly affect you. But I have to ask it. How does the fourth industrial revolution impact on your shamefulness just to give us a bit of</p>	Comprehensibility

	background[laugh] and the older generation struggle a bit more with the new technology and working through apps and smartphones, and then the uhm younger generations are more tech savvy. But I see you are a [sic] IT person so I don't think it greatly affects you. But if you want me to elaborate more	
127.	P: No, not at all. Ag no ag. My comment here when I was looking through the questions not applicable? [Laugh] I don't know if that helps you at all?	<ul style="list-style-type: none"> <li>• Not applicable</li> </ul>
128.	I: No, it definitely does. Uhm, I get. well it's great information you're giving me.	
129.	P: Ag, I'm really glad.	
130.	I: And we are on the last question. What will make your job meaningful in the future, you can also say what is meaningful currently?	Meaningfulness
131.	P: What will make your job meaningful the future? Uhm, I think it's relevant for me throughout my career, and that a... it's just leading people really, whatever, if it's technology or whatever, it's literally being part of somebody's growth. Uhm, luckily, in my space, I have that opportunity and I've got the financial backing of my company to actually uhm, grow people in their careers without any limitations, you know. So, what will make your job meaningful is just to continue doing that. [Laugh]	<ul style="list-style-type: none"> <li>• Leading people – be a part of someone's growth</li> <li>• Grow people in their careers</li> <li>• Will not be able to do that without technology</li> </ul>
132.	I: And how would you say that technology plays a role in, uhm, you [sic] growing people and leading them?	
133.	P: Often, it's fundamentally. I'm in IT, so I mean, remove technology and and [sic] all cloud and fourth industrial revolution, I will not be able to do my job.	

134.	I: Yes	
135.	P: I'll be—it's literally and and [sic] there will be no meaning.	
136.	I: Yes.	
137.	P: So, this isn't like I said before, this is a natural progression. So, I don't see it as an end game. I think it's a continuous, uhm, flow and it's been through through [sic] all time actually.	
139.	I: Okay, so it's actually not your job to have the meaningfulness—a destination, but actually making it meaningful every day.	
140.	P: Ja, it's a journey. And the journey ends the day when you when [sic] you pass away and go to heaven. [Laugh].	
141.	I: [Laugh] Okay, uhm do you have any other questions you would like to ask?	
142.	P: No, uhm I think this is very insightful. I would love to see the end product if you would mind sharing that with me.	
143.	I: No, not at all. You have a right to that. I'll provide the findings for you and I will do that.	
144.	P: Awesome	
145.	I: I'll do it as quick as possible. So, I'm just going to stop the recording now.	

**Transcribed interview of Participant 11**

<b>Participant 11</b>		
<b>Code</b>	<b>Transcription</b>	<b>Coding</b>

1.	I: Okay, good afternoon _____. How ha-has your day been? [giggle]	
2.	P: It's been well thanks and yourself?	
3.	I: Good thanks. Uhm, are you comfortable and ready to start?	
4.	P: I am yes.	
5.	I: Okay, before we go into the interview, I just want to, uhm, confirm that you do give consent to being recorded, and you do, uhm, understand what is said in the, uhm, informed consent form?	
6.	P: Yes, that's fine. No problem.	
7.	I: Okay. Do you have any questions or inquiries before we start?	
8.	P: No, nothing at this stage.	
9.	I: Okay, great. Uh, so the first question, what do you think the fourth industrial revolution is?	Comprehensibility
10.	P: I had no idea Cemonn, so I had to go and read up on it, uhm, what it actually entails. So, uhm, a couple years ago, I spoke to a friend of mine that works at Vodacom, and asked him what is keeping them busy and he said that they're busy preparing for the... fourth industrial, uhm, revolution. So that's why I know a little bit about it. Uhm, so what I understand with it, it's basically the communication of, let's say, appliances, machines, and things like that to provide us with information and to communicate with each other. So, I'm not sure if that is all that it entail [sic] but that is what I understand about it-at this stage.	<ul style="list-style-type: none"> <li>● Had to read up on it</li> <li>● Communication</li> <li>● Machines</li> <li>● Artificial intelligence</li> <li>● Access to information</li> </ul>
11.	I: Okay, no, that's good. Yes, the fourth industrial revolution also entails artificial intelligence, cloud computing, uhm, 3D printing, so it's all that new technology that is emerging in...	

12.	P: Yes...	
13.	I: ...our-today's world. Okay, uhm, so then how do you perceive the fourth industrial revolution?	Meaningfulness
14.	P: Ja, I I [sic] perceive it as as [sic] positive, I think it's, uhm, obviously uhm, to make life easier in future. Uhm, what is scary is artificial intelligence and I think people don't know exactly what's going to happen with it, but will it be positive? Will it be better? Will it enable machines to take over the world one day, which is obviously a scary thought? Uhm, all-everything that you see the movies? But I think in general, I think it's quite a positive.	<ul style="list-style-type: none"> <li>• Positive</li> <li>• AI is scary</li> </ul>
	Comprehensibility	<ul style="list-style-type: none"> <li>• Make life easier</li> </ul>
15.	I: So, you would say there's positive and negative aspects to the fourth industrial revolution?	
16.	P: Ja, I think there's more positive than negative, but I think there is is [sic] negative, and I think, obviously, losing that personal touch in the work environment might be a problem. Uhm, but no in general, I think it is positive.	<ul style="list-style-type: none"> <li>• More positive than negative</li> <li>• Are negatives: lose personal touch in work environment</li> </ul>
	Comprehensibility	<ul style="list-style-type: none"> <li>• lose personal touch in work environment</li> </ul>
17.	I: Okay then, so are you optimistic about the fourth industrial revolution?	Meaningfulness
18.	P: Uh yes, I am optimistic about it. I think especially with people with disabilities, uhm, I think that can obviously help them, [inaudible noise, 3:14] medical conditions and things like that. I think ah, with 3D printers, and artificial intelligence, that might help people with disabilities a lot. So yes, I am optimistic about it.	<ul style="list-style-type: none"> <li>• Optimistic</li> <li>•</li> </ul>

	Comprehensibility	<ul style="list-style-type: none"> <li>• Help people with disabilities, and medical conditions</li> </ul>
19.	I: So, it will bring great improvements?	
20.	P: Yes, I think so. Definitely.	
21.	I: Okay, tell me about your experience, well what you have so far, of the fourth industrial revolution?	Comprehensibility
22.	P: So, thus far I had a very limited experience with it, uhm, but the the [sic] little bit that I did have, ah obviously, with increasing information that you can get. Uhm, ja, thus far has been been [sic] positive, but my experience with it has been very, very limited.	<ul style="list-style-type: none"> <li>• Limited experience</li> <li>• Increasing information</li> </ul>
	Meaningfulness	<ul style="list-style-type: none"> <li>• Positive</li> </ul>
23.	I: Okay, so, uhm, does—are there Fourth Industrial Revolution aspects in your workplace?	Comprehensibility
24.	P: Uhm, very, very limited. Uhm, I mean, the construction industry, and obviously, it's a very labour intensive uhm, field. So, artificial intelligence in the construction industry at this stage are very, very limited. Uhm, were we do see some, uhm, some [sic] artificial intelligence is where building maintenance and things like that. But people do use smart sensors that increased for for [sic] down time and prediction of when maintenance is required or replacement is required, but at this stage in the construction industry that's very, very limited. I think people are very scared at—of it at the moment to rely on it. Uhm, so this stage be very, very limited.	<ul style="list-style-type: none"> <li>• Limited in construction industry</li> <li>• Artificial intelligence in the building maintenance - smart sensors</li> <li>• In future will help a lot</li> </ul>
	Meaningfulness	<ul style="list-style-type: none"> <li>• Limited - no negative feelings</li> </ul>

25.	I: Okay, so are there any other Fourth Industrial Revolution technologies that you implement in your work? Or is that all with the sensorsers [sic]?	
26.	P: That's all that we implement, basically, we got nothing else at the moment, yes.	
27.	I: Okay, how do you feel about that in your workplace?	
28.	P: No, this stage, I can't really see it improves or or [sic] detract from from [sic] anything that we do at the moment, it's really very limited. Uhm, so this stage, no no [sic] negative feelings towards it. I actually think in future it it [sic] will help a lot, but, uhm, it's not being implemented at the moment.	
29.	I: Okay, in what regard will that help in the future?	Comprehensibility
30.	P: In the future, obviously, as all these sensors that we built into the buildings, uhm, get more reliable, people get more co—confidence in it and trust it a little bit more, I really do think that it will help a lot. I think it will save energy, we've got all these sensors that tell you when to switch things on and off, and also on a maintenance wise tell you this thing has reached its end of its life limit, you need to replace it, you need to maintain it, [sic] repair it. So ja, I think, ah, for the future, it's it's [sic] quite positive. Uhm, obviously, you are—what is scary is you are uhm, reliant, or you will become reliant on all these things and that might be be [sic] a problem if you become too reliant on it.	<ul style="list-style-type: none"> <li>• More reliable work</li> <li>• Save energy</li> <li>• Easier to do maintenance</li> </ul>
31.	I: Okay, how do you see—okay, so you've said what—how you see the fourth industrial revolution will shape the future of work uhm, how will it shape your work?	Comprehensibility

32.	P: No, obviously, I'm on the financial side of the construction industry. So, for the foreseeable future, I can't really say that it's going to have an influence on me, the only thing is with all these, uhm, information that you receive, it will be a lot better to compile your budget, uhm, for what you might require. Uhm, so people make I [sic] cash flow and your financials a lot more reliable going forward. But other than that, I can't see it really have much of an influence at the moment.	<ul style="list-style-type: none"> <li>• Compile budget more reliable with all the information</li> </ul>
33.	I: Okay. Uhm, do you believe that the fourth industrial revolution will provide more accurate information so that you can have a more, uhm, accurate budget?	
34.	P: Ja, most definitely will [inaudible, 7:58], yes.	
35.	I: Okay... And then ah—if... So, would you say that your job satisfaction, ag, job description will not change that much to stay relevant in the fourth industrial revolution?	Comprehensibility
36.	P: No, it won't.	
37.	I: Okay...	
38.	P: I think the only thing that will change is one needs to learn how is how to interpret all these data that you get from from [sic] all the systems and now to implemented, but the basis of the job description will will [sic] be the same.	<ul style="list-style-type: none"> <li>• To learn how to interpret the data</li> <li>• Job description won't change</li> <li>• Stay abreast with new technological developments</li> </ul>
39.	I: Okay, so you just need to learn new skills such as, uhm, coding the—not coding the data, but understanding that data from a technology point of view?	
40.	P: Yes, that is correct yes, yes [sic].	



41.	I: Ah, would you say that you would also need to, uhm, continuously learn about this new, uhm, technology?	
42.	P: Ja, I would say as technology improve, obviously, there will be new things coming out constantly and you need to be up to date with is, yes, to be able to utilize it.	
43.	I: Okay, so you say then learning—that that's [sic] how you control—well understand the changes brought by the fourth industrial revolution?	Manageability
44.	P: Ja, for sure, you don't know what's available on the market and you don't know how to use it, then definitely you won't be able to to [sic] control the changes. So, you need to be up to date with what's happening is, yes.	<ul style="list-style-type: none"> <li>• Learning</li> <li>• Know what is available on the market</li> <li>• Stay abreast</li> </ul>
45.	I: Are there and oth—other skills that you apply to stay relevant or have an active part in the fourth industrial revolution?	Manageability
46.	P: Mmmm... that is difficult to say. Uhm, ja [thinking]. I-I think perhaps a a [sic] bit of programming skills, uhm, to be able to interpret all these data that you get and to to [sic] make use of it, uhm ja, then obviously analyzing skills, ja ja [sic], to analyze all this information that you get, because it's going to be an information overload and you need to to [sic] know how to interpret that information.	<ul style="list-style-type: none"> <li>• Programming skills to interpret the data</li> <li>• Analysing skills</li> </ul>
47.	I: Okay, and this is quite a difficult question. So, I would—if you need any clarification, you're more than welcome to ask. How do you feel the fourth industrial revolution is connected with the politics or BEE of the company?	Comprehensibility

48.	P: Soh, at this stage I I [sic] can't see that there is any connection between the politics and the BEE of the company. I I [sic] can't see any connection there at the moment, no.	<ul style="list-style-type: none"> <li>• Not any connections</li> </ul>
49.	I: Okay, and does your company use any, uhm, communication technology that makes, uhm, communication actually better in the organization and making departments more connected?	
50.	P: Not really, no. Apart apart [sic] from emails and things like that, nothing else, no.	
51.	I: Okay. How do you feel the fourth industrial revolution impacted your life?	Comprehensibility
52.	P: Sjah... No, at this stage I can't see that it has really impacted my life, uh, that much. Uhm, all depends on on [sic] what you—obviously you got the internet, but I don't think that's part of of [sic] the discussion here today. But, ja, I think, uhm. No, I can't see a big impact at this stage of it, no. Perhaps in the future, but not not [sic] at the moment.	<ul style="list-style-type: none"> <li>• No big impact at this stage – perhaps in the future</li> <li>• Life will be made easier &amp; comfortable</li> <li>• Control all appliances in the house</li> </ul>
53.	I: How would just say it will impact your life in the future?	
54.	P: Yeah, I think obviously, the more systems that get onto line—online, uhm, I think it will make life a lot easier, if you use it the correct way. I think, uhm and also know that you must be aware that something can always go wrong. And don't always trust the information that you get, I think if you—but I think 99% of the time you will be able to rely on it and I think it's going to make your life a lot easier, uhm, for sure. I think it's going to make life more comfortable for people that know how to use it.	
55.	I: Uhm, how will it make your life comfortable?	

56.	<p>P:... Ja, obviously, if you if you [sic] can control, let's say for instance, all your appliances and things like that, so, uhm, you can instruct certain things to happen make your your [sic] aircon at your house go off before you actually at home or boil the kettle before you there, so your water is warm while you're there, manipulate the washing machine, dishwasher, whatever the way that you want to do it, I think that will be quite nice. Uhm, and also, I think 3D printers is made things a lot easier these days. Instead of going out and purchasing something, you can print it at home and use it. So, all of that I think will make, ah, life a lot easier.</p>	
57.	<p>I: Okay. Uhm how does the fourth industrial revolution impact your health? So sometimes you can think of that, uhm Fitbit tech—watches people use for exercise [sic] and technology that can be used to monitor your, uhm health and your exercise routine.</p>	
58.	<p>P: Ja, obviously, I used it quite a bit, uhm, I am quite a... health fanatic. So, I use that quite a bit and it it [sic] does help a lot, uhm, to analyse your workouts to obviously—you've got goals and there's certain programs that basically take all your your [sic] data or your information and it gives you a training program according to that and then show you what is your your [sic] progress if you work towards a a [sic] goal for a certain race. Uhm, it [sic] actual tracks your progress, it tells you your ahead of your program, you behind your program, what you need to work on to improve. So, health wise, yes, I think all that information does help and give you a good indication of where you are. So, all in all, I think it's a, it's a [sic] positive for for [sic] health. Uhm, and it also motivates you, if you see where you at with to it. So, I think it's a positive thing.</p>	<ul style="list-style-type: none"> <li>● Use smartwatches</li> <li>● Helps analysing workouts – provides appropriate training program</li> <li>● Motivates you</li> <li>● Monitor health</li> </ul>

	Meaningfulness	<ul style="list-style-type: none"> <li>• Positive effect on health</li> </ul>
59.	I: So, it helps you to, ah, attain your goal?	
60.	P: Yes, hundred percent. And obviously, it will also give you a warning, if if [sic] something happens and you see you are suddenly, uhm, degrading, or or [sic] your health is going down that you can go and see a physician or a doctor, uhm sooner, uhm rather than later. So, I think you might be able to pick up any defects or anything that you've got a lot sooner than than [sic] you might have, ah, in the past.	
61.	I: Okay, uhm, what are your personal resources to cope with the fourth industrial revolution? For example, you, uhm, do implement continuous learning, or you use the, uhm, internet to, uhm, learn more about this, uhm, fourth industrial revolution, or you keep a positive mindset about it. That's just a few examples.	Manageability
62.	P: Yeah, I think most of the time, it is the internet. So obviously, as you do some internet searches into your own interest, like sport, or work, or whatever that you want to do, uhm, then you pick up on something, [Inaudible, 16:34], this is a huge im—improvement. And this gives me this information. Or this can help me to train better or or [sic] make something a bit easier for me. So basically, the internet is is [sic] the biggest source of the stage.	<ul style="list-style-type: none"> <li>• Internet – more information</li> </ul>
63.	I: Okay... [writing on paper]. How would you say the fourth industrial revolution connects with your religion?	Comprehensibility
64.	P: Sjh, [inaudible, 17:07] I've absolutely no idea. I don't, ah, I don't know how it can connect with your religion. Uhm, I don't know if you can give me an example but at this stage, I can see the connection between the two.	

65.	I: Uhm, such as- If I can give you an example with COVID, uhm, zoom is helping a lot of people actually- do, uhm, attend services online, or they get greater information about their religion, so they can, uhm, understand their religion a bit more with the technology that's providing—providing that greater, uhm, vast information about their religion.	
66.	P: Okay, no other than than [sic] zoom. Uhm, for for [sic] zoom, ser—sermons and everything, that's all that I can think of at this stage.	<ul style="list-style-type: none"> <li>• Zoom services during lockdown</li> </ul>
67.	I: Do you use any technology to, uhm, do research or get more information regarding your religion?	
68.	P: No, not really no.	
69.	I: Okay. How does the fourth industrial revolution impact on your shamefulness? Uhm, if I, uhm, can just give a bit of a background? Uhm, normally or well stereotypically, the older generation struggle a bit more with the new technology, while the younger students are more tech savvy. So, if you struggle a bit, you're a bit shame—feel a bit shame about that. So, do you feel shamefulness with regards to the fourth industrial revolution?	Comprehensibility
70.	P: Ja, perhaps a little bit. Uhm, I work—I always thought of myself as a bit of a tech guy and I was always up to date with it, and I help other people with their computers and everything. But lately, I—it feels like I am falling behind, yes. Uhm, so ja, there's there's [sic] a small, small little bit of shame on that yes.	<ul style="list-style-type: none"> <li>• Experience shamefulness a little bit</li> <li>• Thought he was up to date – but actually behind</li> </ul>
71.	I: Okay, we've reached our last question, what will make your job meaningful in the future?	Meaningfulness
72.	P: Sjoh, that's an interesting question...	

73.	I: You can also think of current as well if you, uhm, if that just make [sic] it a bit easier question.	
74.	P: Ja, I would like to think that my job is meaningful at at [sic] this stage, obviously, on the financial side of the building industry, to make sure that we are profitable, that you do make money so that the company will be sustainable. Uhm, that's what we're looking at. So obviously, I think applying all of these new technologies, uhm, will hopefully give us a better opportunity to be more competitive in the market and hopefully give the company a good future by applying all these new technologies, uhm, and implementing ah, so that you can be more productive, uhm, more cost effective and obviously, hopefully, remain profitable. So, the company can employ, uhm, a lot of people in in [sic] future that can be there for the next generation of of [sic] people that need to be here.	<ul style="list-style-type: none"> <li>• Job is meaningful</li> <li>• Make sure company is profitable and sustainable</li> <li>• Applying technology could give a competitive advantage -to provide a good future – more productive and effective</li> </ul>
75.	I: Okay, thank you very much for your participation. It is greatly appreciated.	
76.	P: Okay, hundred percent. Alright and all the best with the rest of your, ah—what is that you—that you [sic] doing now? Is it just a study that you did or what is it for?	
77.	I: It is my thesis for my degree...	
78.	P: Oh	
79.	I: So. It is ja, it is quite a big research study, uhm, so it is greatly appreciated that you are willing to participate in my study.	
80.	P: Hundred percent, it is a pleasure.	

## Transcribed interview of Participant 12

Participant 12		
Code	Transcription	Coding
1.	P: Morning	
2.	I: Morning. How are you?	
3.	P: Well thanks and you? Sorry about yesterday, it was just not...	
4.	I: No don't worry. Things happen. [laughing]. Uhm, how have you been?	
5.	P: <i>Okay</i> , thanks. You?	
6.	I: Oh, all right. Just this thesis I just want to finish. [laughing]	
7.	P: Yes, sure.	
8.	I: Yeah. So, before we start, do you have any questions or inquiries about the whole process? And...	
9.	P: [Nodding]	
10.	I: Okay, great. I do you give consent to being, uhm, recorded?	
11.	P: Absolutely.	
12.	I: Okay. Great. So, are you ready to start? [giggling]	
13.	P: [Nodding. Thumbs up]	
14.	I: Okay, perfect. Uhm, question one, what do you think the fourth industrial revolution is?	Comprehension
15.	P: Uhm, it's a, almost a systemic interface between humans and technology, continuing automation, uhm, and I have an interest in the in the [sic] medical side of it, where we can 3D print prosthetics, we have brain scans which now highlight pathologies that we we [sic] never	<ul style="list-style-type: none"> <li>● Systemic interface between humans and technology</li> <li>● Automation</li> <li>● 3D print prosthetics</li> </ul>

	had access to before. So, it's... integrating technology, whether we're with humanity almost as much as I understand it.	
16.	I: Oh, yes, no, that's perfect. That's definitely...	
17.	P: Oh good.	
18.	I: Okay. Uhm, question number two, how do ah—how do you perceive the fourth industrial revolution?	Meaningfulness
19.	P: I think it's a good thing, theoretically, but because of inequalities and access to resources and access to technology and access to education around technology, it could be exploited. Where first world countries can take advantage, third world countries can't and third world countries economically could be put in a bad position because we don't have the opportunity to automate, uhm, processes and we will be stuck using humans who don't have... the the [sic] skills and the capabilities that technology does. Which means the disparity will become bigger, uhm, between first and third world.	<ul style="list-style-type: none"> <li>• Good thing</li> </ul>
	Comprehensibility	<ul style="list-style-type: none"> <li>• Great gap in inequality</li> </ul>
20.	I: Okay. Yes, definitely. Uhm, so do you believe the fourth industrial revolution is a positive or negative aspect?	
21.	P: ... hmmm, I <i>want</i> to say positive because the <i>potential</i> for it do for us and the environment, if we can do clean energy and make everything green with technology, and then it's amazing. But it—there should be some equality, there should be some equity and access to the magic. So, positive and potential [sic] potentially negative and application.	<ul style="list-style-type: none"> <li>• positive and potentially negative and application</li> <li>•</li> </ul>
	Comprehensibility	<ul style="list-style-type: none"> <li>• clean energy</li> </ul>
22.	I: Okay. Definitely, I agree with you. Uhm...	



23.	P: It's not a good answer for a survey because I'm not giving you a clear yes or no.	
24.	I: No, uhm, you're giving me a lot of answers. So, would you say you are optimistic about the fourth industrial revolution?	Meaningfulness
25.	P: Yes, yes absolutely.	<ul style="list-style-type: none"> <li>• Optimistic</li> </ul>
26.	I: Okay, tell me about your experience of the fourth industrial revolution?	Comprehensibility
27.	P: I think my most—well it comes back to the to the [sic] medical field where, uhm, we've been able to do functional MRIs, PET scans in the framework of [inaudible, 4:02] addiction counseling to see the actual effects of certain drug uses. And we could now <i>visibly prove</i> how addiction affects the brain, how it <i>is</i> a physiological problem, it's not just a moral function now. We can put you in a machine, we can give you proof that you can't argue with which means treatment options become possible, because now you <i>believe</i> in what's going on.	<ul style="list-style-type: none"> <li>• Use technology to improve treatment options</li> </ul>
28.	I: Oh, that's very interesting. So, uhm, just for my interest, uhm, how do you see the, uhm, difference in the brains, uhm, with addiction...?	
29.	P: Uhm, picks us up [inaudible, 4:45] the nucleus accumbens fires off differently to a neurotypical brain. So, the reward seeker goes absolutely crazy, it's not even the amygdala. The nucleus accumbens <i>wants</i> pleasure all the time and the differences dopamine receptors where there are fewer dopamine receptors, so, the minute there's any dopamine, the brain goes absolutely insane, and the nucleus accumbens gets triggered.	
30.	I: That's very cool. That's amazing.	

31.	P: [inaudible, 5:14]	
32.	I: That's so interesting.	
33.	P: Oh, that's 100%.	
34.	I: I'm going to ask you questions later on about that. [giggle]. Uhm, and how do you feel about the fourth industrial revolution in the workplace?	Comprehensibility
35.	P: ...In the workplace, I think it is fantastic, because efficiency is key. So, before I moved into psych, I worked in academia, and I worked in an engineering firm, managing teams, and...humans are lazy, and humans don't always meet deadlines. But if you can have a program that <i>automates</i> , checklists, and time management and responses to things and data collection, suddenly everything is on time as expected, and the error rate is <i>so much</i> lower than if a human does things, which means managerially, life is a lot easier, because you're not running around checking up on <i>people</i> , you can trust your process...	<ul style="list-style-type: none"> <li>• Fantastic in the workplace – more efficient</li> <li>• More accuracy - managerially, life is a lot easier</li> <li>• Does put people out of jobs</li> </ul>
36.	I: Yes	
37.	P: So, in the workplace, I think it's fantastic, <i>but</i> if it puts people out of jobs, it's not necessarily as good a thing 'cause it makes one person's life <i>so much</i> easier at the cost of other people's livelihoods.	
38.	I: Yes	
39.	P: So yeah.	
40.	I: So, you would say there is a positive and a negative side to it?	
41.	P: Hundred percent. Uhm, and from a managerial point of view, it's an- it's the best thing ever, because you never have to question the quality of the work that you're going to get but as a cog in the machine at a	<ul style="list-style-type: none"> <li>• Lower-level employees – a risk</li> </ul>

	lower level than manager, it's a risk, it's a threat, because this thing cannot take my job. So then there's pressure to perform <i>better</i> and some people thrive under the pressure and will increase performativity, but other people will then just <i>not</i> , and that's what's the problem and that's why human—humans are interesting that way. [laughs]	
	Meaningfulness	<ul style="list-style-type: none"> <li>• Positive from a managerial point of view</li> </ul>
42.	I: Yes, definitely. As you can also see, with the MRI scans how differently our brains can work, uhm...	
43.	P: Absolutely.	
44.	I: ...because I saw also [sic] MRI scans with, uhm, OCD and how the the [sic] brain actually lights up differently, so that's quite interesting.	
45.	P: Hundred percent	
46.	I: Uhm, how do you see the fourth industrial revolution will shape the future of work?	Comprehensibility
47.	P: I think... <i>highly</i> skilled, specialized positions will stay with the humans but I think things like GPs, psychometry, legal-like baseline legal representation can almost be automated, because a lot of the questions and the screening that gets done, you can input that into a computer and almost get a faster- like an accurate answer at the referral to a human specialist. So, I think that lower level interactions could be replaced, and automated almost completely, which is exciting, because it means if people have access to a computer, they can get in touch with a technology that can get them the help that they need, especially in terms of referrals for healthcare. But again, what then happens to the GPs and the nurses? Who would be doing that first line	<ul style="list-style-type: none"> <li>• Highly skilled, specialized positions</li> <li>• GPs, psychometry and legal representation automated</li> </ul>

	screening if only the specialists who keep their jobs? This is a very interesting topic, because there's so much exciting stuff about it, but we kind of stealing jobs at the same time.	
48.	I: Yes, definitely. Yeah, uhm, we can see that uhm, you actually have to keep on learning during the fourth industrial revolution, just to not become redundant, because that can easily happen.	
49.	P: Hundred percent.	
50.	I: Yes, so it's actually a very interesting to see how everything will work out in the end. Uhm, what impact you feel the fourth industrial revolution will have on your job?	Comprehensibility
51.	P: On <i>my</i> job specifically right <i>now</i> , I think I'm okay, uhm, because performance coaching is so contextual and... you have to have a human—to have like legitimate empathy in a coaching conversation. However, going back to the jobs that I had previously and managing teams, curriculating, uhm and course design can be absolutely done by automated technology, because it can reach further the data gathering process, the comparison process between what all other institutions are doing, I think that can be done <i>better</i> by an automated service. I think in the engineering field, in terms of project management that can also almost be automated because you are doing time checks, accountability checks, setting up meetings, communicating with people, that can be done in a spreadsheet. So, I think the... the [sic] corporate side of things can absolutely be taken over but the human side of things where I am <i>now</i> , maybe not so much yet. But with AI becoming more advanced, maybe in future...all of that will become redundant.	<ul style="list-style-type: none"> <li>• Not great affect – performance coaching is contextual (empathy)</li> <li>• Managing teams, course design – automated</li> <li>• Reach data and do comparisons quicker</li> <li>• project management can be automated because you are doing time checks, accountability checks, setting up meetings, communicating with people, that can be done in a spreadsheet</li> </ul>

52.	I: Yeah, no, that's actually very scary. But I think I would rather prefer a person helping me, then I would say a robot if I can put it like that. [laughing] because I like my...	
53.	P: I might trust a robot more, hey...	
54.	I: Really?	
55.	P: Because human error is real...	
56.	I: Yes...	
57.	P: and I almost feel like if there's a database that can reach every diagnostic textbook, instead of maybe the two or three that the person went through, I would trust the robot have a little bit more.	
58.	I: Oh, okay. Ja, no, I didn't think about it that way, sjoh. [giggling]. That's actually very scary how the future might look. And then, uhm, how will your job description change to stay relevant in the fourth industrial revolution?	Comprehensibility
59.	P: I would like to think that I can integrate my job with technology, we can do wellness apps. I'm busy developing a wellness coaching program for HFPA and... it can't just be learning from a textbook anymore because we wear fitness trackers, we're already like wellness and the fourth industrial revolution run hand in hand. Everything has a little bit of automation in it. So, if we can do wellness apps, and keep <i>tracking</i> wellness, and use technology to bolster the human element, and almost create an automatic wellness program that a person can run independently, that creates an opportunity for them to use technology to their benefit. And we start the process and create empowered people to take it forward for themselves. Academically, almost the same thing, if we can set up extra help and tutorials, and little... quizzes,	<ul style="list-style-type: none"> <li>• Integrate job with technology – wellness apps</li> <li>• Wellness and 4IR walk hand in hand</li> <li>• Empowering clients to use technology</li> <li>• Technological knowledge – marketable on an international level</li> <li>• Gamification</li> </ul>

	<p>and check ins for people, and now we've learned with COVID, that online learning is possible. And if you've got a <i>driven</i> person who can do it themselves, why not use that to their advantage, empower the person to use technology to take their learning to the next level. So, I think first points of contact, have a human to just explain the process and give—be a source of comfort but then empower the the [sic] clients on the other end to use what they can to get them more efficient, to get them access to the information that they need. That said that can only happen if they have the resources to do so, which don't think South Africa is there yet.</p>	
60.	<p>I: Yes, definitely. So, you would say that actually having that technological, uhm knowledge in your job will be greatly beneficial?</p>	
61.	<p>P: Hundred percent, and it makes what I do slightly more marketable on an international level because if I want to tap into the American market, they're already doing things like this almost second nature and the <i>younger</i> generation is already so technologically clued up, and I'm not. So, I have a lot of learning to do but then it it [sic] makes me more marketable to two generations at least. Whereas, if I just do, you know, general coaching, or general lecturing, general course administration, because now I'm back in that same position with HFPA. I'm—I can only do so much in a limited paradigm, but technology and my ability to use it and play with it, make it interesting and like gamification is the thing. That makes me marketable to the next generation and that filters through to different school applications, to different university applications to bounce institution applications. So, technology is good for me.</p>	

62.	I: Yes, that's very interesting. Uhm, so how do you control the changes brought by the fourth industrial revolution?	Manageability
63.	P: ...On a <i>personal</i> level, I need to keep upskilling myself, I need to have relevant qualifications, CPD points, going a little bit above and beyond to make my CV as interesting as it can be, so that I'm not replaced by a Fitbit...	<ul style="list-style-type: none"> <li>• Upskilling</li> <li>• Have relevant qualifications</li> <li>• Attend courses</li> </ul>
64.	I: Yes.	
65.	P: Uhm, and to have multiple platforms, so have a social media presence, have a presence on different platforms, academically, on social media, in the field, because as much as you can track fitness and things on the field, to have an actual person there to give immediate feedback is quite useful. And then academic setting, similarly, be on the ground, lecture, take part courses as well as doing the design. So that you can also give the human feedback, uhm, on the experience of it because as much as technology can design a fantastic looking module, how is it experienced on the other end? I don't think AI can tell us that yet.	
66.	I: Yes, no, that's very cool. Interesting. Uhm, what skills do you apply to stay relevant or have an active part in the fourth industrial revolution?	Manageability
67.	P: ...So, we are in the process of <i>learning</i> what goes into making a good app for wellness and how do we link quick, accessible, interesting looking gamified app—applications to the very jargon rich, technical, psychological elements of wellness coaching. So, we're trying to figure out how to bridge the gap between the theory and the practical application, and that process gets me into like the lower levels of technology, because I'm not the one designing it but I'm the one giving input as to what has to go into it. And then I learned what is possible	<ul style="list-style-type: none"> <li>• Learning</li> <li>• Communicating with IT teams</li> </ul>

	<p>and impossible in terms of design, because we're working with an IT team who, sjoh, they're amazing. Uhm, but we have to now make sure that what we explained to them makes enough sense to them, for them to tweak it, to put it into an app, to make it sense- to have it makes sense to our audience, which is a difficult process. So, I almost feel like you need a qualification in whichever field you work and that's an IT qualification, and you need the brain of a current adolescent who's just very tech savvy, and who grew up with this. So, uhm, I don't have that. [laughing].</p>	
68.	<p>I: Uhm, so how do you, uhm, talk to the IT person that they understand the psychological aspects to put it actually in an app? So how do you do that?</p>	
69.	<p>P: So, I give them my content and I say what makes sense from this, and then they'll say one or two things are absolutely nothing. And then we literally sit, and we do mind maps, and we draw big content maps of what makes sense. And then we start putting in little themes and images, and can we translate it from pure technical jargon into understandable language and examples? And then we can we find an image or a video clip, or a meme, they like memes of explaining concepts. And from that, then we can go, okay, so this is a game we can do, this is a reminder that we can put in, this as a tracker that we do, this is the affirmation kind of thing.... A deductive construction process [sic].</p>	
70.	<p>I: Yes, no, that's very interesting. And then how do you feel the fourth industrial revolution is connected with the politics or the BEE of the company?</p>	Comprehensibility



71.	<p>P: ...This is not the politically correct answer, I'm afraid. I think that because BEE often functions in terms of potential and not necessarily skill sets. And this has been my experience personally, if you get a person who doesn't have a lot of technological knowledge, who isn't particularly well skilled in working with technology, they're already on the backfoot. And these are the people that ultimately become replaceable because they're not efficient when technology and automated processes are <i>only</i> efficient. And then you have to look at is the person's potential enough to outweigh the efficiency of an automated process because if the person isn't sufficient, they're costing the company money, even though they meet a BEE quota. Uhm, whereas take the quota system out of the equation, you automate the processes, you save a lot of money, but you lose a lot of jobs. So...</p>	<ul style="list-style-type: none"> <li>• BEE often functions in terms of potential and not necessarily skill sets</li> </ul>
72.	<p>I: Very interesting. How do you feel the fourth industrial revolution impacted your life?</p>	<p>Comprehensibility</p>
73.	<p>P: ...I think it has had a positive effect because it lit a fire under my bum to get a little bit more technologically savvy, to do a little bit of research to upskill myself, because in academia, it's easy, we work on paper and you publish and you read, and you go to a conference and you don't really need to be any more relevant than that because our fields are so small. And in the engineering firms, similarly, you do water projects, and you do a social spatial analysis, and then you have deadlines, and you implement, and there's there's [sic] such a set structure of the way it has always been that... you don't have to really do much to improve the process because old white men like things the way they are. So, in those two aspects, they're insulated from progress almost. But currently the field that I'm in, if you don't progress with what's going on globally in the field, you will not have a job. So, I'm lucky in a sense that</p>	<ul style="list-style-type: none"> <li>• Encouraged to become more tech savvy</li> <li>• To not progress with what's going on globally in the field - will not have a job</li> <li>• Forced to upskill</li> <li>•</li> </ul>

	I'm forced to upskill myself, but in doing that, it secures my position, and it allows me access to a large audience. And I'm a lifelong learner, so I'm actually quite excited about the fact that I get to learn new skills. Otherwise, what's the point?	
	Meaningfulness	<ul style="list-style-type: none"> <li>• Positive effect</li> <li>• Excited to learn new skills</li> </ul>
	Manageability	<ul style="list-style-type: none"> <li>• Do research and upskill</li> </ul>
74.	I: Oh no yes, very interesting. So actually, the fourth industrial revolution helps you to actually learn, uhm, with all that information?	
75.	P: Hundred percent.	
76.	I: oh no yes, great. Uhm, how does the fourth industrial revolution impact your health?	Comprehensibility
77.	P: Oh, health wise, if I were to get the knee replacement, I can get a 3D printed knee...	<ul style="list-style-type: none"> <li>• Opportunity to get knee replacement</li> <li>• Fitness tracker – more access to information</li> <li>• Technology allows the ability to keep dancing</li> </ul>
	Meaningfulness	<ul style="list-style-type: none"> <li>• Positive impact on health</li> <li>•</li> </ul>
78.	I: Oh wow	
79.	P... that suits my body... this is the thing. So, for everything that's kind of wrong with me, when I decided to finally have it fixed. The biomedical technology that the fourth industrial revolution has brought about gives me function. Uhm, so I'm I'm [sic] excited about that. Similarly, something as simple as a fitness tracker... keeps me up to date with where my body is at, at any given point in time. So, I suddenly have	

	<p>access to information about myself that I didn't have before and because I have to manage my weight, because of injury, this is vital. I don't know if I could have done it 10 years ago, because I didn't have access to the technology. Uhm, similarly, like body scans to know what's going on, the minute I'm injured, I can have a sonar, I can have an MRI, if it's necessary, I know exactly what's going on where. I also have medical aid and the financial resources to do so.</p>	
80.	I: Yeah	
81.	<p>P: So, and that's having access to the medical resources, and the technology, and the experts means that I can do what I want to do, I can keep dancing, I can keep training... longer, because I have access to biomedical technology. And if something were to happen, like I lose a limb, we have a climber at City Rock, who's a double leg amputee, but he climbs, and he's had custom prosthetics made for him to keep him climbing.</p>	
82.	I: Oh wow...	
83.	<p>P: So, the fourth industrial revolution gives lives back to people in terms of injuries, I think biomedically.</p>	
84.	<p>I: Yes, definitely. Yes, that's very interesting. Wow, how people are determined [giggles]. Uhm, what are your personal resources to cope with the fourth industrial revolution?</p>	
85.	<p>P: ... Ah, I don't think I really need to cope with it so much, because it's not something that threatens me. I'm—it's something that's exciting to me and I am someone who believes in efficiency and getting the job done and accountability. So, it's not a coping with situation, it's a working with and within situation. And if I can take the examples of what is good from automation, and almost incorporate that into my</p>	<ul style="list-style-type: none"> <li>• Working with the 4IR</li> <li>• Incorporate technology in own practices – more effective</li> </ul>

	own practices in work, then I feel I become a better, more productive parts of the machine that I function in. Uhm, that's to my benefit, and to my machines benefit. So, it is not coping with, it's a working with for me.	
	Meaningfulness	<ul style="list-style-type: none"> <li>• Technology is not a threat</li> <li>• Excited about 4IR</li> <li>•</li> </ul>
	Manageability	<ul style="list-style-type: none"> <li>• Financial resources</li> </ul>
86.	I: Definitely...	
87.	P: That said, I am specialized enough that I'm not threatened by something stealing my job. If I were... an admin person, I might feel very differently. And then it might be a case of should I need another qualification, or I need to change fields or something like that?	
88.	I: Yes, definitely. We must keep that in mind, especially with our qualifications, to look at the next—what's next. And then how does the Industrial Revolution connect with your religion?	Comprehensibility
89.	P: ...Uhm, it n—I believe in science, I'm I'm [sic] quite secular in that way. So, it it [sic] makes sense to me. Uhm, technology is built on processes that are scientifically tested, things are doubled checked, facts are checked, iterations happen, we learn from our mistakes and we move on to the next thing... So, I'm I'm [sic] not really impacted religiously because, yeah, religion and I are not friends. I believe in science and that's what technology makes sense to me.	<ul style="list-style-type: none"> <li>• Believe in science</li> <li>• Makes sense</li> <li>• Technology is built on processes that are scientifically tested</li> </ul>
90.	I: Oh yes. Okay. Uhm, how does the fourth industrial revolution...— Sorry?	
91.	P: That's an interesting question, though.	

92.	I: Yes, yes, definitely. Uhm, I get very interesting answers. How does the fourth industrial revolution impact on your shamefulness? Uhm, just to give a bit of a background, uhm, usually the older generations are not more tech savvy, while the younger generations are. So just, uhm, how does that impact or does it at all impact your shamefulness?	Comprehensibility
93.	P: Yeah, hundred percent. I'm not very tech savvy and I take a long time to learn technological processes. Once I've got it, I've got it. Uhm, but it is quite embarrassing sometimes to have to ask someone 10 years younger than me for a little bit of help, uhm, because I pressed the wrong [inaudible, 26:12]. And I think, trying to learn how to program an app, I have to be able to use it, and I have to be able to answer questions about it, and that's made me very nervous. I'm usually professionally quite confident in my skill set, I can answer you on almost anything, but now you ask me a question about what did I do in my app? I'm like, ah, I don't actually know, and I don't like not knowing things. So, it makes me, uhm, awkward because I'm not an expert in technology. And I'm quick to refer but if someone asks me specifically on the spot, I freeze up, and then it's really awkward. Uhm, I haven't had that for a <i>really</i> long time.	<ul style="list-style-type: none"> <li>• Embarrassing to ask someone 10 years younger for a little bit of help</li> <li>• professionally quite confident in skill set, can answer question on almost anything, but now you ask me a question about what I did in the app – don't know</li> </ul>
94.	I: Yes, oh okay. No yes, I can also understand that, and I'm also not very clued up on actually all the technology. So, [giggles] I'm also there. Uhm, so we have a last question, what will make your job meaningful in the future, or what is also currently meaningful?	Meaningfulness
95.	P: ... Ooh... I think being able to create... something where there is knowledge and skills transfer, that actually affects change for people, whether that is an academic literacy, where we are teaching people to access information, uhm, whether it is in the engineering field, where we are creating an opportunity for people to have access to resources,	<ul style="list-style-type: none"> <li>• Transferring skills and knowledge</li> <li>• Creating opportunities for people to access information</li> <li>• Giving people access to wellness</li> </ul>

	like clean water and sanitation services. And currently, to get people in touch with holistic wellness. It's meaningful to be able to affect change, that sustainably empowers people. And I think, no matter where I end up 'cause addiction counseling, similarly, it's sustainable change, and sustainable empowerment, that's very meaningful to me.	<ul style="list-style-type: none"> <li>• affect change to sustainably empower people</li> </ul>
96.	I: Definitely. I know that's very, very powerful, actually, just because everything is about sustainability. So, I have all the questions. If you have any questions you'd like to ask, you're more than welcome.	
97.	P: Uhm, I think I'm just- I'm curious about your topic, where do you see the fourth industrial revolution taking you?	
98.	I: Well for me, uhm, I think it- my job will change a bit 'cause I think I need to actually learn, uhm, coding and all that stuff. I think that would be greatly beneficial for me and because I know there is an app called switch, which is- I don't know if you're familiar with Dr. Carolina Leaf, she is in neuroscience...	
99.	P: Yes...	
100.	I: So, she has an app that I actually want to use as well, 'cause I haven't had the time actually to sit. Uhm, so it's it's [sic] a 21 day like course thing that, uhm, you can rewire actually your brain. So, I want to see if I can do that. So, I think actually use—yes, if she will have an app for that. So, uhm, I think if I learn how to do that that would be actually greatly beneficial. So, I think, uhm, I'll still have a job in the future. Yes, because I'm gonna [sic] have to work with people and you cannot replace people at—to a full extent. So luckily, I'll still have a job, but I think it will greatly change in the future. Yes.	
101.	P: And maybe automating report generation would give us more time to actually work with our clients and do the... actual people work, and	

	that frees up a little bit of space, frees up time for self-care, which is important in our field.	
102.	I: Yes, definitely, uhm, I think we must also give very much attention to that [giggle]. Uhm, self-care is very important. And, uhm, whi—with the reports actually writing the psychometric stuff, it's actually if you can see the... generated reports, it's helps a lot because actually, to write everything up is not very nice [giggle].	
103.	P: And also just to have a little bit of help in interpreting some results, because if I'm dealing with old manuals and have to go dig up those tables—my brain makes mistake, and, uhm, confused is likely to make mistakes, then those those [sic] results matter, especially in organizations, because that's the person's job, that's, that's[sic] their livelihoods.	
104.	I: Yes. I just want to ask with the brain scanning, uhm, how does it like work? And how does it like work and how- okay, if you have a, uhm, like a proof that it is—how does that impact the treatment, uhm, procedures that you would take?	
105.	P: So, most treatments are behavioral, but it works with neuroplasticity. Uhm, so you can rewire the brain. There's proof of that, uhm, we like to work with Joe Dispenza's videos, because he has proof of neural transmit- ag, neural pathways actually shifting, there's imaging of that, which is also because of the fourth industrial revolution, I'll send you the link to to [sic]—it is calles the three brains. And you can rewire neural networks so that the focus moves to the prefrontal cortex. So almost the addict brain is like an adolescent brain, where it's stuck in the limbic system, but you can train your brain to involve different parts to make better decisions, to be slightly more risk averse, to think	

	<p>through things cognitively rather than emotionally. It takes up to four years to rewire a brain there, unfortunately. So, it's it's [sic] long term, but it does work. And similarly, with things like DBT and depression, and, uhm, borderline personality disorder. Similarly, you can you can [sic] work with different areas to engage them, so that it's not all limbic system all the time.</p>	
106.	<p>I: Yes, that's very interesting.</p>	
107.	<p>P: It means there is this potential, and what I really like is it- unless you've got like a structural problem in your brain, you don't necessarily need medication, you can- medication that support but you can do behavioral changes that affect lifestyle changes over time, sustainability. And that's the magic and hopeful for the future for change in general.</p>	
108.	<p>I: Definitely. That's so interesting. I'm so glad I can pick your brain about that 'cause I find it very insightful, actually, to see how you can actually like change your brain, uhm, so that you can change your behavior. So, in the long run, uhm, how have you seen that people change, uhm, through that just to be...?</p>	
109.	<p>P: Well, when people come into addiction, treatment centers, they often absolute <i>terrors</i>, and they're oppositional, and they're defiant, and they're just, they're, they're [sic] not nice people, you know. And then you see them over a year, and things are different. And then you see them goodness, three years into their recovery, and they <i>are</i> different people, they are kind they want to be of service. They just everything is different. And it's because of their habits. They've literally changed their habits. And their default behaviors have shifted, which is—it's inspiring.</p>	



110.	I: Oh, wow. That's...	
111.	P: And if we can do something like that in the prison system, and have a more rehabilitative approach instead of just a, like a punishment. How much better would life be and if we get adolescence in prison, and- you know, then our problem population with a slightly more impoverished population of adolescence, if we can help them create positive behaviors long term. Our prisons will be emptier, we won't have so much drug addiction, [inaudible, 34:59]. That's a bit of a personal mission.	
112.	I: Oh wow, no, that's very amazing. That's so cool. I'd like to actually, um, if you do do [sic] that, I would like to pick your brain a bit more that and ask you questions about that. That's very interesting.	

**Transcribed interview of Participant 13**

Participant 13		
Code	Transcription	Coding
1.	I: Okay, uhm, so thank you once again for participating in my research study. Before we start, I just want to, uhm, confirm that you do give consent to being recorded, and you do understand what is said in the informed consent form.	
2.	P: Uhm, yes, that's fine with me.	
3.	I: Okay, great. Uhm, do you have any questions or inquiries before we start?	
4.	P: Uhm, no, I think so, I think we can get to some questions afterwards or during a time, I'll try not to interrupt you too much.	

5.	I: Okay, no problem...	
6.	P: Can I ask if you can just hold on for two seconds, I just need to close my door quickly?	
7.	I: Yes, don't worry.	
8.	P: Power stations in general is a bit on the noisy side. So...	
9.	I: No don't—no problem at all. Okay, so what do you think the fourth industrial revolution is?	Comprehensibility
10.	P: Well, uhm, fortunately, I'm, I'm [sic] in the industrial industry, so uhm, for me it's a a [sic]... I think I've got a good idea of it, and it's basically what we are doing now, is we've got all the equipment from the early 1900s. And what we're doing now is me—we monitor—modernising [sic] them with, uhm, new control systems, with new equipment. Uhm, we are some of it be changing to points where we don't need operating—operations personnel, so we're completely automating them. And this- as far as I remember, that's basically the fourth industrial revolution, is basically what we're doing now, is modernizing all the old things getting it, uhm, automated. It's it's like like [sic] that.	<ul style="list-style-type: none"> <li>• Modernisation</li> <li>• Automation</li> </ul>
11.	I: Automation. Uhm, how do you perceive the fourth industrial revolution?	Meaningfulness
12.	P: Well, uhm, my personal feeling of it is, I think it's, it's a good thing in in [sic] well it's a good thing on the one side and a bad thing on the other side. I think what's good about it is that, uhm we're getting to a point where we almost... how I would say we are, uhm, what do you call it information snobs these days. Uhm, we want to know more and more and more, and if you wonder about something, first thing you do is you	<ul style="list-style-type: none"> <li>• Good &amp; bad thing</li> <li>• Positive is a lot better than the negative</li> <li>• Negatives can be managed</li> </ul>

	<p>pick up your phone, you Google it and to quickly find our answer. So, you—we always want to find out more what’s going on. And I think what the fourth revolution has done for us is, it gave us that, uhm, information to our—on our fingertips. So, instead of wondering what’s going on or walking around, uhm, to see what’s going on, actually everything at our fingertips, it’s it’s [sic] a lot easier to to [sic], uhm, to, work that way or to go about your normal day to day things. I do think the the [sic] flip side, uhm, of it is I think we tend to lose a bit of a human touch, because of, uhm, everything being automated. So, instead of going to see and talking to people and finding out, listen, are you still okay, are things looking? Are you, uhm—is everything still running as it should? Now it is a quickly [sic] draw up a screen on your computer and you quickly have a look, and you can see if it’s fine, if it’s right or not. So, I think there’s there’s [sic] this these both side [sic]. I think the positives a lot better, a lot more than the negatives. I think the negative can be very easily managed, depending on your personality, how you you [sic] personally feel about it.</p>	
	Comprehensibility	<ul style="list-style-type: none"> <li>• More access to information</li> <li>• Lose human touch</li> </ul>
13.	I: Okay, so would you then say...	
14.	P: I don’t know if that answers your question?	
15.	I: Yes, yes. Would you say that, uhm, it's actually your mindset—in how you use the fourth industrial revolution? How it could be seen as a positive or negative?	
16.	P: Absolutely, yes. Absolutely.	

17.	I: Okay, next question. Are you optimistic about the fourth industrial revolution?	Meaningfulness
18.	P: Oh, yes, for sure. I think it's probably the best thing. Yeah, the best thing we can do now is to push forward with it.	<ul style="list-style-type: none"> <li>• Optimistic</li> <li>•</li> </ul>
	Comprehensibility	<ul style="list-style-type: none"> <li>• Reduce human error</li> <li>• Easier to go analyse what happened on the plant</li> </ul>
19.	I: Okay, uhm, wha—why are you optimistic about it?	
20.	P: Uhm, f—I myself is in in engineering, and part of what's my day to day work is, is, uhm, I do incident investigation. So, let's say we've got a trip on the plant, uncontrolled actions on the plant, uhm, for me, it's a lot easier to go and analyse exactly what happened or see what happened, uhm, without speaking to somebody, the machines don't lie, the machines don't tell you half a story. So, for me personally, it makes life a lot easier, and seeing that, well, engineers are normally numbers driven and facts driven. Uhm, there—it doesn't have any interpretation, it's basically just what you see is what you get. What's there—if the—if a graph says the pressure drop to zero, it dropped to zero there's there's [sic] nothing else. So, for me, it makes life a lot easier and, uhm, I get a lot more benefit out of it than not having it.	
21.	I: Okay, so you would say actually removing that human error... out of the equation?	
22.	P: Yes, yes.	
23.	I: Okay... tell me about your experience of the fourth industrial revolution?	Comprehensibility

24.	<p>P: ... Uhm, well, we've got, uhm, I I [sic] can maybe use one of our, uhm, projects that we're very busy with. Maybe, uhm, saying that maybe explaining a bit better of how I I [sic] see it. Uhm, we—as I said, our plant is relatively old, so our turbines were installed in 1962, the first one was commissioned. So, uhm, by that time everything was manual, eh, you had an operator to do each and every function. So, what we are doing now is, ah, for instance, on one of our generators, we are automating the governing system. So, instead of having somebody there the whole time to, uhm, monitor everything, if you want to put it on on [sic] load, you need to go through this whole process, and these long procedures that needs to be written out and marked, and times written down for everything, exactly what actually needs to be done, when and how and who did it. So, now we've moved to a point where we've automated the governor. So now, uhm, you just need to push a button, you—the the [sic] push of that button is recorded, and each and every step is automated from there. So, uhm, I can see right up to, ah, the last second exactly what action happened when, and it basically takes everything up to the point where it puts the machine on load, and it just controls it from there. So, it, uhm... well, I'm excited about it, because it's something new for us. And, uhm, there's—it's it's [sic] given for other plants, but seeing that we that old and very old technology that we're using, that makes my life a lot easier, and it makes our life a lot easier. And so, ja, I'm, I'm [sic] very excited about it. And I'm probably one of the big drivers at the company to do do [sic] the automation.</p>	<ul style="list-style-type: none"> <li>• Automating systems</li> <li>•</li> </ul>
	Meaningfulness	<ul style="list-style-type: none"> <li>• Excited - makes life easier</li> </ul>
25.	I: ...Sorry, I'm just writing, uhm this down. So, if I'm not saying anything...	

26.	P: Ja Sure	
27.	I: I'm just making notes. Uhm, so you would say you, uhm, are very opti—well feel optimistic and positive about the fourth industrial revolution in the workplace?	Meaningfulness
28.	P: Yes, definitely. Yes.	<ul style="list-style-type: none"> <li>• Optimistic</li> </ul>
29.	I: Okay, great. Uhm, how do you see the fourth industrial revolution will shape the future of work?	Comprehensibility
30.	P: Well, I think at the end of the day, uhm, you [sic] you'll never get to a point where the human element is completely removed. I do think that the disadvantage of it is that you are probably gonna [sic], uhm, your typical operating personnel, let's say you're uhm, without sounding condescending, but your lower qualified people say it like that, or your lower income people, I think they are going to be negatively influenced by it. Uhm, I think a lot of their—the work that they used to perform is going to basically fall out of the fall out of the [sic] industry and there's going to be something that's going to replace that, well, robots, machines and everything. And then on the other side of it, you're going to have your very skilled people that still always will be there, the guys who's pro programming, for instance, robots, that's building things or your designers, uhm, designing a new conveyor system or carrying system whatever it is. So, I'm optimistic about the future. I'm very eager to see what's going to happen with where where [sic] everything is going to especially, uhm, AI, <i>but</i> , uhm, yeah, the downside thereof, I think it's going... it's probably going to push poverty a little bit more than it should.	<ul style="list-style-type: none"> <li>• Human element will not be completely removed</li> <li>• Skilled people will stay relevant</li> <li>• Push poverty more</li> </ul>
	Meaningfulness	<ul style="list-style-type: none"> <li>• Lower level employees negatively influenced</li> </ul>

31.	I: Okay. Uhm, so would you say that, uhm, it will become more specialized and that lower level employees will more negative—be more negatively affected by the fourth industrial revolution?	
32.	P: Yes.	
33.	I: Okay. Uhm, what impact do you feel the fourth industrial revolution will have on your job?	Comprehensibility
34.	P: ...Uhm, I think I'm in the fortunate position that, uhm, we are basically on the front line of design, uhm, designing [sic] engineering. Uhm, so I think for myself, it will be a positive. Uhm, I don't think it will influence me negative, well negatively. Uhm, I think if you're already, uhm, in a point where—I wouldn't necessarily say just specialist in your field, but if you're actually a sought after skill, uhm, and a, uhm, almost like a scarce skills, I think it won't influence you that much. I think the influence will be minimal. Uhm, I do think that for myself, it will probably be a positive influence or positive change.	<ul style="list-style-type: none"> <li>• Front line of design (design engineering)</li> <li>• Scarce skills will not be impacted negatively</li> <li>• Improve work, accuracy and efficiency</li> </ul>
	Meaningfulness	<ul style="list-style-type: none"> <li>• Positive impact</li> <li>• Positive influence or positive change</li> </ul>
35.	I: So, it will help you with what work you are doing and improving actually the efficiency and accuracy of your work?	
36.	P: Yes, absolutely ja.	
37.	I: How will your job description change to stay relevant in the fourth industrial revolution? [pen falls]	Comprehensibility
38.	P: Uhm, I don't think it will change that much. I I [sic] think, uhm, the power industry, uhm, well, steam generation that that [sic] I'm working in, it's a relatively, uhm, let's say it's a settled, uhm, industry. So, ah, there will be a little bit of a change. I don't think in the lifetime that I'm	<ul style="list-style-type: none"> <li>• Won't change that much until retirement</li> <li>• More automation</li> </ul>

	employed, well it's on top to the point that I'm retiring, I don't think it will change that much. There will be automation much more than we've got now. I don't think there will be a lot. So, I don't think we influenced me that much.	
39.	I: Okay. How do you control the changes brought by the fourth industrial revolution?	Manageability
40.	<p>P: ...Uhm, sjoh, that's quite a difficult one to answer. Uhm, well, fortunately, uhm, in my environment that I'm working at it, I'm driving most of the, well specifically, on the—let's say on the turbine side, I'm the driver of the implementation of, uhm, let's say the automation or driving the revolution from my side. Uhm, the one thing that I've realized that—which is extremely important is, uhm, documentation. Uhm, what is, what was done, what was changed, what is new, what wasn't changed. So, the... The other thing that is extremely important is training, uhm, that's the one thing that I think a lot of company's lack, uhm, you've got a lot of people that's uhm, that they've been doing—they will be doing something for the last 20 years, that we're pushing the same button every day, the same time, the same way the same, everything is the same. So, suddenly you change that button of these to a to a key switch, uhm but the guys don't get trained. So, uhm, for the guy who's driving the change, or driving the automation, it's easy, because they've been thinking about it for for [sic] weeks or months, days, years, however long they've been busy with that change, or that improvement, but the guys working on the floor, the only thing he sees is, is a new button. So, I think the one thing that is extremely important in that is training. Uhm, that's—and that's that's [sic] one thing that we've been lacking a lot, uhm, that we've been picking up now, is first of all getting the documentation, right, second of all, getting everybody</p>	<ul style="list-style-type: none"> <li>● In environment of driving automation – thus prepared for it</li> <li>● Documentation - what is, what was done, what was changed, what is new, what wasn't changed</li> <li>● Training</li> <li>● Evaluating what is successful</li> </ul>



	<p>trained up, and the third aspect of it is, uhm, always going back and evaluate what you did and how—and was it successful, and do you need to change it? So, my my [sic] philosophies, uhm, is If you're not at the revision five of the changes, you haven't thought of it yet, you still need to go a bit more.</p>	
41.	<p>I: Yes, definitely. And then what skills do you apply to stay relevant or have an active part in the fourth industrial revolution?</p>	Manageability
42.	<p>P: Uhm well, [laughing] that's a difficult one. Uhm well, fortunately, I I [sic] am a trained engineer. Uhm so, that that [sic] gives me a I think a fairly good background. Uhm, while studying, uhm, there was a— there was always that split for me between, uhm, should I go into electrical engineering or mechanical engineering and, uhm, because of my interest in, uhm, let's say the computer world or the IT world, uhm, there was always that interest on that side. So, I think that that [sic] gave me a, uhm, good idea and a good understanding of how things work, and how things are supposed to work and are to improve things to to [sic] excel. I think personal interest made one difference. The other part of it is, uhm, the company that I am working for, we we're [sic] live in a relatively small, uhm, complement of of [sic] people on site or let's say, uhm, engineer's on site, ah for instance, compared to, let's say the the [sic] Eskom stations if I'm ah if I'm [sic] allowed to, uhm, compare to them, we probably—we the work comp- or the amount of people and amount of engineers that we have is a lot less and purely because of financials, and it is a privately owned power station. So uhm, financially, it always—there's always a strain on you, and we've got a lot of freedom to to [sic] go and research, to go and get, uhm, research materials, uhm, to engage with engineering companies, or engage with suppliers, or, uhm, I've had a couple of students that we've we've [sic]</p>	<ul style="list-style-type: none"> <li>● Trained engineer</li> <li>● Personal interest – provide greater understanding</li> <li>● Do research, get research materials</li> <li>● Engage with other companies</li> <li>● Continuous learning</li> </ul>

	worked with as well. Uhm, so there's a lot of external inf—influences that you can use, but we do have a—we do—we've got quite a bit of freedom inside to go and do our own research, and and [sic] implement what we've researched. So..., I think, uhm, time and freedom is is [sic] a big contributor to to [sic] that.	
43.	I: Great and then also would say that continuous learning also plays a part... in... the...	
44.	P: Absolutely. Yeah, it's probably the most important thing.	
45.	I: Okay great and then, how do you feel the fourth industrial revolution is connected with the politics or the BEE of the company?	Comprehensibility
46.	P: Uh... Uhm... I I [sic] don't think really, it's uhm—it influences that—us that much. Uh, the the [sic] companies, uhm, we do have a BEE policy and we are—and and [sic] we driving [sic] it, and we're implementing it, uhm, but uh, we work on a philosophy that, uhm... bec—well, because we do everything in our house, uhm, it it [sic] limits the amount of, uhm, let's say supplier influence or external contracting influence. So, uhm, with us doing everything in house, it makes it a lot easier. So, we basically just go out and buy and we'll do the rest in house. So, uhm, we [sic] we've got a good BEE the policy that we driving [sic] and we we [sic] use it and we we [sic] buy from whoever we we [sic] get the right equipment from or that supplies the best service.	<ul style="list-style-type: none"> <li>• No connection</li> </ul>
47.	I: Okay, so how does technology or the fourth industrial revolution impact the in-house operations of the company?	
48.	P: Uhm... Sjoh, how how [sic] can I—how can I explain that? [laugh]. Uhm... the...—you are going to have to give me a couple of minutes to think about that.	

49.	I: No problem, you can take as much time as you need.	
50.	<p>P: Okay, uhm... well, I would say one one [sic] thing that, uhm, there there's probability let's say around about, uhm... it's about ten people in the company who's who's [sic] really, uhm... let's say very involved with, uhm....with [sic] changing everything the company how it used to work, and, uhm, it it [sic] makes it sometimes it's a bit difficult, uhm— obviously, there's personalities that clash and some people are like, uhm, solution A, and a some people like solution B. Uhm, so [breathing]... sometimes it creates a bit more... animosity between people, sometimes it's it's [sic] making life, uhm, a little bit easier. Uhm, I think interpersonal relationships is a very big influence in in [sic] getting everything done or, uhm pulling yourself into the future as it should be. Uhm, how it's influencing the companies itself...ja, I don't know. [laugh]. [background noise]. Uhm... it could be the one thing that we that we [sic] do have—what what [sic] I can say about it is that, uhm, we are driving... to for instance, automation gets driven, it's a it's a [sic] safety measure for us, it's a financial income, ah driver. So, uhm, for I— us easy if the machines are genera—generating electricity, we get paid, if it's not, we're not getting paid. And, uhm for us as a business, it makes sense to to [sic] drive that progress or, uhm, improving our internal, uhm, systems or, ah uhm, improving our automation, because that is what's, uhm, driving reliability in the plant, that's what's driving efficiency. Ah you—obviously, efficiencies cost savers, so for us as a company, it's very important to drive that, uhm, if I can say automation part of it, uhm, a large part of our, ah, expenditure yearly, uhm, also goes around, uhm, automation and, uhm, improving what we've already got. Even if it's ah, equipment that's not that old that's been around since let's say 20, the late—let's say, we we [sic] busy replacing items now that's been in year since 2005, that's already out of</p>	

	production. So, the company is all time driving to to [sic] see if we can get that better and get that done, get the newer equipment and get a bit of control in get, uhm stay—let's say stay with the game.	
51.	I: Okay, so using that resource—sorry— uhm, using that resources to upgrade the, uhm, equipment in the company.	
52.	P: Yes. So yeah...	
53.	I: Okay great.	
54.	P: The the [sic] fortunate thing of, uhm, doing these type of things in house, or the good thing about it, is, uhm, you—you'll always get somebody that will that will [sic] give you a solution. For our side, I will try and sell your BMW or Mercedes but at the end of the day, you you [sic] need a Corolla or you need a Spark. Who knows? Who knows what what [sic] you actually need. But the the [sic] only people that really know is the people in house that that [sic] works with it each and every day.	
55.	I: So, having that knowledge about the organization?	
56.	P: Yes, yes, exactly. That.	
57.	I: Okay. How do you feel the fourth industrial revolution impacted your life?	Comprehensibility
58.	P: ...Well, I think it's a quite a big impact on it, uhm, and I I [sic] think because I'm one of the drivers at our company, uhm, it it [sic] impacts my life, basically each and every day. Uhm, so I mentioned I'm I'm [sic] responsible for investigations on incidents and without, uhm, getting to a point where you've got [sic] more more [sic] knowledge at your fingertips, more uhm—or let's say more automation done, that that [sic] gives <i>me</i> the power, uhm, to do, uhm—let's say instead of	<ul style="list-style-type: none"> <li>• Big impact - every day</li> <li>• Makes life easier – time saver</li> </ul>

	investigation taking me two or three or four days, suddenly takes me half a day or two hours or something like that. So uhm, for me it is a big time saver. Uhm, it it [sic] ja, makes my life a lot easier.	
59.	I: Great. And then how does the fourth industrial revolution impact your health?	Comprehensibility
60.	P: Uhm, it's probably negative because I walk a lot less than I used to. No no, not really [laugh]. Uhm, I actually think that, uhm, health wise, I think it's better it, uhm, a lot of the time it keeps me out of the noise, it keeps me out of the dust out of the dirt, uhm, even though it's it's [sic] work environments that we always try to improve for people that's working in those environments. Uhm, I think for me personally, it's it's [sic] better, uhm, because I uhm—I'm not constantly in those environments, in the noisy environments or in the dusty environments.	<ul style="list-style-type: none"> <li>• Better health – keep out of dust and noise</li> </ul>
61.	I: Okay... And then what are your personal resources you use to cope or work with the fourth industrial revolution?	Manageability
62.	P: Uhm, if you say personal resources mean you—do mean by what I've got to my disposal in my office, or...	
63.	I: Yes, in your everyday life...	
64.	P: In my everyday life, okay. So uhm, what is, uhm, actually—the one thing that is nice is we've, uhm, office, I've got my laptop and you'll find your normal things that you you [sic] do your everyday work. My—most of my work is office bound, I am from time to time on a plant, but most of my work is office bound. So uhm, I do have a very—well upgraded laptop, which I got a bit earlier this year and one of these funny looking keyboards [ showing keyboard]. So [laugh], uhm, but we for instance got a, uhm—with most of the automation on the plant and everything gets expect to connect to our one, uhm... uh system at work that we do	<ul style="list-style-type: none"> <li>• Laptop</li> <li>• Internet of things</li> <li>• Software based systems</li> <li>• Technology</li> </ul>

	<p>use, uhm, called Adroid, uhm, is a software based system that we've installed that we actually take—use to monitor the plant. And, uhm, we've also got, uhm, tablets that we can actually walk around in the plant and uhm—let's say over 20 years ago, everything was basically, uhm, manual. So, you you [sic] never knew what was going on in the plant. What I can do now is I can sit at home, I can open up my tablet, I log into the software, and I can see exactly what's going on, on the plant, I can see what's the condition of each of the units, what's the condition of the, uhm, of the [sic] boilers, what's the amount of energy or power being sent out. So, for me personally, uhm, things like a tablet connecting to a cloud server, uhm, my laptop that's, uhm, also connected, I can even log on there to my phone. So uhm, basically, uhm, we are currently relatively spoiled, I think with the the [sic] choices that we've got and, uhm, I can even use my own personal PC at home or my personal ah, tablet at home to to [sic] log into the same thing. So uhm, we've got servers running, uhm, we can log on to that, that gives us a lot, a lot of other info as well on the plant, which is not, uhm, necessarily purely production related, uhm, it might be water usage related, or whatever it is. So uhm, you know, we [sic] we're spoiled currently, compared to a couple of years back.</p>	
65.	<p>I: Yes. So, you would actually say that technology of the fourth industrial revolution are actually resources to cope, uhm, with the fourth industrial revolution if I can put it like that.</p>	
66.	<p>P: Yes. Yeah.</p>	
67.	<p>I: Okay, and then...</p>	
68.	<p>P: I I [sic] think that, uhm, let's say for instance, a [sic], uhm, implementation of ah automation in the plant without having eyes to</p>	

	look at it, it will be absolutely worthless. Yes so, yes, the technology of the revolution is definitely... driving it.	
69.	I: Definitely. Uhm, how does the fourth industrial revolution connect with your religion?	Comprehensibility
70.	P: ...Uhm, we've got a band in church [laugh]. Uhm, yeah [laugh], it's a difficult one, uhm, I I [sic] think it's a—ja, I wouldn't really say it's that relevant. Uhm, I would say this a uh—you can, instead of, uhm, going to church, you can actually sit and watch and look at a mass on your Facebook at home, streaming to the TV. Uhm... again, I think it just comes back to technology that we've got at our fingertips.	<ul style="list-style-type: none"> <li>• Not relevant</li> <li>• Go to church during lockdown – streaming TV</li> <li>• More access</li> </ul>
71.	I: Yes, actually having, uhm, access to more information and videos about, uhm, your religion and having that ability to actually, uhm, attend a church sermon when it's COVID.	
72.	P: Yes, exactly, yes.	
73.	I: Okay, and then how does the fourth industrial revolution impact on your shamefulness? Just to give a bit of a background, uhm, usually—well stereotypically the older generations are not that tech savvy and struggle a bit more with the technology, while the younger generations are but more clued up on the current technologies and all that. I sorry—how does that impact your shamefulness? Or if you do experience sha—shamefulness?	Comprehensibility
74.	P: Uhm, I don't really experience it I, uhm—when, uhm—I think I was very fortunate in the the [sic] position that, ah, when I was at school still, uhm, that's when basically, personal computer started. So uhm, I've always been, uhm, involved with it, and I think I I [sic] grew up with it from, uhm, riding my bicycle in the streets, uhm, up to a point we I was one of the first people that had a cell phone. Uhm so, I started off	<ul style="list-style-type: none"> <li>• No shame</li> <li>• Grew up with the technology</li> <li>• Working with the latest programs</li> </ul>

	<p>with a 51 Ten, which people st—still seem to be strange but in any case. So uhm, I think that—what was nice about it is I grew up with it, and I got used to it, so I grew with it. Uhm so, you've—I've got everything from, for instance, on a laptop or on a PC, I've got everything from [inaudible, 29:35] basics, which if you tell people that they'll tell you, you say what. So uhm, I've started from there up to a point where working on the latest and greatest, uhm, Windows or, uhm, CAD programs or, uhm, I've automated some of my uhm—some of the lights at home. So, I've got a [sic], uhm, app on my phone that I, uhm, can adjust my geezer time or see if my solar system at home is, uhm, charging or not. Uhm, I can switch on my home lights from from [sic] my cellphone if I want to, uhm, I can use, uhm, Siri to switch on my lights at home. So uhm, I think with me keeping up with it, uhm, I would say, doesn't really bother me. Shamefulness? No, not really.</p>	
75.	<p>I: Okay, good. Uhm, we at the last question, what will make your job meaningful now or in the future?</p>	<p>Meaningfulness</p>
76.	<p>P: uhm, I think one of the things that, uhm, that [sic] I—well something that I've been driving but not as hard as I can, and I think what will make people feel a bit more meaningful—well to me is, uhm—for me, it's always been a passion to upskill people and getting people, uhm, to being recognized or recognize their own skills and improving them and, uhm, giving them that that [sic] experience or, uhm, opportunities to to [sic] grow into something. And I I [sic] think the, uhm—what we're experiencing now in the fourth industrial revolution is, uhm, it's almost easier to get people to, uhm, to [sic] encourage people to grow, to keep them up. Uhm, if I can maybe come back to what I mentioned about training, I think that's one of the important things is to to [sic] make sure that you always get that training done and get people upskill—it's</p>	<ul style="list-style-type: none"> <li>● Upskill people, recognise their own skills</li> <li>● Getting people recognised</li> <li>● Improving people</li> <li>● Train people</li> <li>● Influence other people</li> </ul>



	<p>actually nice to see, uhm, when you've got a junior coming in, he looks completely lost when he walks into the building, and two years later is your is your [sic] star operator. And uhm, I think that's one of the things that the younger people are struggling a bit less with because they get more tech savvy, uhm, they—it's easier to get in there. I think that's that's [sic] one of the things that that [sic] motivates me, uhm, or gives me a bit more meaning is, uhm, that influence I can have on people.</p>	
77.	<p>I: Yes, no definitely, uhm, I think that's very important, especially now with everything changing.</p>	
78.	<p>P: Absolutely.</p>	
79.	<p>I: Yes. So that's all from my side. If you have any questions, you're more than welcome to, uhm, ask me anything.</p>	
80.	<p>P: I was actually just wondering, uhm, what degree are you studying for?</p>	
81.	<p>I: I'm currently doing industrial psychology, uhm so, my master's degree. And so, my thesis is about looking at mental health during the fourth industrial revolution of managers. So just to have that, uhm, insight into how the technology influences everyone. Yes, so I focus more on the people and how we can make them more effective. [background noise]</p>	
82.	<p>P: Okay. Interesting.</p>	
83.	<p>I: Yes, definitely. I really love this field. It's very widely scoped. So, there's a lot of things that happens [sic] in this field.</p>	
84.	<p>P: Okay.</p>	

## Transcribed interview of Participant 14

Participant 14		
Code	Transcription	Coding
1.	I: Good morning how, ag [laugh] Good afternoon. How are you?	
2.	P: I'm okay, can you see me? I don't I look why do I got [sic] [inaudible 0:09]	
3.	I: I don't see you yet.	
4.	I: Uhm, there know I can see you.	
5.	P: Let me close my door, hold on.	
6.	I: Okay, no problem.	
7.	P: [inaudible 0:36] Cemonn, how are you?	
8.	I: Good thanks and you? No problem.	
9.	P: Okay it's just been a hectic Friday,	
10.	I: Ag shame man, I hope it gets better. Well, it will.	
11.	I: Before we start, I'm sorry just a minute.	
12.	P: Is that your mother?	
13.	I: Hi, sorry.	
14.	P: Who's chirping in the background. Your mother?	
15.	I: Yes, that's my mother. I sorry about that. Okay, um, before we start, I just want to confirm that you give consent to being recorded. And you do understand what he said in the informed consent form.	
16.	P: Yep, fine.	

17.	I: Great. Thank you very much. Do you? Great, perfect. Thank you. Do you have any questions before we start?	
18.	P: No.	
19.	I: Okay, great. Uhm...so the first question is, why do you think the fourth industrial revolution is?	Comprehensibility
20.	P: The development of technology, the pace that's happening at.	<ul style="list-style-type: none"> <li>• Development of technology</li> <li>• Integration of physical and technological worlds</li> </ul>
21.	I: Yes.	
22.	P: Ja. So that's what's happened in the world for the last ten years of the pace of technology.	
23.	I: Okay, so you would say that it's the combination, ag, the integration between the physical and the technological world?	
24.	P: Ja, I think so, ja.	
25.	I: Okay, how do you perceive the fourth industrial revolution?	Meaningfulness
26.	P: It makes life easier, but it also becomes... it's make [sic] life less private. Everybody's watching everybody, if you're not—if you don't get a million likes on a Facebook post that, you know, nobody. It's it's it's[sic] changed the way we perceive life. You know, you see all these wonderful things on on [sic] Facebook, and I just use that as an example, that is at work. And we're doing a zoom meeting. Now this is possibly going to happen in the next the next [sic] ten to fifteen years. There are going to be no real huge meetings in the buildings anymore,	

	possibly. Next, but again, you're on the other side of the coin, you've got the Facebook type, where if you're not seem to be on holiday uhm, at the coast every year and got the fancy cars, then you you're you [sic] don't fit in?	
	Comprehensibility	<ul style="list-style-type: none"> <li>• Makes life easier</li> <li>• Makes life less private</li> <li>• Changed life perceptions</li> <li>• More emphasis on status</li> <li>• Remote work</li> </ul>
27.	I: Yes, definitely. Uhm so do you...	
28.	P: It set a standard? That is almost unattainable to the average Joe in the street?	<ul style="list-style-type: none"> <li>• Sets high standards that are not achievable by everyone</li> </ul>
29.	I: Yes, definitely. Uhm, do you believe that the fourth IR it is positive or negative aspect?	Meaningfulness
30	P: I think it's got both, I think, both positives and negatives. Uhm, positive, it's put everybody in touch a lot quicker through like cell phones. Uhm, the negative side of things it's uhm, taken away a lot of freedom. And a lot of other things that kids you know would rather be sitting on a cell phone than playing in the park, and riding a bicycle it's now... not the greatest thing in the world.	<ul style="list-style-type: none"> <li>• Positive and negative</li> </ul>
	Comprehensibility	<ul style="list-style-type: none"> <li>• Connects more people</li> <li>• Taken away freedom</li> </ul>

31.	I: Yes, screen time. Yes, definitely. Uhm so are you optimistic about the fourth industrial revolution?	Meaningfulness
32.	P: I suppose I am. You know.	<ul style="list-style-type: none"> <li>• Optimistic</li> </ul>
33.	I: Yes.	
34.	P: It's gonna [sic] help me... uhm, I enjoy it. Because like, if I don't like talking to you, I can just switch off and play [inaudible, 4:06].	<ul style="list-style-type: none"> <li>• Help in life</li> </ul>
35.	I: [Laugh] Yes. Yes definitely [Laugh]	
36.	P: [Laugh] Ja, I'm just saying, ja, I am optimistic.	
37.	I: Yes. Okay.	
38.	P: It grows it becomes better	
39.	I: Okay,	
40.	P: It's going to become more affordable to a lot more people.	
41.	I: Yes, definitely. Uhm do you, ag, tell me about your experience of the fourth industrial revolution?	Comprehensibility
42.	P: It's a case of either sink or swim.	<ul style="list-style-type: none"> <li>• Either sink or swim</li> <li>• Automation</li> </ul>
43.	I: Okay.	
44.	P: Uhm You know, I worked years ago in supermarkets, everything's manual. If you walk in a supermarket, there's a little on the shelf is a thing called a little shelf talker. Now I started that when I was at checkers in 1976. We had to go to a printer. We had to go and type out labels. The head office would send us labels to do but today it's all generated. It's all there for you got a printer print by a push of a button,	

	put it up and take it away so development and things that are happening, it's going to make life a lot easier.	
45.	I: Yes.	
46.	P: It's made my life easier. I get here, I didn't have I didn't have[sic] a computer when I started here, or my other companies where I worked, I had a computer to keep in touch with uhm, people overseas or contacts. Here, it was a case when I need something done, I had to write it on a piece of paper go and fax it, I had a secretary who used to typed my letters, it just, it made my life a lot easier for me to be able to sit at my desk and do it.	<ul style="list-style-type: none"> <li>• Made life easier</li> </ul>
47.	I: Yes.	
48.	P: If I need a letter quickly to somebody in a hurry, I go and type an email and get it off to them, done. Don't have to rely on somebody else to do it for me.	
49.	I: Yes.	
50.	P: If I need information on something uhm... I need to know something about the old age act. I don't have to go to a... volume as book and look on page two hundred and fifty five, I can go to the computer, I can type up the question. And I can get it almost instantly.	<ul style="list-style-type: none"> <li>• More and easier access to information</li> <li>• Work easier and efficient</li> </ul>
51.	I: Okay, so you would say in your workplace, the fourth industrial revolution made it more uhm, easier, made it efficient to do your work?	
52.	P: Ja a lot more.	
53.	I: Okay. Sorry, I'm just writing. So, if I'm quite a bit, I'm just jotting down notes.	
54.	P: It's fine, I'll just eat my sweet.	

55.	I: [Laugh] Okay, great. How do you see the fourth industrial revolution will shape the future of work?	Comprehensibility
56.	<p>P: Let's have a look at COVID-19. Okay, the number of people working from home. They don't have to get into a car to commute to an office block, don't have to go to an office block and work from home and be as successful in their daily endeavor. I sit in an office and doing—I mean, there are ways that that [sic] can be monitored to see if they actually are working on company work. As opposed to sitting and waiting and surfing or watching Netflix and the company's gonna [sic] change. I think this just changed everything that in a zoom meeting is going to become the norm. Uhm, you're not going to have to get into a plane and fly to Cape Town to go meet meet [sic] your shareholders, you'll do it over a zoom. And I think I think [sic] the way it's happened, it was forced upon us by COVID. But I think it also uhm, accelerated to a point where well where we go to from now I don't know, but I think with the lockdown when you weren't aloud to travel, you have to stay at home, show that there is a different way of working. Uhm, I think it's just accelerated and can only get better from now on. Uhm, I don't see huge buildings going up anymore. I mean, you go to Joburg and you see a big PW building and Deloitte building, they're empty. I don't think they're going to get to that stage where you're gonna [sic] have these massive, massive office blocks anymore?</p>	<ul style="list-style-type: none"> <li>• Virtual workplace</li> <li>• Safes time</li> <li>• Companies are going to change</li> <li>• Zoom meetings will become a norm</li> <li>• Less work infrastructures</li> </ul>
	Meaningfulness	<ul style="list-style-type: none"> <li>• Only gets better from now on – positive</li> </ul>
57.	I: Yes, definitely. So, do you think that's a good thing that's happening with the workplace becoming more virtual?	

58.	P: I think it is. But also, it's going to be to the [sic] detriment of something and somebody else. Because you're now got a builder that can't build a building and can't employ people to do that. So, as much as we're going to advance the technology, somewhere along the line, we're going to lose something.	<ul style="list-style-type: none"> <li>• Development will be to the detriment of someone</li> </ul>
59.	I: Yes.	
60.	P: You know the whole thing uhm, of online shopping, for example, the number of mainline number of stores that have now mainline that have got online shopping. You know, is it going to be? Are they going to be super marketing been built in the future? Are we going to have these huge buildings, malls? People just aren't going to go to them they figured out the easiest way to order your jean, you push a button it gets delivered to you, if you don't like it, you send it back, you get another one. Uhm, it's just changed the whole way we look at things and COVID accelerated it	
61.	I: Yes.	
62.	P: and made it better.	
63.	I: Definitely yes. Uhm so what impact do you feel the fourth industrial revolution will have on your job?	Comprehensibility
64.	P: Sorry, I lost signal.	
65.	I: Sorry. What impact do you feel the fourth industrial revolution will have on your job?	
66.	P: It's a difficult one to answer because of of [sic] the industry I'm in. I mean, you know, in a director of an old age home I'm still gonna [sic] have to be to have staff, I'm still gonna [sic] have to have nursing staff, obviously I have to be here and the way we're going to do things are	<ul style="list-style-type: none"> <li>• Stay same, way of doing things are going to change</li> </ul>



	going to be different, I'm still going to be running a full kitchen that's going to cook. Uhm, but record keeping where we've got volumes and volumes and files on my mom, and _____'s late mother. It's still gonna [sic] go on computer.	
67.	I: Yes.	
68.	P: [Inaudible 10:18] swinging, but it's all going to be stored a little piece of hardware on there somewhere in somebody's cloud and you want to retrieve it, you know, it's there that you're going to go to these old archives, all these dusty files.	<ul style="list-style-type: none"> <li>• Cloud</li> </ul>
69.	I: Yes.	
70.	P: think, you know, record keeping, bookkeeping, and that type of thing in this industry, but when sti—but this industry is still going to rely enough to rely on hand's on, you can't take away a nurse, you can't take away a chef, you know uhm.	
71.	I: Yes	
72.	P: it's still going to be there, but it's going to enhance what they do, is [sic] going to give them more time to spend with the patient, as opposed to having to write out volumes and volumes of notes, to type it up pile it down.	<ul style="list-style-type: none"> <li>• More time to spend on other tasks</li> </ul>
73.	I: Okay actually having more time to care for the patients.	
74.	P: Ja	
75.	I: Having that more contact with them.	
76.	P: Quality time	

77.	I: Okay, right. How will your job description change to stay relevant in the fourth industrial revolution?	
78.	P: I don't think it will change much...you know, I will still have to have heads of department reporting to me. Uhm, I'm still be having meetings and things like that. And I just think just the way we do it will be different. Uhm, I don't think I don't think [sic] the actual job description will change that much. You'll have to become more tech savvy.	<ul style="list-style-type: none"> <li>• Job description won't change – way do things change</li> <li>• Become more tech savvy</li> </ul>
79.	I: Yes	
80.	P: You don't have to [inaudible, 11:41] computers. But I just certainly believe that it's still gonna [sic] be there. Still gonna [sic] be there.	
81.	I: Okay, how will technology change the way you do things?	
82.	P: Ugh... it's a difficult one. Because if I'm going to go check on somebody, I still got to get up and go and walk.	
83.	I: Yes.	
84.	P: I can't send you know—I don't know. By five years time, you might have a drone that you can send surreptitiously into a room. Have a look, check the patient get a full head scan, body scan, come back in. I don't know.	
85.	I: Yes.	
86.	P: At the moment that I'm sure it's going to come. But at the moment, it's still going to be get up, go look, see what's going on, type it in. And I put it onto a computer as opposed to piece of paper.	
88.	I: Okay.	

89.	P: Short term, I think, not much change, not much will change, I think long term is going to be certain changes.	
90.	I: Yes, definitely. How do you control the changes brought by the fourth industrial revolution?	Manageability
91.	P: So I, I[sic] let me try and understand this, how much control you put in the environment?	
92.	I: Yes. Oh, how do you are, can I say cope with or stay relevant during the fourth industrial revolution.	
93.	P: So, what we've done is when I started here, there were two computers in the office, debtors and creditor. Everybody know [sic] a computer. I communicate daily through it, they report daily back to me, in itself. So, we use technology for more and more keeping records. And we just keep up to date, as opposed to once a week meetings. I can now have a meeting every month because everything is recorded. You all know what we're doing. They're all involved with one another.	<ul style="list-style-type: none"> <li>● Use computer</li> <li>● Use technology more</li> <li>● Have other people with the knowledge</li> </ul>
94.	I: Okay, yes. Do you say that you also try to learn about the new technologies and trying to upskill yourself to work in the new?	Manageability
95.	P: Okay, I certainly don't. Okay, that's my staff do. I'm quite happy to carry on what I'm doing. And carry on the way I'm learning. I still can't do an Excel spreadsheet. And don't ask me how because if I need an Excel spreadsheet, I've got an accountant, I say please send me this. And it gets done. Yes, I can read it. I do know the basic start to set it up. But I don't actually do it because I don't I don't [sic] need to. You know, I'm pretty fair how it works. But I've got other people that do it for you. So ja, it's a comes to the crunch. And I've got to do it. Yes, I know how to extract information. I know how to where to put it on how to do it.	

96.	I: Okay.	
97.	P: I'm very lazy, I'm the boss.	
98.	I: Definitely. So, with this question, what skills do you apply? So that can be anything till—well you mentioned that you do uhm, have few knowledge [sic] about using the computer. Are there any other skills you use to stay relevant, or have an active part in the fourth industrial revolution?	<ul style="list-style-type: none"> <li>• Have basic knowledge of computers</li> </ul>
99.	P: Look, look [sic]. On the day, you know, day to day we still learn. We're still learning and everybody's going to do something new day, and you're certainly happening—uhm Zoom, for example, I just had to go and show an eighty five year old lady how to do a zoom because she wants to go and watch a few.	<ul style="list-style-type: none"> <li>• Learn new things</li> </ul>
100.	I: Yes.	
101.	P: So even that even that [sic] because he said to us, I'm learning, and I'm teaching at the same time, the same type of technology.	
102.	I: Okay? That's great. Uhm, how do you feel the Fourth IR is connected with the politics or the BEE of the company?	Comprehensibility
103.	I: Okay, with politics, not really even the company and BEE, we don't have.	<ul style="list-style-type: none"> <li>• No connection</li> </ul>
104.	I: Okay, so. So ja, not applicable?	
105.	P: Not Applicable, but we can get the information if we do require it.	
106.	I: Okay. Uhm, how do you feel the fourth industrial revolution impacted your life?	Comprehensibility
107.	P: Made me a lot lazier.	

108.	I: [Laugh]	
109.	P: Or no, let's put it another way. A lot. Maybe more office bound than I should be because of I can send a message to somebody with an instant return. I don't have to necessarily get up from my desk and go across to the opposite to ask them a question. Now, there are still things I mean, here, for example, you know, I—on my roof, I've got a solar system that supplies a hot of water for this business. Uhm, up to about a year and a half ago, I've got up to that roof every single day to check that it's working.	<ul style="list-style-type: none"> <li>• More office bound then should –</li> <li>• More safe – don't have to go on the roof</li> <li>• Become less hands on</li> </ul>
110.	I: Yes.	
111.	P: My system put in, and then I click onto my computer, and I can see that it's working. And if there's an issue, it tells me there is a [sic] issue, instead of going on the roof once a day on that roof once a week or so.	
112.	I: Oh okay.	
113.	P: It's made life easier. So, it helps, and it becomes interesting, because, you know, get more office bound, and become less hands on, and that's ja.	
114.	I: Okay.	
115.	P: Uhm, how do you feel, how does the fourth industrial revolution impact your health?	Comprehensibility
116.	I: Uhm... It doesn't really, you know, I'm not concerned. If there is nothing wrong with me, I couldn't care. Could get radiation from using my cellphone. It doesn't really make a difference to me.	<ul style="list-style-type: none"> <li>• No impact</li> </ul>
117.	I: Okay.	

118.	P: You know, my health issues is my health issues. Uhm, It's actually quite interesting to say it, I'm just thinking back now I go to gym twice a week, I get onto to the electric bicycle, on a bicycle [sic], and exercise on bicycle or push a button. You know that tells me how long I'm riding for. So yeah, so the idea is that, in fact, I've ridden long enough. But when it comes to like, just the working environment, no issues. But I think on that side, I can keep record of what I've done. Am I improving? Am I getting worse? You know from using the technology at work couldn't be bothered, but that sounds actually quite interesting to us.	<ul style="list-style-type: none"> <li>• Can keep monitor exercise</li> </ul>
119.	I: Okay, so you actually use software to help track uhm, your health uhm, conditions and your exercises?	
120.	P: Ja.	
121.	I: Okay. And then, uhm, what are your personal resources used to cope with the fourth IR?	Manageability
122.	P: I'm not following that, what are my resources?	
123.	I: Yes. So uhm, it could be any resource of your disposal.	
124.	P: So, I've got very few people around me,	<ul style="list-style-type: none"> <li>• People who are knowledgeable</li> </ul>
125.	I: Okay.	
126.	P: That are a lot younger than me. And they know far more about technology than I do,	
127.	I: Yes.	
128.	P: If I can't get something figured out, I just call them or one of them show me how to do it. Done and dusted.	

129.	I: Yes. Okay.	
130.	P: Well, I think your age group, the millennials are a lot more tech savvy than I think we will ever be.	
131.	I: Yes.	
132.	P: You've grown into it, we've had to grow up with it you know, use it as a... it's there and we have to learn and adapt.	<ul style="list-style-type: none"> <li>• Adapt</li> </ul>
133.	I: Definitely yes. Okay, so you would say that you use uhm, the people around you to uhm increase your knowledge about the new technologies and how to use that.	
134.	P: Ja.	
135.	I: Okay. So, the next question is, how does the fourth industrial revolution connect with your religion?	Comprehensibility
136.	P: Okay so if I want to check up something that I'm not too sure about I don't feel like speaking to the rabbi.	<ul style="list-style-type: none"> <li>• More access to information</li> </ul>
137.	I: [Laugh]	
138.	P: To get hold of, I can go, and I can search down. Uhm yes, I can't. If I was very religious, I won't be able to use my phone on Sabbath or use my computer on the Sabbath and holidays. Uhm but ja, but but [sic] it really is an add on. It's not a... It doesn't tend to me—it doesn't. It's irrelevant, really with religion. You know, we use it to if I want to find something, you know, but it doesn't—it's got nothing to do with our religion or our use or not use it.	<ul style="list-style-type: none"> <li>• May not use technology on Sabbath</li> <li>• No connection with religion</li> </ul>
139.	I: Okay, so actually to gain more information about your religion.	
140.	P: Ja. If I wanted to, ja	

141.	I: Okay, great. And then, uhm, how does the fourth industrial revolution impact your shamefulness? So, as you mentioned, just to give a bit of a background, like the older generation will not be as tech savvy as the millennials, for example. So, do you experience shamefulness? Or uhm how does that impact on it?	<ul style="list-style-type: none"> <li>• Comprehensibility</li> </ul>
142.	P: Okay, so you've got to understand I'm I'm[sic] very very... I don't get embarrassed, I'm not ashamed by it. And if I don't know something about it, and you know I'll just say, I don't know what I'm doing. Oh, somebody to tell me. It's that that's it's that it's[sic] that simple. If I don't know what's going on, I'll ask somebody. I'm not embarrassed by it.	<ul style="list-style-type: none"> <li>• No shame</li> <li>• Will ask for help</li> </ul>
143.	I: Yes.	
144.	P: So if somebody, so if they start talking jargon, I'll just switch off because I'm not talking about any way.	
145.	I: Ja.	
146.	P: [Inaudible 20:24] physical side of it. I don't know what they're talking about, or ask them to show me, I'm not worried.	
147.	I: Okay, so you don't mind asking for help.	
148.	P: No.	
149.	I: Okay.	
150.	P: I never ask for directions, but I will always ask for help.	
151.	I: [Laugh]That's true. [Laugh] Uhm... what will make your job meaningful today, and in the future?	Meaningfulness
152.	P: I think having gone home putting a decent day's work. Uhm, that I've helped somebody or somebody's... taking cognizance of what I've said,	<ul style="list-style-type: none"> <li>• Decent work</li> <li>• Help others</li> </ul>



	or read uhm, or sent to them, that they go home learning having learned something from me.	<ul style="list-style-type: none"> <li>• Provide knowledge to others</li> </ul>
153.	I: Yes, so how will technology help you uhm, with the decent work and teaching others?	
154.	P: Uhm, I think by example. You know, you know [sic] if I can show some something that they didn't know... that I've learned. Ja, I think that's a win win for everybody.	
155.	I: Okay... Okay, that's all I have from my side. Do you have any questions?	
156.	P: No, I'm good.	
157.	I: Okay, great.	
158.	P: I'll scan and email them back to you.	
159.	I: Okay, thank you very much. I appreciate that.	
160.	P: I will give it to your mother? I'll email and scan.	
161.	I: Yes, you can either way, I'm comfortable with any means of keeping it there. Uhm okay, thank you very much. Once again, thank you for your time on this busy Friday.	
162.	P: [Laugh] It's been pretty hectic.	
163.	I: Yes.	

### Transcribed interview of Participant 15

Participant 15		
Code	Transcription	Coding

1.	I: Good morning... Hi, can you hear me Terian?...	
2.	P:...intuitive. Hey...	
3.	I: [laugh] No problem, welcome. Uhm, how are you this morning? [Laugh]	
4.	P: I'm well, thanks. How are you?	
5.	I: Oh, good, thanks. Just busy. [laugh]	
6.	P: I can't imagine this is very interesting work you're doing.	
7.	I: Yes. Uhm, oh sorry, no.	
8.	P: No problem, I had to Google what Salutogenesis is.	
9.	I: Oh,	
10.	P: trying to get a...an understanding[laugh] of what it is that you're doing.	
11.	I: Yes. I can ...	
12.	P: Very interesting	
13.	I: explain if you want to know a bit more. Uhm no, I also only found out about it this year.[laugh]	
14.	P: Okay. Okay.	
15.	I: Yes uhm, so I just want to before we start, you do give consent to being recorded uhm, during our interview?	
16.	P: Yes, I do.	
17.	I: Okay, great. And then do you understand what is said in the informed consent? Do you have any inquiries about that?	

18	P: I do understand. Uhm. The only thing I didn't receive is the ethical clearance form.	
19	I: Okay, I can send that through to you...	
20	P: Or ethical clearance letter. Okay	
21	I: Would you like it now?	
22	P: Ah, no, I believe you. [laugh]	
23	P: As soon as you have a moment it will be nice to to [sic] have that as well.	
24	I: Okay. Thank you. I'll send that through. Uhm, are you ready to start?	
25	P: Yes, I am.	
26	I: Great. So, what do you think the fourth industrial revolution is?	Comprehensibility
27	P: Oh, for me, the fourth industrial revolution, when I hear that, I think the, you know, technological age, the age of automation, uhm, you can sort of start to think about robots, and all sorts of crazy things, but definitely just uhm, technology. And and [sic] the, uhm, yeah, technology in the workplace and in life and everywhere, basically.	<ul style="list-style-type: none"> <li>• Development of technology</li> <li>• Automation</li> <li>• robots</li> </ul>
28	I: Okay. How do you perceive the fourth industrial revolution?	Meaningfulness
29	P: Uhm, Yeah, I see the fourth industrial revolution as humans at the most efficient. I think the, you know, inclusion of technology in our everyday life—can really streamline things and uhm, yeah, streamline things and and [sic] make make [sic] things very efficient.	
30	Comprehensibility	<ul style="list-style-type: none"> <li>• Humans at most efficient</li> </ul>

31	I: [laugh] Okay. Uhm, so do you believe it is a positive or a negative aspect?	Meaningfulness
32	P: I think it is a positive aspect.	<ul style="list-style-type: none"> <li>• Positive</li> </ul>
33	I: Okay...uhm sorry. I'm just writing uhm notes down. So, if I'm quiet...	
34	P: Okay	
35	I: just quickly jotting down my notes.	
36	P: No problem.	
37	I: And then are you optimistic about the fourth industrial revolution?	Meaningfulness
38	I: Yes, I am. I think it definitely has, as I said, it it it [sic] has a very positive, uhm, have a very positive view of the fourth industrial revolution. But I do also believe that it comes with great responsibility as well. Uhm, there's a lot of ethical considerations once you start implementing technology in different fields. So, it's overall positive, and I'm overall optimistic. But I do think that we also need to proceed with caution.	<ul style="list-style-type: none"> <li>• Optimistic</li> <li>• Comes with great responsibility</li> <li>• Cautious</li> </ul>
39	Comprehensibility	<ul style="list-style-type: none"> <li>• A lot of ethical consideration</li> </ul>
40	I: Okay, definitely. And... tell me about your experience of the fourth industrial revolution.	Comprehensibility
41	P: Uhm. For <i>me</i> ... the fourth industrial revolution, I think, uhm, what I've what I've [sic] seen is like coding, uhm, algorithms, deep machine learning. I read a lot about it in my spare time, uhm, because I was very interested in getting into consulting at some stage, but I definitely think that ...it's integrated. That's how I've experienced it. It hasn't felt like something that is foreign. Oh, just Excuse me, please.	<ul style="list-style-type: none"> <li>• Coding</li> <li>• Algorithms</li> <li>• Machine learning</li> </ul>

42	Manageability	<ul style="list-style-type: none"> <li>• Read about 4IR in spare time</li> </ul>
43	I: No problem at all. [background conversations]	
44	P: Seems we having [sic] a little bit of a... double booking	
45	I: Oh no	
46	P: this meeting, but it's not a problem. Uhm, yeah, so I definitely think that uhm, the fourth industrial revolution has been very integrated. It hasn't felt like a <i>shock</i> to the system, you know that this is all of a sudden new. We grew up, also a cell phone for the first time and around age seven, I think, and then sort of grew up with it. So, it doesn't feel weird.	<ul style="list-style-type: none"> <li>• Integration</li> <li>• Comfortable with 4IR</li> <li>• Grew up with it</li> </ul>
47	I: Okay, so you'd say that uhm, you're actually, uhm, got to know uhm, the technology and working with technology throughout your life?	
48	P: Yes, yes, definitely.	
49	I: How do you feel about the fourth industrial revolution in the workplace?	Comprehensibility
50	P: I think it definitely has a strong strong [sic] place in the workplace. So, my field uhm, is fertility as—assisted [sic] reproduction uhm, but my position is in research. And I think in the field of assisted reproduction, and specifically spermatology, for myself, one of the main ways we or technology has changed the way we view things it, is[sic] with something called CASA, which is computer assisted a, uhm, sperm analysis, where we essentially can track the movement of sperm thanks to uhm, the microscope and algorithms tracking the head and the tail, and you can chart exactly how far the sperm has swam, in which direction, how fast like everything, you can get a lot more information,	<ul style="list-style-type: none"> <li>• Strong place in the workplace</li> <li>• Technology changes the way view things</li> <li>• More and easier access to information</li> <li>• Make work easier</li> </ul>

	<p>just from, you know, the this very <i>cool</i> piece of technology. So, I definitely think in the workplace, it is <i>there</i> already. We've got quite sophisticated technology in assisted reproduction, uhm, my colleague Sean will tell you more about uhm, the embryology side. And uhm, yeah, I think is even in research. I think with the dawn of search engines..., and technology ... and research articles at your fingertips. We can access information so easily compared to a few years ago, where people had to go to libraries and sift through journals. Now it's just typing keywords you have SEO's like everything... is brilliant, and easy and accessible at this point.</p>	
51	I: Okay, I'm sorry, I'm not sure what what [sic] is a SEO's?	
52	P: Search Engine Optimization.	
53	<p>I: Okay, thank you. [laugh] Uhm, I learned something new [laugh] uhm. How do you see the fourth industrial revolution will shape the future of work?</p>	Comprehensibility
54	<p>P: Uhm, Yeah, I definitely think it will have a positive impact in the future of work. I know in certain other industries, people are concerned uhm, that automation will, you know, reduce the number of jobs available. But I also think that it has the capacity to make things streamlined and efficient. And uhm, as I said, in research, it really adds value because things are accessible uhm thanks to search engines like Google. And uhm, yeah, different technologies to help us assess parameters we couldn't assess before.</p>	<ul style="list-style-type: none"> <li>● Job losses</li> <li>● Capacity to make things easier</li> <li>● Adds value in research</li> <li>● Broaden parameters</li> </ul>
55	Meaningfulness	<ul style="list-style-type: none"> <li>● Positive impact on future work</li> </ul>

56	I: so, you'd say actually providing more information uhm, at our fingertips?	
57	P: Yes..., essentially.	
58	I: What impact do you feel the fourth industrial revolution will have uhm, on your job?	Comprehensibility
59	P: Uhm, my job specifically in research, uhm, I'm actually quite interested to see how it will go in terms of uhm, you know, like deep machine learning and the type of questions uhm, that the machines can gather from the just <i>sea</i> of data available out there. Because ... we can ask questions we haven't thought of asking before when data can be interpreted in ways that we didn't think of before. So, I definitely think that it will offer <i>great</i> value to the sciences, uhm, it wasn't what was the question again?	<ul style="list-style-type: none"> <li>• Have more access to information</li> <li>• Machine learning</li> </ul>
60	I: Uhm	
61	P: For my job. Okay, yes. [laugh] Uhm, Let's see what else? Yeah, I definitely think as I'm sticking <i>to...</i> , you know, it will, it will [sic] be efficient and accessible in terms of the field and the research available.	
62	I: Okay. Uhm, how will your job description changed to stay relevant in the fourth industrial revolution?	Comprehensibility
63	P: That's very interesting. Uhm, I was trying to think about how to answer that, but I could possibly see. [Door opens]	
64	I: Okay.	
65	P: Okay, sorry, Shaun won't be able to make it right, so	
66	I: No, problem.	

67	P: Uhm, So, you probably will have to email her to see when she will be available.	
68	I: Okay. Thank you.	
69	P: Okay, uhm.. what were we saying?	
70	I: Uhm...	
71	P: Job description change. Oh, how would how would [sic] that, okay? Yeah, I think..., well, already, it's quite digital, and quite technological, uhm my job description, I spend a lot of time in front of the computer, constantly searching for things, I think uhm, it will be interesting to see..., like the different algorithms we could develop from uhm, one uhm, finding. So, if we like, identify key parameters in what makes a good sperm, uhm and then use that to create an algorithm to select the best sperm for procedures, I think definitely, uhm, there is application and room for that sort of thing, uhm, when it comes to technology, and my job description, and then also, just to see how search engines progress, because a lot of research is..., you know, typing on Google finding articles. So, I think I might have to add coding to my resume, to be able to, you know, do things more efficiently search better, that sort of thing.	<ul style="list-style-type: none"> <li>• Coding -algorithms</li> <li>• Already digital</li> </ul>
72	I: Yes so, you'd say like learning more uhm, information and skills in artificial intelligence?	
73	P: Definitely.	
74	I: Okay, and then how do you control the changes brought by the fourth industrial revolution? Or how do you adapt to the fourth industrial revolution?	Manageability



75	P: Yes, that's [laugh] essentially what I think as like, you can't really control the changes... you adapt. So that's that's [sic] that was sort of my answer. When I read that question earlier. Just adapt, you read more, you learn more, you constantly add more skills to your, you know, artists, artis [sic]—what is that word [laugh] you just add more skills to your resume [laugh].	<ul style="list-style-type: none"> <li>• Adapt</li> <li>• Read more</li> <li>• Learn more</li> <li>• Upskill</li> </ul>
76	I: And so cont... more continuous learning, would you say that's also very uhm, important during the fourth industrial revolution?	
77	P: Absolutely. Absolutely. [sic]	
78	I: Then...How do you feel the fourth industrial revolution is connected with the politics or the BEE of the company?	Comprehensibility
79	P: I thought this was a very interesting question and a very difficult one.... Uhm, but for me, what came to mind would possibly be funding. So... uhm, when it comes to ... getting uhm, the best scientific equipment, so for example, CASA is really expensive. Uhm, the embryo scope that tracks the development of embryos is really expensive. So, funding would obviously, or funding is influenced by politics and BEE, and that sort of thing. So, who would have access to this technology as a result of certain uhm, policies about BEE 's or whatever in the company? So <i>that</i> would be how it would uhm, potentially, I think, how they're connected and how they affect each other.	<ul style="list-style-type: none"> <li>• Politics and BEE influences funding – funding to 4IR technologies</li> <li>• Access to technology</li> </ul>
80	I: Yes, definitely. And how do you feel the fourth industrial revolution impacted your life?	Comprehensibility
81	P: Uhm. In my life, I think it's added great convenience. I remember the first time I got a banking app, and I could just buy a time and electricity on my phone, uhm, I think, I think definitely, things are convenient and	<ul style="list-style-type: none"> <li>• Convenience</li> <li>• Saves time</li> </ul>

	efficient. And we don't have to spend time in long lines, uhm, which I think he's great. Yeah.	
82	I: Creating actually life a bit more comfortable. [laugh]	
83	P: Yes, definitely.	
84	I: Okay, so how do you feel the fourth industrial revolution impacted your health?	Comprehensibility
85	P: Well, this one is actually quite tangible. Uhm, because of the amount of time spent behind a computer or cell phone, my eyesight has deteriorated. So... that ...a—ja, my optometrist keeps telling me to stop reading—stop stop[sic] reading so many articles and spending so much time behind the computer but it's part of my job, you can't really get away from it.	<ul style="list-style-type: none"> <li>• More time behind computer - eyesight has deteriorated</li> </ul>
86	I: So that's very interesting. Do you think that maybe in the future with new technologies that will actually help your eyesight to ...not deteriorate or de—deteriorate at a lower [sic] pace?	
87	P: Yeah, I think that'll be great. I think like as they're developing different types of screens with different resolutions. Uhm, you know, a I know, my cell phone now has that option to have—to turn off the blue screen uhm before bed and goes a yellow tinge so that you can actually sleep. Uhm [laugh] so, I think there are ways that technology is also adapting to the things that it has caused. So, I definitely think Yeah, good. Yeah.	<ul style="list-style-type: none"> <li>•</li> </ul>
88	I: Yes, I definitely agree. So, what are your personal resources to adapt or cope with the fourth industrial revolution?	Manageability
89	P: Uhm, on a personal level, on my phone, I have been known to have some screen time limiting apps, uhm, just to sort of manage the	<ul style="list-style-type: none"> <li>• Manage screen time</li> </ul>

	amount of time I spend in front of my phone, uhm, there isn't really much I can do about the need to be in front of a computer at work. So I just sort of uhm, try to ... I have got a whiteboard in front of me. So, try to look at that, and not just look at the uhm, the screen that's really close to me, just to exercise my eyes a little. So that's the main resources I use to sort of uhm, cope with the amount of screen time	
90	I: and would you say that you uhm as ... you you [sic] are a researcher, so you do a lot of research on the fourth industrial revolution?	
91	P: Actually, not. Uhm, I—everything that I know about the fourth industrial revolution has come from like reading in my [16:32 inaudible]	
92	I: Hello,	
93	P: Hello.	
94	I: Oh, sorry. Yes, you went quiet for a bit. [laugh]	
95	P: Okay, I think we just lost connection there for a while.	
96	I: Yes [laugh]	
97	P: say everything that I sort of know about the fourth industrial revolution, as a concept, I've, uhm, received more from my personal reading and personal interest in the way technology is moving. Uhm, but as I said, it ha—it has felt very integrated. And this this [sic] uhm, questionnaire has actually brought to mind just how integrated it is, and how, like, we actually already have these technologies in assisted reproduction that feels so normal, when you think about it, they're actually, you know, a direct result of things becoming more and more technological	•

98	I: is definitely true. How do...how does [sic] the fourth industrial revolution connect with your religion?	Comprehensibility
99	P: You know, I never thought of this question before this [laugh], so it was	
10	I: Me too	
10	P: it's quite an interesting question. I never thought about it. Uhm, but one example that did bring to mind was actually now in the time of Coronavirus, and the fact that uhm, a lot of churches, including my own, were streaming their services. And I thought that that [sic] was actually really interesting how we could take the spiritual experience to a screen. Uhm, I thought it was very interesting how those two connected and that's that sort of as much as I could think that they connect. Yeah uhm, although funny enough, in Catholicism recently, we have...uhm, sort of acquired a new saint, a young guy who used <i>technology</i> ... to, uhm I think, map out where all the miracles had happened to something, and because of his contribution to taking uhm, Catholic facts over to a technological platform, he was canonized as a saint, which I found very very, very [sic] interesting, uhm, like, extremely interesting, and that's that's [sic] just how I felt but I don't have anything else to add on that.	<ul style="list-style-type: none"> <li>• More access to religious resources during lockdown</li> <li>• Technology used to map miracles</li> </ul>
10	I: Yes, that's very interesting. Uhm, I'd actually like to read actually more about that. And...	
10	P: okay,	
10	I: how does the fourth Industrial Revolution impact on your shamefulness? Uhm, just what I mean here, is usually the older generations are a bit more, uhm, well actually less technological, uhm, less, technology, technological skills [sic], and the younger generations	Comprehensibility

	are more tech savvy. So, if it does at all impacted, how does it impact on your shamefulness?	
10	<p>P: Okay, ja, actually was trying to figure out how to answer this question on a personal level. As I said, technology has felt very integrated in a like very big part of my life. So, it hasn't felt weird for me the transition uhm, to a more technological lifestyle and haven't felt any shame, per se. Although I can see with some people might feel, uhm, as you have mentioned, now the lack of technological skills, and they might feel shy, uhm, or they cannot use a certain, you know, piece of technology or cell phone, and they feel really weird about it. Uhm, another thing that might impact is ...uhm, something really just strange, status. Having the newest and best technology, putting you would put you above someone else, I remember seeing a lot of memes on the Internet at one stage about air pods. And if you didn't have air pods, you were a peasant, you know, so it was, I think in that way people can start feeling shame when they don't have the latest or the best uhm, technology currently available. And I think in, uhm, in reproductive sciences, it's actually reducing shame. Uhm, because if you hop onto uhm, Instagram, Tik Tok, there are a lot of uhm, embryologist and fertility doctors doing these Tik Tok challenges where they sort of bust the myths behind uhm, you know, different, uhm, reproductive, reproductive [sic] myths, and sort of in empower and educate people using these tools. And they're just reduce the stigma associated with with [sic] having fertility issues, uhm, which I think is a really great</p>	<ul style="list-style-type: none"> <li>• Grew up with technology</li> <li>• No shame</li> <li>• Status influences shame – newest technology</li> <li>• Technology is reducing shame in embryology</li> </ul>
10	I: Yes, that's very interesting. So, we've come to our last question, what will make your job meaningful in the future?	Meaningfulness

10	P: What will make my job meaningful in the future...? Mmm...my job specifically, or just in general?	
10	I: Uhm, in general, but uhm, yes with regards your job, or if you are currently. Also, if you feel your job is meaningful, you can also elaborate more on that.	
10	P: Okay... I definitely think that my job is quite meaningful, even though it's sort of indirect, I work with embryologist who have a lot more of a direct, uhm, meaningful impact on the patient's, my assistant role in making sure that things are there when they need to be and that questions are answered, I definitely feel already brings quite a lot of meaningfulness to, uhm, even just the lab and the industry. Uhm, but I definitely think that research, in general, is incredibly meaningful. Uhm, it provides answers to questions. Uhm, and you know, for some people—I was actually just reading a little bit of a [sic] an article about uhm, patient-oriented care. Uhm, so if someone hadn't done the research to sort of find out how patients feel in an IVF clinic, how can you then best do your job to support them? So, I definitely think research is crucial under any circumstances. And uhm, in terms of the fourth industrial revolution, I think that the human aspect will always be important. Uhm, and that you can't really take that away.	<ul style="list-style-type: none"> <li>• Already meaningful</li> <li>• Technology enabled more access to info to help others</li> <li>• Deliver the best work</li> </ul>
11	Comprehensibility	<ul style="list-style-type: none"> <li>• Human aspect still important</li> </ul>
11	I: Okay, so how would you say that technology uhm, will influence ... your ... experience of your job in uhm, if you say that people will it help actually to make your job more meaningful by working with people enabling you to do more research and uhm, actually work with greater amount of information that will help?	

11	P: Yes, I definitely think it will, it will help in so many ways from the back background where you're doing research work that eventually translates into clinical practice. And then in this simple way, uhm, such as, like one of the students is designing a patient questionnaire that could possibly be on a tablet, where we can then gather information from them without them feeling you know, that awkwardness of needing to communicate to us their uhm, fertility status or any potential problems that they [sic] experiencing, especially men uhm, who tend to get quite self-conscious if they cannot deliver a sample or something like that. So, I definitely think that it will add value in ways that you don't see immediately but in the long run, definitely will will [sic] help the patients and, and [sic] us to deliver the best work we can.	
11	I: Okay, thank you very much... Uhm, If you have any questions you're welcome to ask me [laugh].	
11	P: I was actually wondering, but I guess it is nice to have conversation. But I was like, why wasn't this done using uhm, some sort of like doodle or Google poll or something? Uhm, but you can elaborate on that?	
11	I: Yes. Uhm, so I took the qualitative route. Uhm	
11	P: Okay,	
11	I: Uhm, my research study, so I didn't go qual—uhm, quantitative. So, what I am doing, I am actually measuring these individuals sock levels. And then I'm going to connect that with the interview questions I get.	
11	P; Okay	
11	I: So, a lot of interview questions because Salah to Genesis consists of three components, which is comprehensibility, uhm, meaningfulness,	

	and manageability. So, most of my questions are uhm, reflective of those three concepts.	
12	P: Okay	
12	I; So, then I'm just going to connect it and say, but managers, do you feel more uhm positive about the fourth industrial revolution, for example, to see how people can actually cope with the fourth industrial revolution because it is bringing a lot of change. And as most people don't like change?	
12	P: Yeah, yeah, that'll be very interesting to see.	
12	I; yes.	
12	P: Uhm, I'm looking forward to seeing the results of your study. Hopefully, I can get maybe like you're your [sic] thesis or an abstract or something when you're done?	
12	I: Ah, yes, definitely. You have the right to ask uhm, for the finding. So, I'll definitely	
12	P: Okay	
12	I: send it through to you after I'm done. Uhm, Yes, [laugh] when I'm eventually done [laugh].	
12	P: Okay. May I ask what's your sample size?	
12	I: Um, so far? Normally with qualitative, they say 15 more or less. So, I am going to try to get 20. So, I still need three more, but I'm asking my friends or everyone who...	
13	P: Okay,	
13	I: Yeah, who knows anyone to participate.	



13	P: Okay, cool. Thank you so much for answering my questions.	
13	I: Yes, thank you	
13	P: And good luck.	
13	I; Thank you. And good luck with the research. [laugh] You are doing very good work. It's very interesting	
13	P: Ag thank you so much. [laugh]	
13	I: Enjoy your day.	
13	P: Uhm	
13	I: Yes	
14	P: I'll send you ... uhm, I've just completed the SOC scale. Just before uhm, we did the, this meeting so I just need to go scan it and I'll send it back to you.	
14	I: Okay, thank you and I'll send my ethical clearance to you. [laugh}	
14	P: Okay, thank you so much, Cemonn.	
14	I: Thank you very much for you. Bye.	
14	P: Bye.	

### Transcribed interview of Participant 16

Transcription 16		
Code	Transcription	Coding
1.	I: Good afternoon, James uhm, how are you?	
2.	P: Will thanks yourself, Cemonn?	

3.	I: I'm very good, thank. Hope your day wasn't too busy.	
4.	P: [Laugh] It was it was [sic] a good day. Got some things done today.	
5.	I: Okay, that's good news. Uhm, before we jump in with the interview, I just want to uhm confirm that you did do[sic] give consent to being recorded.	
6.	P: Yes, I do.	
7.	I: And you have no other queries or concerns that you would like to be addressed before we start.	
8.	P: No, I', happy.	
9.	I: Okay, let's start. The first question. What do you think the fourth industrial revolution is?	Comprehensibility
10	P: Uhm... I think its vast change.... And everything becoming data dependent, electrical dependent. And I'm I'm[sic] not too sure it actually happen [sic].	<ul style="list-style-type: none"> <li>• Change</li> <li>• Data dependent</li> <li>• Not sure it happened</li> </ul>
11	I: Okay. Uhm, so how do you <u>perceive the fourth industrial revolution</u> ?	Comprehensibility
12	P: What do you mean? What will happen? Do I believe it will actually happen?	
13	I: Uhm yes, you can say if you	
14	P: I think it's uhm... I think there always be a need for for [sic] mechanical and a and and and [sic] structural and and and[sic], and basic a... a... construction concepts. I mean, one can't get everything done electrically and remotely. So, I think it's quite far-fetched. But I'm sure we all have some sort of change. And I just don't think it's going to be as extreme as a lot of people believe.	<ul style="list-style-type: none"> <li>• Think it is far fetched</li> <li>• Always need for machinal, structural and construction concepts</li> <li>• Some sort of change</li> </ul>

		<ul style="list-style-type: none"> <li>• Not as extreme as everyone believe</li> </ul>
15	I: Okay, so you would say, uhm a lot of people will say we will become fully technological and dependent?	
16	P: Yes	
17	I: and you see it that the way that	
18	P: I see it more of a fifty, fifty	
19	I: Okay, so we're taking this in mind, do you believe the fourth fourth[sic] industrial revolution is a positive or negative aspect?	Meaningfulness
20	P: Uhm... I see probably I see it more positive. Uhm I'm not overwhelmed, but I see it as a is more positive. I think what it's—what's gonna [sic] happen is life is gonna [sic] become more mundane for for [sic] more people. Uhm... it's, it's, it's gonna have less challenges and everything will be more automated. Uhm... your, your, your [sic], meaning of life might be confused even further... that's it	<ul style="list-style-type: none"> <li>• Positive</li> <li>• Not overwhelmed</li> </ul>
21	Comprehensibility	<ul style="list-style-type: none"> <li>• Less challenges</li> <li>• Automation</li> </ul>
22	I: [Laugh] So you would say that uhm, there is positive and negative aspects?	<ul style="list-style-type: none"> <li>• Positive and negative aspects</li> </ul>
23	P: Definitely.	
24	I: Okay, are you optimistic about the fourth industrial revolution?	
25	P: Ja. There's there's there's[sic] definitely some changes that will that will that will [sic]enhance life. And those that don't will probably fail	

	anyway. So, one should be uhm...I am... positive, I'm actually very positive about it.	
26	I: Okay. Tell me uhm, about your experience of the fourth industrial revolution.	Comprehensibility
27	P: Well, uhm I hope I understand it correctly but I I [sic] uhm...the data.... well, the access to information. I think that's basically the start of it. And... a... it's quite overwhelming sometimes. I feel... your personal relationships possibly suffer to certain degree. But as I as I've said before, I think uhm... those things will even out you know, there'll be a need for that sort of thing, and they will uhm...they will accommodate one another.	<ul style="list-style-type: none"> <li>• More access to information</li> <li>• Less personal contact</li> <li>• Opportunities and challenges – even out</li> </ul>
28	I: Okay, uhm, do you feel the—how do you feel about the fourth industrial revolution in the workplace?	Comprehensibility
29	P: Uhm... I don't think it's going to affect uhm... my, my[sic] job or my position that much as a civil engineer. Uhm... I think it will. It's benefited us to a large degree already. Uhm... I'm not sure if it can develop further. If it does, it will be interesting. Uhm... if it doesn't, we'll it's not the world. So, I'm I'm [sic]interested. Yes, I'm I'm[sic] excited in a way I suppose.	<ul style="list-style-type: none"> <li>• Does not affect job</li> <li>• Benefited in the workplace</li> </ul>
30	Meaningfulness	<ul style="list-style-type: none"> <li>• Excited about the 4IR</li> </ul>
31	I: So, to what extent uhm have you implemented technology from the fourth IR in the workplace?	
32	P: Well, we do any any any [sic] technology we can get our hands on. Uhm... possibly we [sic] possibly further down the food chain. And it's, it's [sic] got [sic] to be proven to be successful. But we're very happy to apply anything I mean, if we don't to get left behind.	

33	I: Okay	
34	P: So, any form of a of a [sic] improvement to make or form of making our job easier, we have to employ.	
35	I: Okay uhm, how do you see the fourth industrial revolution will shape the future of work?	Comprehensibility
36	P: Uhm... I'm hoping that will—that one can uhm... one can work in in any environment you like, you're not forced into into [sic] the office. Uhm...so so [sic] hopefully, I'm I'm [sic] hoping that it accommodates each personality to to[sic] a great extent, you know, if you'd want to go to work and interact with people, great, you can do that. If you don't, that gives you those options that you can work at home. Uhm... so in that sense, I think it's going to give people a bit more freedom... a lot more freedom.	<ul style="list-style-type: none"> <li>• Virtual workplace</li> <li>• Hope it accommodate each personality</li> <li>• More freedom</li> </ul>
37	I: Okay, so you say it will move more to a virtual workplace?	
38	P: Yes. In that sense. Yes. I I [sic] imagine. And if not, uhm...that's that's[sic]—it's down to choice.	
39	I: Okay. Uhm, what impact do you feel the fourth industrial revolution will have on your job?	Comprehensibility
40	P: My specific job I I [sic] don't think it will have a huge impact. Uhm... that I think in my industry, yes. It it [sic] could could[sic] automate a lot of the work at could we we[sic] could automate further? Uhm...I don't see, I don't see[sic] that happening in my lifetime where I... where you don't need a structural engineer, I think you still need somebody to check the system. But imagine that ninety percent of our work could be done uhm... by automation by robots etcetera.	<ul style="list-style-type: none"> <li>• Will have an impact</li> <li>• Still need human intervention</li> <li>• 90% of work could be automated but not in his lifetime</li> </ul>

41	I: Okay, how will your job, okay so you will say your job description, won't change to stay relevant in the fourth industrial revolution?	
42	P: I think it will it will [sic] still be relevant, as I say, uhm... I think you still need people uhm.... at the top to sign off on what robots do. So.... I do, as I say [sic], I think it'll still be a role that I can play.	
43	I: So, it won't change that much what you're currently doing now.	
44	P: No, not me, exactly, no, not not not [sic] position, I'd say.	
45	I: Okay, uhm how do you control the changes brought by the fourth industrial revolution.	Manageability
46	P: I wouldn't say I control them. I... I observe and I uhm... implement if I can... and uhm... discard innovations, which I don't think are gonna [sic] last... or really improve things. So, uhm... I wouldn't say I'm in control of the process... I watching [sic] and see if if [sic] my industry accepts it, I've got to go with the flow.	<ul style="list-style-type: none"> <li>• Observe</li> <li>• See what is implemented in industry</li> <li>• Use current knowledge</li> </ul>
47	I: So, use your knowledge to see uhm what technology to use and what not.	
48	P: Ja, yes.	
49	I: Uhm...Okay, what skills do you apply to stay relevant or have an active part in the fourth industrial revolution	Manageability
50	P: Uhm.... I don't know hey.... As I say, observing, uhm... testing.... being introduced to certain technology, uhm... trying to apply it or actually have people below me apply it and see if it's relevant. Uhm sometimes these things or more data hungry or more input hungry, I uhm... they actually worth. So, we we we [sic] I, I [sic] do try certain things and if	<ul style="list-style-type: none"> <li>• Knowledge</li> <li>• Trial and error</li> <li>• Rely on younger minds – workforce resources</li> </ul>

	they don't work with and work, I know, anything that comes our way we look at, we try to, if we if we [laugh] can fit it in time wise.	
51	I: Okay, so you'd say you try to gain the necessary knowledge and continuously learning about the fourth industrial revolution.	
52	P: Yes, I try and I am limited, but what I do is I would rely on on[sic] younger minds that are still keen to learn. So... at my age, I struggle to absorb as much as I used to. And, ja, that is actually quite a good point. I uhm, I don't learn as well as I used to. So, we turn to our younger engineers, we say, listen, is this relevant? Should we be applying ourselves? Uhm, and I would rely on the input on some of these issues, we tested myself as well. But generally, I... I will allow... juniors or or [sic] more younger inquiring people to have a look at it.	
53	I: Okay, so you use the resources you have of the workforce,	
54	P: Ja, that's a good idea,	
55	I: The younger workforce	
56	P: Yes, yes that is a good point, is basically what I would employ ja.	
57	I: Okay, how do you feel the fourth industrial revolution is connected with the politics or the BEE of the company?	Comprehensibility
58	P: Uhm... I don't think there's any connection... I think... if anything, I believe BEE is.... A... is detrimentally affected our industry anyway. And it'll continue to do so.	<ul style="list-style-type: none"> <li>• No connection</li> </ul>
59	I: Okay, uhm so the technology, uhm does it enable you to uhm, connect more to these individuals uhm, communication did it help with communication duri—in the company?	

60	P: No I look, I don't think it I don't think [sic] it's that—takes into account uhm... discrimination in any form. I don't think it's aware of it. Uhm...I think it's about... making money. And if making money makes you happy, absolutely. I suppose if if [s]c] it makes the BEE transition more effective. Flip it, we'd probably employ it, ja. But I haven't seen technology that that [sic] really assists or can't think of something off hand that that uhm that[sic] this made BEE easier.	
61	I: Okay. How do you feel the fourth industrial revolution impacted your life?	Comprehensibility
62	P: Has it happened?	
63	I: Yes, there's some of their uhm I know also	
64	P: [Laugh]	
65	I: I know some of the smartwatches and with uhm, where you	
66	P: Driving cars	
67	I: Yes	
68	P: Yes. I don't think I don't see it. This is a huge difference. I mean, I'll see it is something that's been coming you know, I don't think it's a big <i>whow</i> that somebody needs to give it a special name like the fourth industrial revolution. I I [sic] I've seen it coming and it's been it's not it's [sic] not a major milestone. Uhm... I believe technologies gradually improved. So, from my point of view, I don't see it as a watershed. I see it as uhm... something easy to follow and understand progressive.	<ul style="list-style-type: none"> <li>• No impact on life</li> <li>• Not a major milestone</li> <li>• Technology gradually improves</li> </ul>
69	I: Okay, uhm, so it hasn't impacted your health to a great extent?	
70	P: Uhm... well if that's the fourth industrial revolution, ja look, there's more there's more[sic] awareness of of [sic] health as I say, you know	<ul style="list-style-type: none"> <li>• Not great impact on health</li> </ul>



	<p>that's been coming since since uhm since [sic] the—realise cocaine is a drug. You know, it's not as if it's happened overnight, so to me it's been progressive you know, knowledge base and and and[sic] things improved. This is bad for you, this is good for you. And then things get turned on their heads you know, when fat was was [sic] considered extremely bad for you and carbs was not so bad and I flipped on its head, you know, so... you you[sic] learn as you go along. I I [sic] don't see it being a.... great as a huge effect on me.</p>	<ul style="list-style-type: none"> <li>• More knowledge about health</li> </ul>
71	<p>I: Okay. So, uhm with keeping that in mind, so do you use any personal resources to cope uhm with the fourth industrial revolution?</p>	
72	<p>P: Personal resources? Uhm... I suppose uhm.... I... with a personal resources...</p>	Manageability
73	<p>I: Uhm your personal resources are, okay, you have uhm access to the internet. So, you try to keep learning or uhm...you have access to uhm, individuals maybe who can help you do inform you more about the resources in your personal life?</p>	
74	<p>P: Ja... I suppose, ja I do. Ja, should use—suppose I should use our resources to keep keep [sic] abreast of what's going on, ja.</p>	<ul style="list-style-type: none"> <li>• Don't use personal resources</li> </ul>
75	<p>I: Uhm how does the fourth industrial revolution connect with your religion?</p>	Comprehensibility
76	<p>P: Very well. It doesn't. There's no effect on religion.</p>	No connection
77	<p>I: Okay, and then how does the fourth industrial revolution impact on your shamefulness? Uhm just to give a bit context about this question, usually it's the younger generations that are more tech savvy, uhm they are very good with technological equipment, whereas the old people—the older generations.</p>	Comprehensibility

78	P: Ja, like I said ja.	
79	I: Ja	
80	P: So how does it shame, I don't think it shames me at all. I accept it. You know that that fact to instances is very clear to me and I understand that. Sometimes I get upset with my kids. They can't even help me with these machines, but they can find anything on the internet. So, no... it doesn't shame me at all. I don't mind being shown up	<ul style="list-style-type: none"> <li>• No shame</li> <li>• Don't mind asking for help</li> </ul>
81	I: Okay [laugh]	
82	P: I think. Ja.	
83	I; Okay, uhm, what will your what will make your job meaningful in the future more meaningful.	
84	P: Uhm...more meaningful, I don't know. In terms of the fourth industrial revolution, obviously, I have anything you know,	
85	I: Anything if I could make meaningful is make you excited that you feel your work is contributing to uhm, a greater good, or the goals of the company.	Meaningfulness
86	P: Jeez, ja... That's a good question. We haven't really been too concerned about anything. Uhm... as I say, I'm quite happy with the status quo at the moment... Uhm, I believe we have enough challenges... Uhm... If the fourth industrial revolution brings something that surprising, I think I'll enjoy it in a way, you know... We we we[sic] generally embrace challenges or problems. So... ja, I don't really mind.	<ul style="list-style-type: none"> <li>• Happy with status quo</li> <li>• Challenges</li> </ul>
87	I: Okay. Uhm that's the end of the interview. Do you have any questions you would like to ask?	
88	P: Uhm...Ja no. No I'm fine thanks.	

89	I: Okay. Thank you very much for your participation	
90	P: [Laugh]	
91	I: is greatly appreciated.	
92	P: Ja, pleasure Cemonn. Thank you very much.	

### Transcribed interview of Participant 17

Participant 17		
Code	Transcription	Coding
1.	I: Are you okay or give consent to being recorded during this session?	
2.	P: Yes, hundred percent.	
3.	I: Okay, uhm before we start with the interviews, uhm... do you have any questions you would like to ask, uhm and I just want to confirm that you do understand what was said in a consent form and that you're fine with everything.	
4.	P: No, no questions. I'm happy.	
5.	I: Okay, great. Are you ready to start with the interview?	
6.	P: Yes, go for it.	
7.	I: Okay, number one, what do you think the fourth industrial revolution is?	Comprehensibility
8.	P: Ja, it ...The fourth industrial revo—revolution [sic] in my mind is it's it's [sic] uhm, basically a a a [sic] shift in the, let's call the mainstream business activities uhm, where there's a there is [sic] a change to let's call it the digital world in other words a, a... change in the way that business construction mining, naming history uhm, will change	<ul style="list-style-type: none"> <li>● Change in business environment</li> <li>● Digital world</li> <li>● Technological development</li> </ul>

	permanently uhm... mainly due to technical techno- technological advances particularly in the IT field, in other words, uhm, digital technology and uhm, computerised technology.	<ul style="list-style-type: none"> <li>• computerised technology</li> </ul>
9.	I: Okay, yes, perfect. And then how do you perceive the fourth industrial revolution?	Comprehensibility
10	P: Uhm in my industry or just general?	
11	I: I you can say in your industry and general whatever.	
12	P: Uhm...my perception is uhm, that it gives rise to I would say..., the the [sic] death of many industries, uhm and at the same time, the birth of of [sic] many industries and companies uhm... for example, if if [sic] you take the largest companies by market cap on the New York Stock Exchange 20 years ago, very few of them still exist in the in the sort of the top hundred today, the the[sic] major major [sic] shifts, and certain industries simply have [sic] either have a will come to an end and it will be taken over completely by by by [sic] uhm software based computerised solutions, but what used to be provided by sort of a bricks and water type industries, for me uhm it i[sic] changes labour, it changes in many industries and and [sic] in my industry, I think my industry, which is the consulting and advisory type business, it uhm could well lead to the end of financial services consulting, as we know it, where uhm algorithms and computer programs can quite easily provide the advice that a human used to do. So, a massive change in terms of labor and a massive change in terms of our products and services are delivered. Another major change for example, is in retail, where online purchasing, we all know that is a massive industry now, where is uhm... very few things could be bought online twenty-five years ago, me that it brings about huge change and ultimately huge	<ul style="list-style-type: none"> <li>• Job losses</li> <li>• Creation of jobs</li> <li>• Automation</li> <li>• End to financial consulting services</li> <li>• Online purchase</li> <li>• Change in labour and employment</li> </ul>

	change in in in in[sic] labour and employment and where people can can can[sic] find work and and [sic] upskill themselves.	
13	I: Okay, so would you say that you believe the fourth industrial revolution is a positive or negative aspect.	Meaningfulness
14	P: Uhm, lots of positives, but lots of negatives. Uhm, Uhm... positives... uhm obviously, advances in development advances in in like health care development. So those things are all positive. I think the negative is that uhm uhm[sic] there is already a huge disparity between rich and poor worldwide. Uhm I think that that that [sic] gap will increase those uhm those [sic] who have access to technology and access to through let's call it an online world will excel and then If done will fall behind even further. So, they definitely negative aspects. Uhm, what what [sic] used to be uhm, employees of of [sic] large numbers of people uhm will end up employing very few people, think of agriculture those things, I think from an employment point of view or from a human capital point of view is some some some[sic] negatives. But certainly, from a from [sic] a healthcare uhm and efficiency worldwide, I think there is some positives.	<ul style="list-style-type: none"> <li>• Positive and negatives</li> </ul>
15	Comprehensibility	<ul style="list-style-type: none"> <li>• Development in healthcare</li> <li>• Increase inequality gap</li> <li>• Small workforce</li> <li>• More efficiency</li> </ul>
16	I: Okay, so you would say that that is uhm, so that there is while negative stuff and positive stuff as...	
17	P: Ja, correct. I think sort of.	

18	I: Okay.	
19	P: It's not all positive, and it's certainly not all negative.	
20	I: Okay. And then, are you optimistic about the fourth industrial revolution?	Meaningfulness
21	P: [Laugh] Uhm, in its purest form, yes, uhm but there are some warning signs there. Uhm... and probably the biggest warning sign is the the [sic] protection of of [sic] private information, despite the fact that there's legislation worldwide, and in South Africa uhm very recently, protecting private information, uhm... there's been well documented uhm, leaks in private information. Uhm, and that has created ah, negative negative [sic] implications for providers that they can protect the information, particularly private individuals' information and company information. Uhm, I'm I'm [sic] very optimistic about it. Uhm... uhm, large large[sic] data bases can't be protected from hackers is not all that positive about it.	<ul style="list-style-type: none"> <li>• Optimistic about purest form</li> <li>• Cautious</li> </ul>
22	Comprehensibility	<ul style="list-style-type: none"> <li>• Less privacy</li> </ul>
23	I: Okay, so the security breach in the private information, would you say it's a lack of legislation or lack of technological uhm steps to prohibit while doesn't allow people to uhm take the information?	
24	P: No, it's like, definitely for lack of legislation. Uhm, as I say, I think worldwide, I think that there's these legislation uhm, but like but [sic] like any like any [sic] form of criminal activity, you know, where there is collusion and intent somebody will be able to to [sic] perform a crime, whether it's whether it's [sic] robbing a bank, or, or [sic] stealing private information. The problem is that the criminals are always one step ahead of the people who are trying to protect the assets, in this case, information. Do, it's just a it's just [sic] saying, you know, the criminals	

	uhm, that's that's [sic] the problem. I don't think legislation and the willingness from government—governments to protect private information is lacking. I think it's I think it's [sic] just, it's the technology to protect the technology that's lacking.	
25	I: Okay, then tell me about your experience of the fourth industrial revolution.	Comprehensibility
26	P: Ja, so my experience, it's been a while, but specifically, in my mind, my industry, there's been enormous developments. Uhm uhm, specifically, on the advisory side, the whole sort of concept of a robot advisor. In other words, it's a basically a computer program where you don't interact with an individual as a customer, you you [sic] basically give your... your financial objectives and this thing calculates for you exactly how where you should be investing, how much life insurance you should be buying, where you can buy the cheapest life insurance, that can all be done uhm, computerized without without [sic] speaking to an individual. So... my personal advisory services is [sic] more on the institutional side. So, then deal with individuals, but even on the institutional side, certain models that we run uhm uhm [sic], certain certain [sic] models that we run uhm, where it used to be uhm... let's call it a competitive advantage. Uhm, a lot of the software and program thing and models that we developed you can now get online. Uhm it's no longer the person who has the the the a [sic] information. It's the person who best uses the information, I suppose that's that's [sic] quite a big shift that I've experienced over the last sort of twenty years.	<ul style="list-style-type: none"> <li>• Developments</li> <li>• Automation</li> <li>• Competitive advantage <ul style="list-style-type: none"> <li>– how you use the data</li> </ul> </li> </ul>
27	I: Okay, so it's uhm technologies more taking over the financial advice side in your industry?	

28	P: Ja, absolutely financial advice also... way assets are manage [sic] uhm, internally the way insurance premiums are calculated uhm, the whole sort of the the [sic] availability of data and models to manipulate and and and [sic] use that data to and and [sic] what not, no human interaction whatsoever, it's done by computer programs.	
29	I: Okay. And how Tell me, how do you feel about the fourth industrial revolution in the workplace?	Meaningfulness
30	P: Uhm, I've got mixed feelings. I think we we[sic] all learned a lot during the the[sic] lockdowns and everybody having to work from home and that. Uhm, and while it's efficient to have a meeting, like this one on an online platform uhm, it's is a certain human interaction in an office environment that I still support—I believe that this the shift to to [sic] having uhm, more online meetings in our industry, with less human interaction particular office environment, I think there's some negative aspects there.	<ul style="list-style-type: none"> <li>• Still support human interaction</li> <li>• Positive and negative in workplace</li> </ul>
31	Comprehensibility	<ul style="list-style-type: none"> <li>• Remote working</li> <li>• Less human contact</li> </ul>
32	I: Okay.	
33	P: More staff [Inaudible, 11:37] more of business culture.	
34	I: Yes, it actually prohibits the networking and getting to know your colleagues to an extent which cannot be done over Zoom.	Meaningfulness
35	P: No, and and[sic] it cultivates an interaction—cultivates a certain culture in the company. Uhm, and and [sic] that that that [sic] we—that you're going to lose, everything is going to be everything's gonna [sic] be online.	<ul style="list-style-type: none"> <li>• Company culture negatively impacted</li> </ul>



36	I: Yes, definitely. And then how, what impact do you feel the fourth industrial revolution will have on your job?	Comprehensibility
37	P: Ja, as I said, I think my job is going to change. Uhm... we as previously I set and develop model uhm uhm, particularly investment models, I think I think[sic] there is going to be is going to be [sic] models out there that you can get online probably for free. Uhm, and it's no longer uhm... I'm no longer going to get paid for developing the model, I'm going to get paid for for optimizing available models out there. So, I think it's a—I think is a[sic] major change in in in in[sic] our industry. Uhm... as I said, the person who gets paid the most is no longer the person who sits with the intellect the intellect [sic] you will now find—can find any way online. It's the person who best uses the available uhm, intellect that I think will survive in the long-term going forward.	<ul style="list-style-type: none"> <li>• Going to change</li> <li>• Automation</li> <li>• Best uses the available information</li> </ul>
38	I: Okay, so taking this change into consideration, how will your job description change to stay relevant in the fourth industrial revolution?	<ul style="list-style-type: none"> <li>• Comprehensibility</li> </ul>
39	P: I suppose... my job description, the high level description won't change that is simply taking uhm, an ending and my job is simply to take fairly complex uhm... principles and explaining it to a customer in a way that he understands it and the implementing the high level job description won't change. But how I deliver uhm uhm [sic], that particular service will do their job with change significantly. So uhm, from from [sic] a job description point of view, the end game, what you supposed to do for your customer led me getting paid a fee for that won't change, but how I deliver that will change significantly, you must be able to understand the mathematical equations behind the model. If you don't necessarily have to design the model anymore. It's now it's now [sic] a matter of can you interpret the results picked up by any model that I gave you uhm, and come up with the right solution. So, I	<ul style="list-style-type: none"> <li>• Job description won't change – how deliver service with change</li> </ul>

	think it's quite a quite a it's quite a [sic] change going forward from that perspective. It's not what must—what what what [sic] must happen in the end, it's how we how we [sic] get to things that will change significantly.	
40	I: Okay, so the core component of your work will stay the same. It's just how you uhm, give the information across to your clients?	
41	P: Quite correct, ja. So that is quite correct. Uhm, It's the end result of what we... see, what we have to deliver to the client won't change. Uhm, but how do we get to that end result to deliver that that [sic] that will change significantly.	
42	I: Okay, and then how do you control, in the sense how do you manage the changes brought by the fourth industrial revolution?	Manageability
43	P: [Laugh] Oh, that's a difficult question. I think, first of all, it de—we we're [sic] in a people's game. So uhm, obviously, on the one hand, you have to stay on top of of [sic] the technological advances in in in [sic] delivering the product or the service that we deliver. That's that's that's[sic] one leg of it. But but [sic] being in a sort of people's game far more challenging uhm... ap—approach is the people. And and [sic] in any company environment, you get people who of age twenty-one and twenty two, and they adapt quite easily to changes in technology and approaches, and then you got people fifty and older, and that's more of a challenge who's still who's still [sic] afraid to switch off, on a laptop. Uhm...So it's <i>bearing</i> . Uhm... but I find that that [sic] the older gene—the older generation [sic], are the more difficult people to manage and get up to speed.	<ul style="list-style-type: none"> <li>• Stay abreast with technological advances</li> <li>• Upskill</li> <li>• Learn</li> <li>• Training people</li> <li>• Proactive approach</li> </ul>
44	I: Okay, so would you say that you try to upskill and continuously learn about the new developments to stay uhm on top of new...	

45	<p>P: Ja, that's a that's a that's a [sic] key component in fact, we try to be not even not even [sic] trying to keep up with trying to beat certain aspects. In other words, when [inaudible 17:08] get ahead of the game, the the[sic] moment we... believe that technology can allow us to produce certain things we would we would [sic] develop the software that that [sic] can do that. So not just staying up to date, it's trying to stay and try to stay ahead of the game, which was a huge challenge. Uhm... so that's that's [sic] certainly from a from a [sic] production point of view, but you got to train people and training people is is can be a challenge.</p>	
46	<p>I: Okay, so just say, taking a more proactive approach to the new developments?</p>	
47	<p>P: Ja, it, it [sic] it takes no more than six months to fall behind. Uhm uhm [sic], and the other thing that uhm... suppose that you also have to get your mind around is previously, you could easily uhm you know, when you develop something you could, you could [sic] trade mark uhm uhm [sic], and you could put uhm, all sorts of copyrights on it. Those days are largely gone, you—there's very little that you do that somebody else can't pick up on and they use that and improve on it. So, uhm... to develop a a a [sic] certain approach or model or software uhm, and and then [sic] trying to protect that with with [sic] all sorts of copyright laws. You're wasting your time because your stuff is out of date less than twelve months later. So that uhm that that [sic] also people have to get their [laugh] minds around.</p>	
48	<p>I: Yes, short life term of the ideas,</p>	
49	<p>P: Ja, new ideas new ideas [sic] are old a week later.</p>	
50	<p>I: Ja, that's very scary to think about. So, what skills...</p>	

51	P: It is definitely a challenge.	
52	I: Oh, ja definitely. What skills do you apply to stay relevant or have an active part in the fourth industrial revolution?	Manageability
53	P: [Laugh] Uhm... I use other people's skills I don't have them [laugh] so no, which leaves it's identifying the right the right expertise. Uhm... it it [sic] is such a fast changing world and such a vast area—also technology thing that that [sic] the trick is to identify... to identify the right skills, you will not have them and very few people can claim to have them. Or uhm, what skills do I use? I use my skills to identify people with the right skills.	<ul style="list-style-type: none"> <li>● Use other people's skills</li> <li>● Identifying the right expertise</li> <li>● Outsource</li> <li>● ability to identify the gaps and the resources and skills needed</li> </ul>
54	I: Okay I can see making sure that your team is...	
55	P: And you don't have to employ them all.	
56	I: Yes.	
57	P: You outsource where you can.	
58	I: Okay.... So, to make sure that the [sic] your team is a multidisciplinary team.	
59	P: Ja, and your team no longer needs to be everybody employed by you,	
60	I: Yes	
61	P: Can be a group of people that uhm, you identified and and [sic] that form part of the team, but they they [sic] might well be contractors.	
62	I: Yes, outsourcing.	

63	P: But I suppose to answer the question, the the [sic] skill is to be very clear what you need, and what it's supposed to do and then go find the right people who can deliver that for you.	
64	I: Okay, the ability to identify the gaps and the resources and skills needed in the company.	
65	P: Ja.	
66	I: Okay. And then how do you feel the fourth industrial revolution is connected with the politics or the BEE of the company?	Comprehensibility
67	P: Uhm [laugh] Uhm, the way that I can't speak for other industries, but certainly the financial services charter or BEE charter thought of the financial service industry where I work, there's no, is there's no [sic] connection between BEE requirements and the fourth industrial revolution, none.	<ul style="list-style-type: none"> <li>• No connection</li> <li>• New protocols</li> <li>• More red tape</li> </ul>
68	I: Okay.	
69	P: From reading that document that was not taken into consideration at all.	
70	I: Yes. Okay, and do you feel or see that the fourth industrial revolution had an uhm, impact on the culture or the politics in the company making maybe it worse with the spread of information or uhm, make it actually but better with communicating with the different people in the organization or company?	
71	P: Uhm... no it's certainly it has a [sic] an impact on on [sic] uhm... on company culture, uhm... just the the [sic] protection of private information, I mean, the protocols that you now have to bring in and and [sic] you have to play a little bit of a policeman uhm, to make sure that the guys do everything that they're supposed to do. Uhm... you	

	<p>know, in terms of something as simple as putting a password on every single document that contains personal information... uhm, it's a sort of I stress, detailed environment, deadline driven environment, the last thing you want is to irritate somebody with let's call it red tape like that, despite the fact that it's hugely important. So, does it it [sic] adds to uhm, it adds it adds [sic] to the parts of a person's daily life that is mundane and irritating and not the stuff that they enjoy doing. So ja, it definitely changes uhm, the environment. And people are scared they make a mistake. And, and, and it it it [sic] influences the way that they that they [sic] operate every day.</p>	
72	I: Yes, definitely.	
73	<p>P: Obviously certain things improve, all of a sudden, you've got a faster computer and a software... you do yourself, you know, ten years ago, but is there there there [sic] is efficiencies uhm, that certainly help. But with that comes uhm, with that comes some some [sic] additional I would say stress related uhm, things that that that [sic] most people can do without?</p>	
74	I: Yes, the admin side of technology.	
75	P: Ja, the the [sic] protocol, the red tape.	
76	I: Yes.	
77	P: The, you know, there's so many things to think of, scared you make a mistake, you know, that sort of thing.	
78	I: Okay, how do you feel the fourth industrial revolution impacted your life?	Comprehensibility
79	P: Ja, as I said, I I [sic] uhm the the [sic] whole sort of change to an online world, I didn't didn't [sic] find that sort of intrusive at all, it helped	<ul style="list-style-type: none"> <li>• Got things faster and easier done</li> </ul>

	<p>me get things done faster and better. And and and [sic] all of that. Uhm as I said, I think that the biggest impact from a work point of view personally, you know, it's all positive. Uhm, where it has has [sic] an impact is is [sic] finding when it comes to people management, it's it's it's [sic] finding ways to said cultivate a a a [sic] team spirit and the right culture and it's a hell of a difficult thing when you don't have—you not there you don't see the people. Uhm, I suppose that's that's [sic] where it's complicated my life a little bit from a people management point of view. But from a productive point of view, it's been very positive.</p>	<ul style="list-style-type: none"> <li>• Complicated people management</li> </ul>
80	Meaningfulness	<ul style="list-style-type: none"> <li>• Positive on life</li> </ul>
81	I: Okay, how would you say it has a positive effect in your personal life?	<p>Meaningfulness</p> <ul style="list-style-type: none"> <li>• Prefer to be outdoors</li> </ul>
82	P: Ag [laugh] I'm not restricted to SABC, I can have Netflix. [Laugh]	
83	I: [Laugh] Definitely.	Comprehensibility
84	<p>P You know, ja so, it's pretty much I would say. It's about it. Uhm, personally, I am I, you know, I don't—my own personal time, I don't need technology uhm, in fact I prefer to be uhm, outdoors and and and [sic] in the bush so it doesn't really matter there. But obviously, from a personal convenience point of view, if you think of things like online banking, online shopping, into cheaper entertainment, uhm online payment, all of those things have made life a lot easier for everybody. Uhm...communication, with people on social media platforms, all of those things have made life a <i>lot</i> easier for everybody.</p>	<ul style="list-style-type: none"> <li>• Convenience</li> <li>• Communication with people</li> </ul>
85	I: Okay, so actually helping to make everything more convenient.	

86	P: Yeah, certainly a lot more convenient, uhm efficient. Uhm, and being able to, you know, be able to make contact and have a discussion like this, or somebody sitting overseas in the old days yet to write a letter.	
87	I: Yes. [Laugh] Definitely. How does the fourth industrial revolution impact your health?	Comprehensibility
88	P: Ah, that's a good question. Uhm, I think I think [sic] there's lots of advances in medical technology that I suppose if I am sick, I am now able to cure me... However, uhm, I think there's a lot of things now that adds to to [sic] bad health uhm, would uhm, would put stress right at the top of that list. As I mentioned before, these things develop and it adds to no doubt adds to people's stress levels, people can't seem to switch off they check the emails when they're out to dinner on a Saturday evening. Uhm, you almost always at work uhm, and there's no doubt that it can add to people's stress levels with they did—have consequences for their health. Uhm... and so a ja, and also people who generally from my experience haven't got a proper work life balance uhm, so that comes with all sorts of other from a personal health point of view. I think it's been negative but once you are sick, they seem to be better equipped to fix you.	<ul style="list-style-type: none"> <li>• Advances in medical technology</li> <li>• 4IR – more stress</li> <li>• Connected to work 24/7 – can't switch off</li> </ul>
89	Meaningfulness	<ul style="list-style-type: none"> <li>• Negative on health</li> </ul>
90	I: Okay. So just say it negatively impact your health due to uhm, the pressure and not being able to switch off from work?	
91	P: Ja, I would say until you consciously make a decision to manage that if you just without almost without knowing uhm, you're causing damage to yourself, ja.	
92	I: Yes, I definitely agree. And so, you've already mentioned that you use the skills to get people that have the necessary skills in your uhm team,	Manageability



	but now referring to your personal life or in your uhm, normal not working life, what are your personal resources you use to manage or cope with the fourth industrial revolution?	
93	P: [Laugh] I don't have many, I remember [laugh] other than my children, I refer anything technology to them and they come back with the right answer.	<ul style="list-style-type: none"> <li>• Children help</li> </ul>
94	I: Okay.	
95	P: Most people my age kind of do that. But then now the new cellphone works, Janie will tell me very quickly. Uhm, so I suppose ja, it's uhm... from a... you know, I suppose. I manage my personal live very similar to the business from that perspective identify what I need, and then kind of try and find out and speak to whoever I think is best equip in that area to help me. Simple example, uhm, we got many power outages and with online meetings, you you [sic] uhm, you you run [sic] the risk of being cut off you're meeting. So, you have to you have to [sic] buy an uninterrupted uninterrupted [sic] power supply. So, now I need to—you need to a UPS but then I have to get ahold of the person who's best equipped to tell me which one and you know what the right product so so [sic] identify what you need to make your life, your personal life a lot easier, and then identify the person who can help you get the right solution.	<ul style="list-style-type: none"> <li>• identify what I need, and then kind of try and find out and speak to whoever I think is best equip in that area to help</li> </ul>
96	I: Okay. How does the fourth industrial revolution connect with your religion?	Comprehensibility
97	P: Uhm... no it does. Very, very [sic] much in line. Uhm, but it certainly helps uhm, is it gives us far better access to information to uhm uhm [sic], you know with the lockdowns, and the technology allowed us uhm, to continue to to[sic] continue [sic] with our worshiping and	<ul style="list-style-type: none"> <li>• Better access to information</li> <li>• Helped during lockdown</li> </ul>

	<p>everything else. Uhm, you know, and technology helped with that. But there's there's [sic] nothing uhm, there's nothing from my religious perspective uhm... that that uhm, is directly opposed to changes in technology. Uhm, it's uhm, obviously, technology and the Internet and those things, obviously come with uhm, that comes a lot of negative things that more religion is opposed to uhm, anything from theft, money laundering, pornography, those sorts of things, or, you know, all the evil things in the world are suddenly a lot easier with technology.</p>	<ul style="list-style-type: none"> <li>• Technology made it easier to do bad things</li> </ul>
98	I: Yes	
99	P: And those things are directly opposed to my religious beliefs, but other than that, there's nothing for the apposes, you know, my religion.	
10	I: Okay. Yes, definitely. And how does the fourth industrial revolution impact on your shamefulness? Just to give a bit of a background for this question, uhm as you mentioned, the older generation struggle a bit more with the new technology, while the younger generations are more tech savvy. So, do you <i>if</i> you experience any shamefulness if you struggle with some technologies?	Comprehensibility
10	P: Oh no, I absolutely not ashamed to tell anybody anybody [sic] that I have no idea where to switch the thing on [laugh]. That doesn't impact me at all.	<ul style="list-style-type: none"> <li>• No shame – don't mind asking for help</li> </ul>
10	I: [Laugh] Okay, that's great. And then the last question is, what will make your job meaningful in the future?	Meaningfulness
10	P: [Laugh] That's a good question. What makes it meaningful moment? I think uhm, I think [sic] uhm... exactly the same. So, I I I I I [sic] work with with [sic] other people's money for the sole purpose to optimize incomes and it is meaningful, because people will retire with that money. Uhm, and it's going to be exactly the same going forward. And	<ul style="list-style-type: none"> <li>• Job is meaningful – optimise incomes</li> <li>• Same in the future</li> </ul>

	as I said, the way we get to that answer is going to change. But the end goal of what we do won't change but I think my my my [sic] significance, the meaningfulness of my job will be the the [sic] same in the future as it is now, but as I say, the way we go about doing it is going to change.	
10	Comprehensibility	<ul style="list-style-type: none"> <li>• Technology – help to be efficient and save time</li> </ul>
10	I: Yes. Okay. So, you would say that technology can help you to optimize your client's money to retire with?	
10	P: Yes, no there's no doubt I can I can I can I can [sic] certainly spend my time better than waiting uhm, for a slow model to run ten thousand different versions. [Laugh] Uhm, you know, ten years ago, when you when you [sic] run—when you run the model, you can go get yourself a cup of coffee and read the newspaper and an hour later, look at the outcome. Now, what happens in thirty seconds?	
10	I: Wow. That's amazing. So, there's nothing else that you would like to to [sic] change in your working environment or in your work to make it more meaningful?	
10	P: No, as I said, the end game is the same uhm, and what we're trying to achieve uhm, but as I said the way the way [sic] we get to the answer that that will change. And as we talked about uhm, the way you manage people, the way you apply technology, where you get your technology uhm, those those[sic] things will change completely.	
10	I: Okay, that's all the questions I have. So, thank you for participating in my research study.	
11	P: Excellent. Good luck.	

11	I: Thank you. I'm going to stop the recording.	
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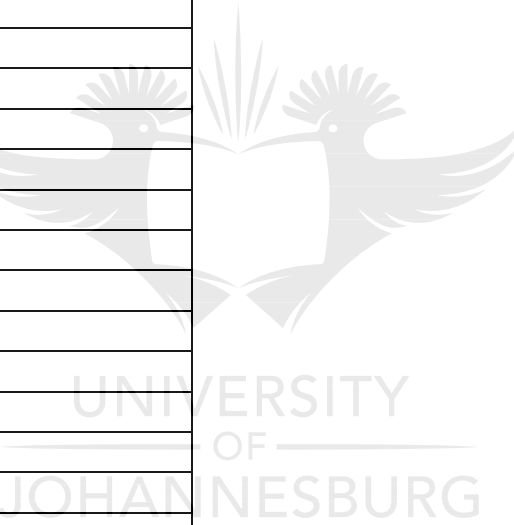


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## APPENDIX F: SOC QUESTIONNAIRES

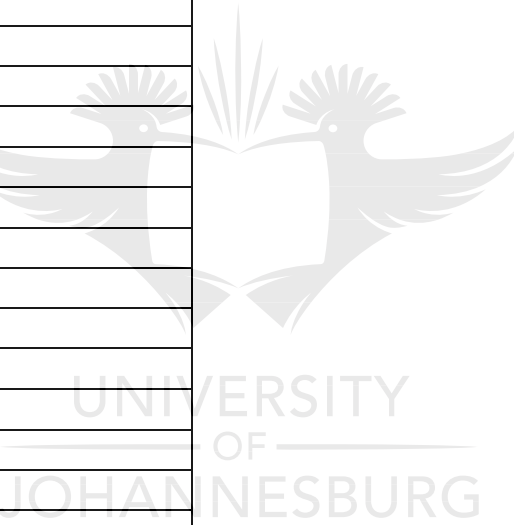
### Scoring of SOC: Participant 1

Item	Raw Scoring	Reverted scoring
1.	2	6
2.	6	6
3.	6	6
4.	2	6
5.	2	6
6.	2	6
7.	2	6
8.	6	6
9.	6	6
10.	5	5
11.	2	6
12.	7	7
13.	2	6
14.	1	7
15.	6	6
16.	3	5
17.	5	5
18.	7	7
19.	7	7
20.	2	6
21.	6	6
22.	6	6
23.	1	7
24.	7	7
25.	2	6
26.	6	6
27.	2	6
28.	6	6
29.	7	7
Total Score: 178		



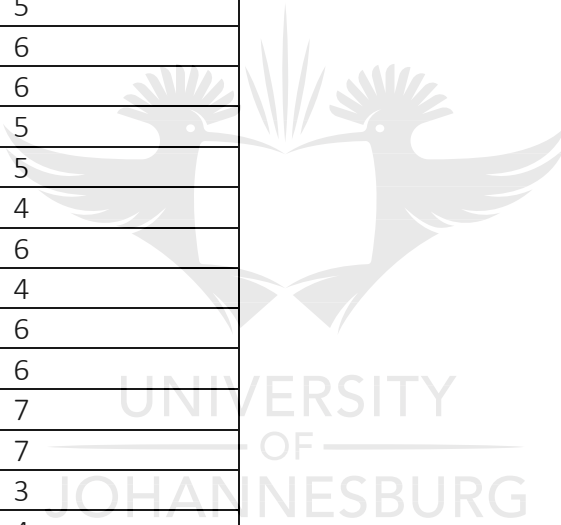
## SOC Scoring: Participant 2

Item	Raw Scoring	Reverted scoring
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3.	3	3
4.	2	6
5.	3	5
6.	6	2
7.	2	6
8.	6	6
9.	7	7
10.	3	3
11.	3	5
12.	5	5
13.	2	6
14.	3	5
15.	5	5
16.	2	6
17.	1	1
18.	7	7
19.	6	6
20.	1	7
21.	3	3
22.	6	6
23.	1	7
24.	3	3
25.	3	5
26.	6	6
27.	1	7
28.	7	7
29.	7	7
Total Score: 155		



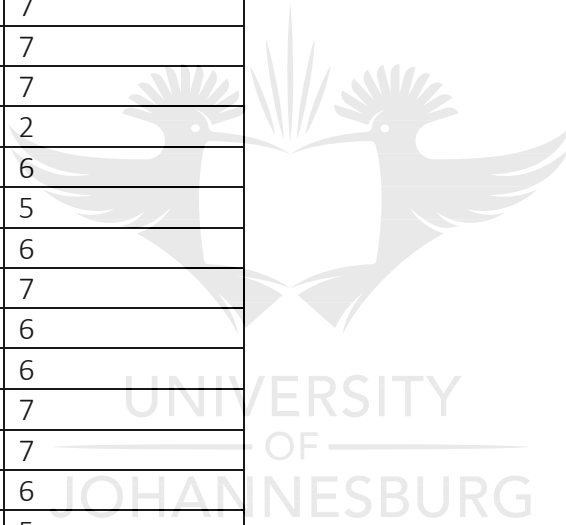
### SOC Scoring: Participant 3

Item	Raw Scoring	Reverted scoring
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3.	4	4
4.	4	4
5.	3	5
6.	4	4
7.	3	5
8.	7	7
9.	7	7
10.	4	4
11.	3	5
12.	5	5
13.	2	6
14.	2	6
15.	5	5
16.	3	5
17.	4	4
18.	6	6
19.	4	4
20.	2	6
21.	6	6
22.	7	7
23.	1	7
24.	3	3
25.	4	4
26.	4	4
27.	2	3
28.	7	7
29.	6	6
Total Score: 152		



### SOC Scoring: Participant 4

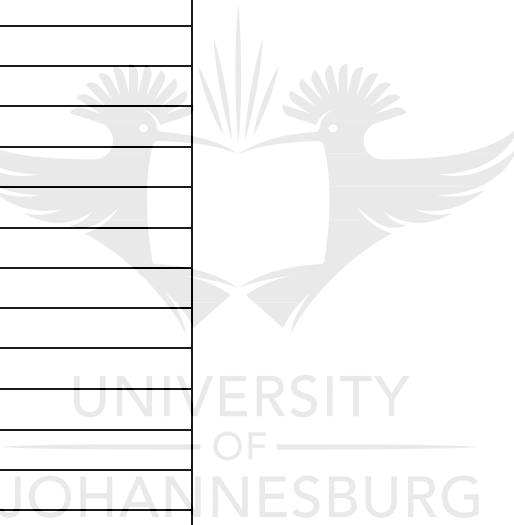
Item	Raw Scoring	Reverted scoring
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2.	7	7
3.	7	7
4.	1	7
5.	6	2
6.	2	6
7.	2	6
8.	7	7
9.	5	5
10.	6	6
11.	2	6
12.	7	7
13.	1	7
14.	1	7
15.	6	2
16.	2	6
17.	5	5
18.	6	6
19.	7	7
20.	2	6
21.	6	6
22.	7	7
23.	1	7
24.	6	6
25.	3	5
26.	6	6
27.	1	7
28.	6	6
29.	7	7
Total Score: 176		





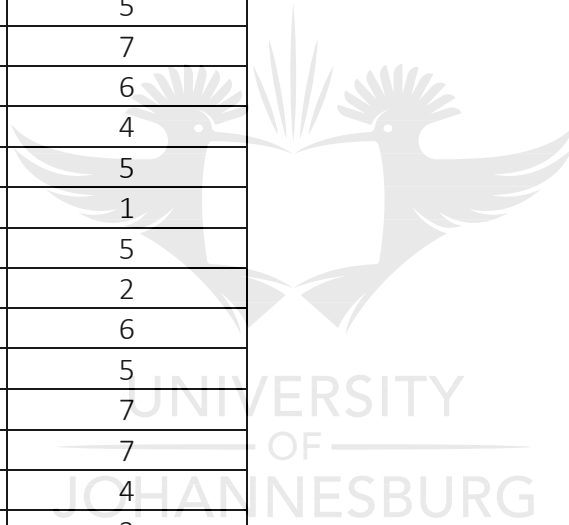
### SOC Scoring: Participant 5

Item	Raw Scoring	Reverted scoring
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2.	6	6
3.	4	4
4.	3	5
5.	5	3
6.	4	4
7.	2	6
8.	6	6
9.	6	6
10.	2	2
11.	3	5
12.	4	4
13.	2	6
14.	2	6
15.	4	4
16.	4	4
17.	3	3
18.	6	6
19.	4	4
20.	4	4
21.	4	4
22.	5	5
23.	2	6
24.	4	4
25.	4	4
26.	5	5
27.	2	6
28.	5	5
29.	3	3
Total Score: 136		



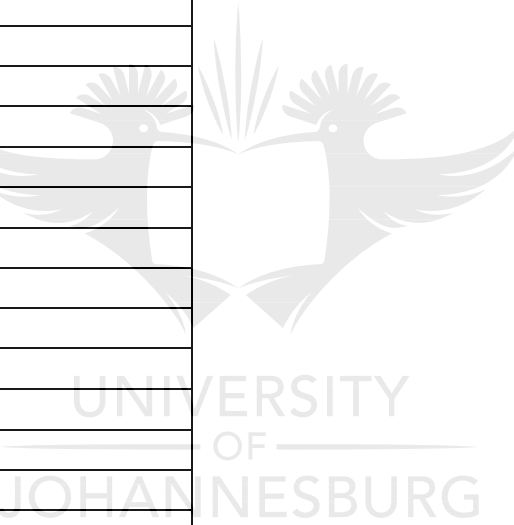
## SOC Scoring Participant 6

Item	Raw Scoring	Reverted scoring
1.	3	5
2.	4	4
3.	4	4
4.	2	6
5.	6	2
6.	5	3
7.	1	7
8.	6	6
9.	3	3
10.	1	1
11.	2	6
12.	5	5
13.	1	7
14.	2	6
15.	4	4
16.	3	5
17.	1	1
18.	5	5
19.	2	2
20.	2	6
21.	5	5
22.	7	7
23.	1	7
24.	4	4
25.	6	2
26.	4	4
27.	5	3
28.	6	6
29.	4	4
Total Score: 130		



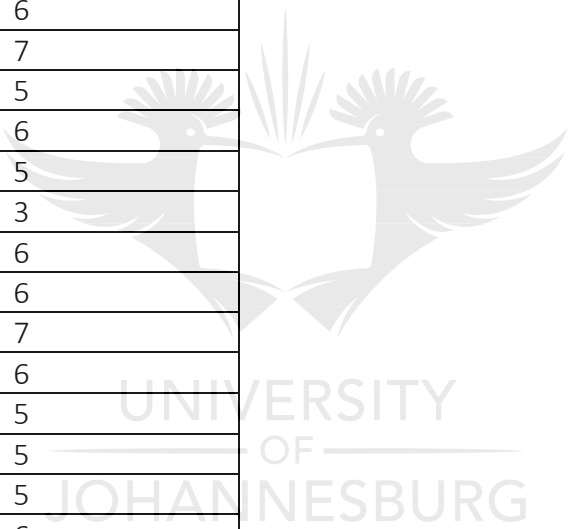
### SOC Scoring: Participant 7

Item	Raw Scoring	Reverted scoring
1.	2	6
2.	3	3
3.	3	3
4.	1	7
5.	3	5
6.	3	5
7.	4	4
8.	5	5
9.	2	2
10.	3	3
11.	5	3
12.	3	3
13.	2	6
14.	3	5
15.	3	3
16.	4	4
17.	3	3
18.	6	6
19.	6	6
20.	4	4
21.	5	5
22.	5	5
23.	1	7
24.	6	6
25.	2	6
26.	3	3
27.	3	5
28.	4	4
29.	6	6
Total Score: 133		



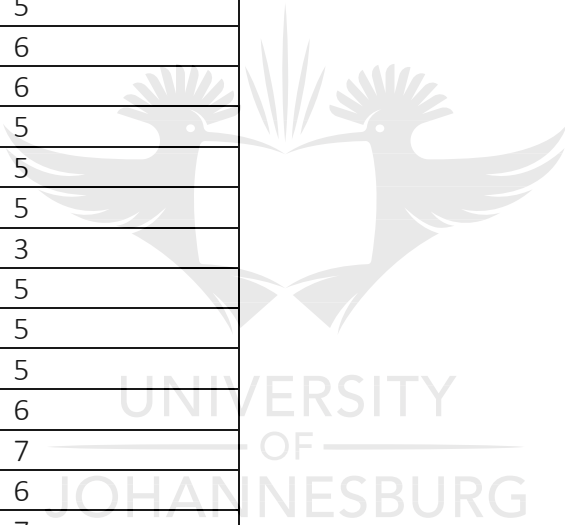
### SOC Scoring: Participant 8

Item	Raw Scoring	Reverted scoring
1.	3	5
2.	6	6
3.	6	6
4.	2	6
5.	4	4
6.	4	4
7.	3	3
8.	5	5
9.	5	5
10.	2	2
11.	3	5
12.	6	6
13.	1	7
14.	3	5
15.	6	6
16.	3	5
17.	3	3
18.	6	6
19.	6	6
20.	1	7
21.	6	6
22.	5	5
23.	3	5
24.	5	5
25.	2	6
26.	7	7
27.	2	6
28.	5	5
29.	6	6
Total Score: 153		



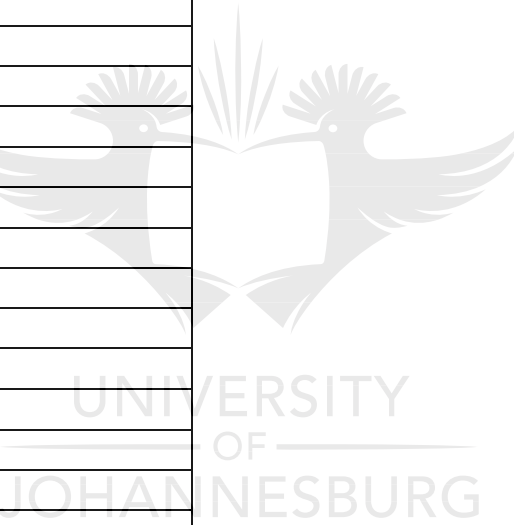
### SOC Scoring: Participant 9

Item	Raw Scoring	Reverted scoring
1.	6	2
2.	6	6
3.	5	5
4.	2	6
5.	3	5
6.	5	3
7.	2	6
8.	6	6
9.	5	5
10.	5	5
11.	3	5
12.	5	5
13.	2	6
14.	2	6
15.	5	5
16.	3	5
17.	5	5
18.	3	3
19.	5	5
20.	3	5
21.	5	5
22.	6	6
23.	1	7
24.	6	6
25.	1	7
26.	5	5
27.	1	7
28.	5	5
29.	5	5
Total Score: 152		



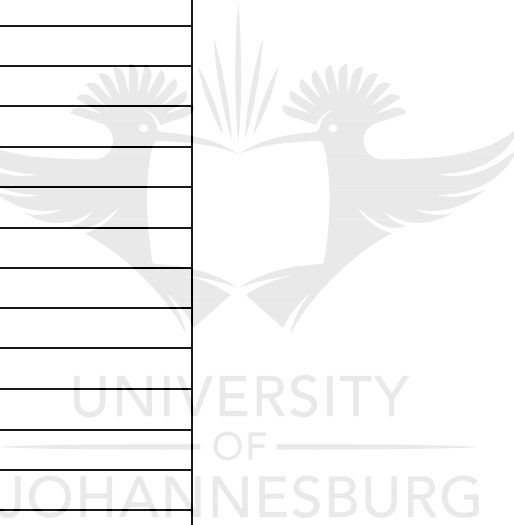
### SOC Scoring: Participant 10

Item	Raw Scoring	Reverted scoring
1.	2	6
2.	7	7
3.	6	6
4.	1	7
5.	3	5
6.	3	5
7.	3	5
8.	7	7
9.	6	6
10.	5	5
11.	1	7
12.	6	6
13.	1	7
14.	2	6
15.	6	6
16.	3	5
17.	5	5
18.	5	5
19.	5	5
20.	2	6
21.	5	5
22.	7	7
23.	1	7
24.	6	6
25.	2	6
26.	6	6
27.	2	6
28.	5	5
29.	6	6
Total Score: 171		



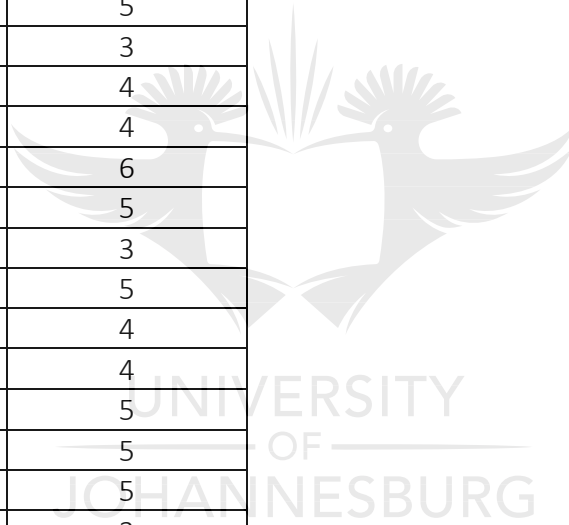
### SOC Scoring: Participant 11

Item	Raw Scoring	Reverted scoring
1.	2	6
2.	6	6
3.	5	5
4.	4	4
5.	2	6
6.	2	6
7.	3	5
8.	6	6
9.	6	6
10.	6	6
11.	4	4
12.	6	6
13.	2	6
14.	2	6
15.	6	6
16.	3	5
17.	4	4
18.	4	4
19.	5	5
20.	2	6
21.	6	6
22.	6	6
23.	1	7
24.	5	5
25.	2	6
26.	5	5
27.	2	6
28.	6	6
29.	6	6
Total Score: 161		



## SOC Scoring: Participant 12

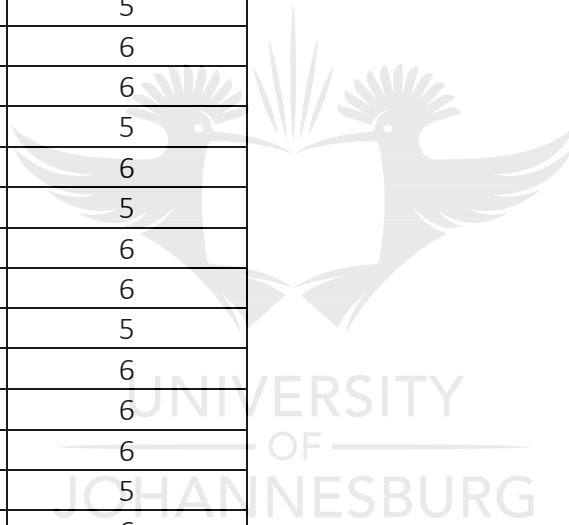
Item	Raw Scoring	Reverted scoring
1.	3	5
2.	1	1
3.	4	4
4.	4	4
5.	3	5
6.	6	2
7.	4	4
8.	7	7
9.	4	4
10.	5	5
11.	3	5
12.	5	5
13.	5	3
14.	4	4
15.	4	4
16.	2	6
17.	5	5
18.	3	3
19.	5	5
20.	4	4
21.	4	4
22.	5	5
23.	3	5
24.	5	5
25.	5	3
26.	3	3
27.	4	4
28.	5	5
29.	5	5
Total Score: 124		





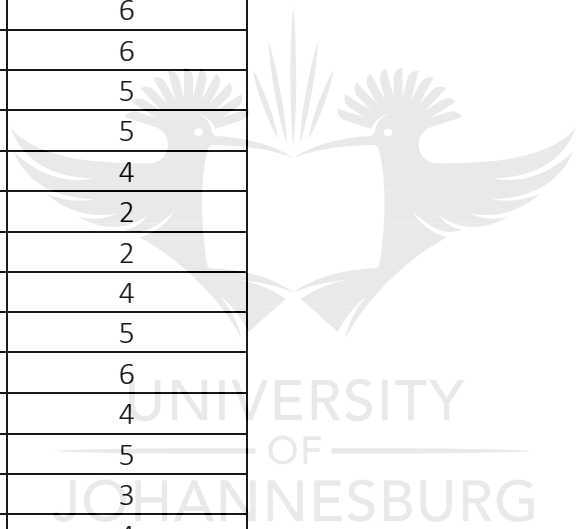
### SOC Scoring: Participant 13

Item	Raw Scoring	Reverted scoring
1.	2	6
2.	6	6
3.	5	5
4.	2	6
5.	3	5
6.	3	5
7.	3	5
8.	5	5
9.	5	5
10.	5	5
11.	3	5
12.	5	5
13.	2	6
14.	2	6
15.	5	5
16.	2	6
17.	5	5
18.	6	6
19.	6	6
20.	3	5
21.	6	6
22.	6	6
23.	2	6
24.	5	5
25.	2	6
26.	5	5
27.	2	6
28.	7	7
29.	6	6
Total Score: 161		



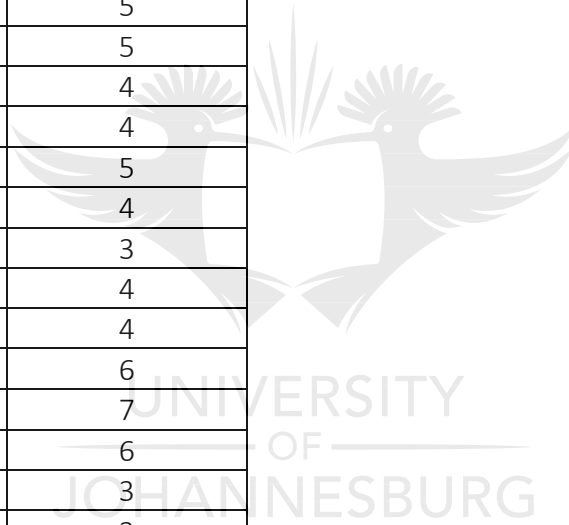
### SOC Scoring: Participant 14

Item	Raw Scoring	Reverted scoring
1.	3	5
2.	5	5
3.	4	4
4.	3	5
5.	4	4
6.	5	3
7.	3	5
8.	5	5
9.	6	6
10.	4	4
11.	4	4
12.	6	6
13.	2	6
14.	3	5
15.	5	5
16.	4	4
17.	2	2
18.	2	2
19.	4	4
20.	3	5
21.	6	6
22.	4	4
23.	3	5
24.	3	3
25.	4	4
26.	5	5
27.	4	4
28.	4	4
29.	3	3
Total Score: 127		



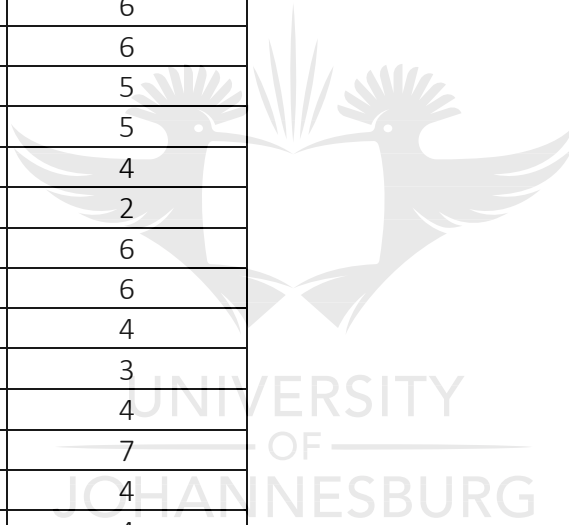
### SOC Scoring: Participant 15

Item	Raw Scoring	Reverted scoring
1.	3	5
2.	2	2
3.	2	2
4.	3	5
5.	4	4
6.	4	4
7.	1	7
8.	5	5
9.	5	5
10.	4	4
11.	1	7
12.	5	5
13.	3	5
14.	4	4
15.	4	4
16.	3	5
17.	4	4
18.	5	3
19.	4	4
20.	4	4
21.	6	6
22.	7	7
23.	2	6
24.	3	3
25.	5	3
26.	4	4
27.	2	6
28.	5	5
29.	5	5
Total Score: 133		



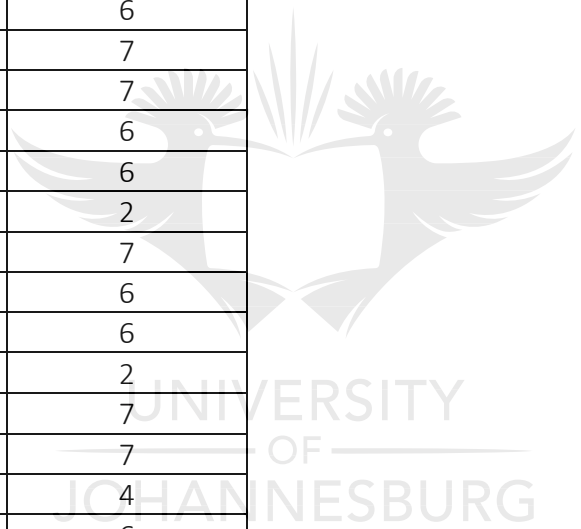
### SOC Scoring: Participant 16

Item	Raw Scoring	Reverted scoring
1.	3	5
2.	4	4
3.	5	5
4.	3	5
5.	2	6
6.	3	5
7.	3	5
8.	3	3
9.	6	6
10.	4	4
11.	3	5
12.	6	6
13.	2	6
14.	3	5
15.	5	5
16.	4	4
17.	2	2
18.	6	6
19.	6	6
20.	4	4
21.	3	3
22.	4	4
23.	1	7
24.	4	4
25.	4	4
26.	6	6
27.	2	6
28.	6	6
29.	6	6
Total Score: 143		



### SOC Scoring: Participant 17

Item	Raw Scoring	Reverted scoring
1.	2	6
2.	5	5
3.	7	7
4.	1	7
5.	2	6
6.	4	4
7.	1	7
8.	7	7
9.	6	6
10.	6	6
11.	1	7
12.	6	6
13.	1	7
14.	1	7
15.	6	6
16.	2	6
17.	2	2
18.	7	7
19.	6	6
20.	2	6
21.	2	2
22.	7	7
23.	1	7
24.	4	4
25.	2	6
26.	4	4
27.	3	5
28.	7	7
29.	6	6
Total Score: 169		



## APPENDIX E: CONSENT FORMS

### Consent form template



This informed consent form is managers who I am inviting to participate in my research, titled “Salutogenesis and sense of coherence of employees in the Fourth Industrial Revolution in South Africa”.

**Principal researcher:** Cemonn Wegerle

**Name of project and the version:** Minor Dissertation title: Salutogenesis and sense of coherence of employees in the Fourth Industrial Revolution in South Africa

**This Informed Consent Form has two parts:**

- **Information Sheet (to share information about the study with you)**
- **Certificate of Consent (for signatures if you choose to participate)**

### PART I: INFORMATION SHEET

#### Introduction

I am Cemonn Wegerle, a master’s student at the University of Johannesburg. I am doing research on the fourth industrial revolution (4IR) and what role does Sense of Coherence (SOC) play during 4IR. I am going to give you information and invite you to be part of this research. You do not have to participate in the research if you feel uncomfortable.

This consent form may contain words that you do not understand. Please ask me to stop as we go through the information and I will take time to explain. If you have questions later, you can ask me.

## **Purpose of research**

The 4IR is disrupting the working environment and I want to find methods that an organisation can use to support their employees during change, especially referring to strengthening their SOC. I believe that you can help us by telling us what your experience of the 4IR is and how it affects your working life. I want to learn how you cope, stay resilient and mentally healthy during the 4IR.

## **Type of research intervention**

This research will involve your participation in completing a questionnaire that measures your SOC score, which will take about 30 minutes, and an hour interview.

## **Participation selection**

You are being invited to take part in this research because I feel that your experience of the 4IR can contribute much to our understanding and knowledge of the perceptions of the 4IR.

## **Voluntary participation**

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. If you choose not to participate all your information and data will be discarded. The choice that you make will have no bearing on your job or any work-related evaluations or reports. You may change your mind later and stop participating even if you agreed earlier.

## **Procedure**

I am asking you to help me learn more about your experience of the 4IR. I am inviting you to take part in this research project. If you accept you will be asked to:

Interview – participate in an online interview with me. During the interview, I will sit down with you in a comfortable place. If it is better for you the interview can take place in your home. If you wish not to answer any questions during the interview, you may say so and the interviewer will move on to the next question. No one else but the interviewer will be present unless you would like someone else to be there. The information recorder is confidential, no one else except Prof Claude-Helene Mayer will have access to the information documented during your interview. The whole interview will be recorded (audio taped), but no one will be identified by name on the tape. The recording will be kept confidential on my phone which is password protected. The information

recorded is confidential, and the recordings will be destroyed after 5 years. An external person might transcribe the interview – this person will also be bound by confidentiality and will be required to sign a confidentiality agreement.

Questionnaire – fill out a questionnaire which will be provided by Cemonn Wegerle and collected by Cemonn Wegerle. You may answer the questionnaire yourself, or it can be read to you and you can say the answer out loud the answer you want to write down. If you do not wish to answer any question included in the questionnaire, you may skip them and move on to the next question. The information recorded is confidential, your name is not being included on the forms, only a number will identify you, and no one else except Prof Claude-Helene Mayer will have access to your questionnaire.

### **Duration**

The research takes 7-8 months in total. During that time, I will visit you once for the interview and completion of the questionnaire. There might be a follow up session to discuss the findings if requested. The interview will last about an hour and the questionnaire about 30 minutes.

### **Risks**

There is a risk that you may share some personal or confidential information by chance, or that you may feel uncomfortable talking about some of the topics. However, I do not wish for this to happen. You do not have to answer any question or take part in the interview/questionnaire if you feel the question(s) are too personal or if talking about them makes you uncomfortable.

### **Benefits**

There will be no direct benefit to you, but your participation is likely to help me find out more about how organisations can assist employees during change (4IR).

### **Reimbursement**

You will not be provided with any incentive to take part in the research.



## **Confidentiality**

I will not be sharing information about you to anyone outside of the research team. The information that I collect from this research project will be kept private in a secure location at my home. Any information about you will have a number on it instead of your name. Only the researcher will know what your number is, and this will be stored in a secure location. The information will also be password protected on electronic devices. It will not be shared with or given to anyone except Prof Claude-Helene Mayer and assessors.

## **Sharing of results**

The results are shared autonomously, which will be shared in a minor dissertation, and perhaps also journal articles and/or conference presentations. The knowledge that I get from this research will be shared with you before it is submitted, therefore, each participant will receive a summary of the results.

## **Right to refuse or withdraw**

You do not have to take part in this research if you do not wish to do so, and choosing to participate will not affect your job or job-related evaluations in any way. You may stop participating in the interview and questionnaire at any time that you wish without your job being affected. I will give you an opportunity at the end of the interview to review your remarks, and you can ask to modify or remove portions of those, if you do not agree with my notes or if I did not understand you correctly.

## **Who to contact**

If you have any questions, you can ask them now or later. If you wish to ask questions later, you may contact me by email:

Or my supervisor:

Prof  
cmayer@uj.ac.za

Calude-helene

Mayer

## PART II: CERTIFICATE OF CONSENT

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study

Name of Participant \_\_\_\_\_

Signature of Participant \_\_\_\_\_

Date \_\_\_\_\_

Day/month/year

### Statement by the researcher/person taking consent

**I have accurately read out the information sheet to the potential participant, and to the best of my ability made sure that the participant understands that the following will be done:**

1. Administration of questionnaire and Interview
2. Data is going to be used in my research proposal
3. Confidentiality will be assured

I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

A copy of the ethical clearance has been provided to the participant.

Name of Researcher/person taking the consent \_\_\_\_\_

Signature of Researcher /person taking the consent: \_\_\_\_\_

Date \_\_\_\_\_

Day/month/year