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Challenges of hybrid working in the Sub-Saharan mining industry

Miriam Dube

2482811

A research article submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Business Administration

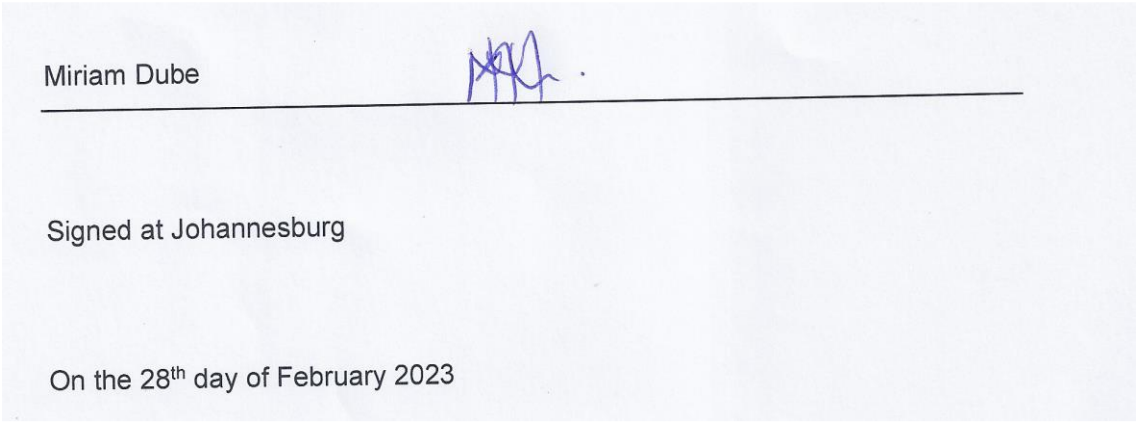
Johannesburg, 2023

Protocol number: WBS/BA2482811/655

(Version February 2023)

DECLARATION

I, Miriam Dube, declare that this research article is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration in the Graduate School of Business Administration, University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.



DEDICATION

A special dedication to my young brother Tapiwa Mukanganise who passed on in 2020 on the 28th of February. Till me meet again, may your soul continue to rest in peace. You will always be in my heart.

ACKNOWLEDGEMENTS

I would like to express my deepest appreciation to the following people who contributed to the successful completion of my studies

My children, Siann, and Jason Dube, who provided me with motivation even when they were deprived of my time and attention

My Husband, Stanley Dube for holding the fort in my absence and sacrificing those nights waiting on me when I was studying.

My friend Wadzanai Marowa who literally walked the journey with me. It's as if she was also embarking her MBA journey.

My family and friends who provided motivation, support, and encouragement especially when I had to deal with the loss of my brother.

My supervisor, Dr Nakuze Chalomba, who provided valuable insights and never gave up on me.

My colleagues and my managers who supported me during my MBA journey.

Above all, I thank the Lord All Mighty for making this journey possible.

SUPPLEMENTARY INFORMATION

Nominated journal:	Special Research Forum: The Human Side of the Future of Work
Supervisor / Co-author:	Dr Nakuze Chalomba
Word count †:	14 670
Supplementary files:	Research instrument

ABSTRACT

Author: Miriam Dube **Supervisor**: Dr Nakuze Chalomba

Thesis Title: The challenges of hybrid working in Sub Sahara Region mining industry.

The Covid-19 pandemic accelerated the shift to hybrid working models. Several industries especially in information technology had started implementing the different working models and post Covid-19 more and more industries started adopting the hybrid working models. Mining companies resorted back to the traditional on site in office working however this won't be long as research indicates that more employees are opting for flexibility that comes with hybrid work models. The future of work theme is receiving a lot of attention because of how technologies through the fourth industrial revolution (4IR) will change how we work.

To facilitate a smooth transition to hybrid working models mining companies in Sub Sahara Africa (SSA) must address challenges that impede hybrid working models. During Covid when employees worked remotely mining companies experienced challenges which include poor infrastructure that did not support working from home, employees failing to use the available technology and some social impacts related to work life balance. Existing research also indicates the challenges of hybrid working models; however, it only covers certain industries and continents. The challenges ultimately affected the productivity of the employees, and the mining companies were forced to revert to the traditional working model. As far as we know, no previous research has investigated the challenges for mining companies in SSA. The study seeks to determine the challenges of hybrid working models in the mining industry how the mining companies can navigate through these challenges as they prepare for the future of work.

The study has significant benefits to the mining organisation and its managers as it will assist them in identifying challenges of hybrid working and formulating means of embracing this the future of work. The self-determination theory (SDT)

and resource-based view theory (RBV) frameworks were used to link existing knowledge to this research.

Qualitative research was used to collect, process, and analyse the data for this research. Through in-depth interviews of participants in Ghana, South Africa Tanzania and Guinea, the researcher formulated themes that enabled the analysis of the findings. The research revealed the challenges of hybrid working models in SSA mining industry and how management could navigate these. There is opportunity for further research, and all this is outlined in this research.

Keywords: Hybrid working, Remote working, Technology, Infrastructure, Future of work

1. Table of Contents

DECLARATION ..... **ii**

DEDICATION ..... **iii**

ACKNOWLEDGEMENTS ..... **iv**

SUPPLEMENTARY INFORMATION ..... **v**

ABSTRACT **1**

1. Chapter 1 Introduction to the research **8**

1.1 Introduction and Contextual Background 8

1.2 Research Conceptualisation 9

1.2.1 Research problem statement 9

1.2.2 Research purpose statement 11

1.2.3 Research Questions 12

1.3 Delimitations, Assumptions and Limitations of the research 12

1.4 Significance of the study 12

1.5 Chapter Summary 13

2. Literature Review **14**

2.1 Introduction 14

2.2 Mining Industry in Sub Sahara Africa 14

2.3 Hybrid Working 15

2.4 Transitioning to hybrid working 15

2.5 Leveraging on Information Technology to support hybrid working 17

2.6 Role of the mining companies in preparing for hybrid working 19

2.7 Theoretical Frameworks 20

2.7.1 The Self Determination Theory 20

2.7.2 The Resource Based View 22

2.8 Conceptual Framework 23

2.9 Research Propositions 24

2.10 Chapter Conclusion 25

3. Research Strategy, Design, Procedure and Methodology 26

3.1 Introduction 26
3.2 Research Strategy 26
3.3 Research Design 27
3.4 Research Instrument 27
3.5 Research Population 27
3.6 Sampling 28
3.7 Ethical Considerations 29
3.7 Information Collection Process and Storage 29
3.8 Information Processing and Analysis 30
3.9 Description of the Research Participants 30
3.10 Research strengths – Reliability and Validity 32
3.11 Research Weaknesses – Technical and Administrative Limitations 33
3.12 Conclusion 34

4. Presentation Of Research Results 35

4.1 Introduction 35
4.2 Findings 35
4.2.1 Challenges Experienced by a Hybrid Worker 35
4.2.2 Influence of Technology 37
4.2.3 Organisational Support 38
4.2.4 Going Forward 39
4.3 Conclusion 40

5. Discussion of findings 41

5.2 Challenges of Hybrid Working 41
5.3 Technology as an Enabler 42
5.4 Organisational Support 43
5.5 Going Forward 44
5.6 Summary of Findings 45

6. Conclusion and Recommendations 47

6.1 Introduction 47
6.1 Implications 47
6.2 Future Research 48
6.3 Conclusion 49

7. References 50

8. Appendices 58

8.1 Appendix 1 Data Collection Instrument 58
8.2 Appendix 2 Codes and Themes 59
8.3 Appendix 3 Research Consistency Matrix 60
4.1 Appendix 4 Approval of Title 63

List of Figures

Figure 1 Self Determination Theory 21

Figure 2 Effect of Autonomy, Competence and Connection on Psychological Growth 22

Figure 3 Resource Based Theory 23

Figure 4 Codes and Themes..... 59

List of Tables

Table 1 Research Sample..... 28

Table 2 Description of Research Participants 32

Table 3 Research Consistency Matrix..... 62

1. Chapter 1 Introduction to the research

1.1 Introduction and Contextual Background

The Covid-19 Pandemic changed several things and amongst them is the way we work (Cherubini, Newman, & Nielsen, 2021). There was a shift from physical workplaces to remote working. Although marked with some challenges, remote and hybrid models of working during the pandemic fostered some expectations of flexible working. Post Covid-19, there has been an increase of the hybrid working model. According to (Johan, 2022), Covid-19 changed the way we work and some of these pre-pandemic ways of working have gone for good (Powell, 2022). Several industries have embraced hybrid working whilst some industries still face some challenges. This new way of working has some limitations in the mining industry. Unlike other industries, pre-pandemic, working remotely for the mining industry was unheard of. However, with the flexibility that remote and hybrid working provided, these expectations from employees have been cemented.

This shift to remote working due to Covid-19 presented some challenges. According to (Yang, et al., 2021),the shift to remote working resulted in less interconnectedness among employees and a lack of continuity which impacted the way teams work. Collaboration within the organisations was eroded with remote working as the physical interaction was turned into online interaction with some practices or processes in the business having to change to accommodate this online interface (Dwivedi, et al., 2020). Post Covid-19, most companies have been forced to consider flexible working models (Adekoya & Adisa, 2022). With most mining operations back to full onsite working, some mining companies are still trying to find the best way of implementing the hybrid working model. According to a survey done by (Berger, Falk, & Anja, 2021), where they interviewed 841 companies, the shift to remote working can be seen across different company sizes and industries with 35% of companies working hybrid pre Covid-19 to 77% post Covid-19. This is evident that hybrid working models are here to stay. The mining industry has traditionally relied on a face to face on site

workforce for deliverables (Horton, 2022). Post Covid-19, the mining operations reverted to the face-to-face onsite model of working.

The move to hybrid work requires technology to support synchronous communication and on time delivery of work within the teams. Successful adoption of technological innovation is required for any organisation to succeed in this era of hybrid working. (Hadidi & Power, 2019). With most mining companies situated in remote locations and some employees staying in communities that don't have consistent supply of electricity and internet connection, remote working proved to be difficult when organisations were forced to shift to remote working during the pandemic. This impacted their day-to-day activities. The limited access to digitalisation ultimately had a negative impact on employee productivity during the Covid-19 pandemic forcing mining operations to revert to face to face working models once the pandemic started to subside. The mining operations in SSA are now working 100% on site.

Any introduction to new systems or tools changes the communication and interaction amongst teams (Bendel & Latniak, 2018). Such changes require support from the organisation and management teams. The fourth industrial revolution (4IR) has given rise to the use of new digital technologies that have an impact on the way of work. Digitalisation propels the redesign of work models (Antonacopoulou & Georgiadou, 2021) forcing companies to adopt to the industrial revolution. The reality is that the pandemic cemented flexible working models and emphasised the use of digitisation within organisations, and coupled with 4IR, businesses must adopt to this changing landscape (Dwivedi, et al., 2020).

1.2 Research Conceptualisation

1.2.1 Research problem statement

Previous research indicates that hybrid and remote working has created certain challenges that impact the productivity and performance of teams. According to (Flores, 2019) some of the challenges from hybrid working that impact the team's

way of working include effective collaboration and communication, infrastructure and technological support, organisations support and employee skillset. This is further supported by (Wang, Liu, Qian, & Parker, 2020) who states that before the pandemic, most employees lacked the skills and experience required for hybrid working. Organisational support from leaderships and management is essential in navigating through hybrid working and ensuring team productivity (Phillips, 2020). (Phillips, 2020) further states that communication and collaboration is vital in creating effective hybrid teams.

There are several challenges faced by employees when navigating hybrid working and it is the organisations responsibility to ensure that it supports its employees during this transition. Prior to the pandemic, hybrid working was unfamiliar within the mining industry. As this is new to the industry, the mining companies have struggled to adopt to this change which has impacted on employee's and teams' productivity. According to an article from Harvard Business Review by (Hass, 2022), managing hybrid teams requires organisations need to manage the 5Cs which include communication, coordination, connection, creativity, and culture. Hybrid working is a unique working model that requires organisations to support their employees. These changes if not managed properly will negatively impact employee's way of working and ultimately productivity.

The remote locations and poor infrastructure in the hosting communities cannot support such shifts of hybrid working and employees' skills. The remoteness of some mining operations locations does not support technological advancements required to support hybrid working thus posing a risk to the productivity of teams when working remotely. Technological support is pivotal to the success of hybrid teams (Ferreira, Pereira, Bianchi, & Mira da Silav, 2021) .

Following the swift and radical change to remote working due to the pandemic, hybrid working models are the future of work (Fayard, Weeks, & Khan, 2021) and organisations must investigate the challenges that arise from the implementation of hybrid working models. To overcome these problems, there are several approaches that organisations can implement which include changing work

models to accommodate hybrid working and providing infrastructure and support that will ensure productivity of a hybrid worker.

1.2.2 Research purpose statement

The purpose of the study is to determine the challenges of hybrid working models in the Sub-Saharan Africa (SSA) mining industry and how they can navigate through these challenges. This study is specific to non- technical mining activities of mining companies.

There is academia work that has been done previously on hybrid teams and the challenges they face. According to (Manyika, 2017), existing academia work does not capture the opportunities of digitizing economies at sector and company level. Research on hybrid work has been done for specific industries and functions (Yang, et al., 2022) but there is still a gap on hybrid work for mining companies in SSA. Existing research does not apply to all industries. Due to the remoteness of mining companies, they haven't fully embraced technology to promote hybrid working models. To enable hybrid working, companies need to adopt technology that will support hybrid collaboration among team members. According to (Ferreira, Pereira, Bianchi, & Mira da Silav, 2021), technology is a pivotal enabler in supporting virtual collaboration.

The electronics, software and online services industries have embraced hybrid working and they have seen marked improvement from hybrid working models using technology. Lessons learnt from other industries indicate that hybrid working models boost performance and ultimately team productivity (Ferreira, Pereira, Bianchi, & Mira da Silav, 2021).

This study therefore aims to determine the challenges of hybrid models in the mining industry for non-technical mining functions and how they can navigate through these challenges to ensure productivity of teams and at the same time providing that flexibility of hybrid working to their employees, with the objective to identify the challenges of hybrid working, to assess managers perceptions of hybrid working and to assess how the mining company's influence the hybrid working model.

1.2.3 Research Questions

Research questions were formulated to assist with identifying the challenges of hybrid working in the Sub Sahara Africa mining industry and how the mining companies can navigate through these challenges. The research questions to be answered in this paper include:

1. What are the challenges experienced by a hybrid worker?
2. How can technology facilitate the working of hybrid teams?
3. How can the mining companies support individuals to navigate challenges that can affect hybrid working?

1.3 Delimitations, Assumptions and Limitations of the research

- An assumption is made that hybrid working has an impact on team productivity
- An assumption is made that all mining companies in SSA experience have similar challenges
- The use of purposive sampling will affect the research results. This will also make it difficult to generalise the findings all to mining operations in Sub Sahara Africa
- Due to time constraints and ease of reach, the research sample was limited to a few specific mining companies
- The sample size is not a full representation of SSA which might affect the research results

1.4 Significance of the study

This research will be beneficial to the mining companies in SSA as it will assist them with navigating through the challenges of hybrid working. It has significant benefits to the mining organisation and its managers as it will assist them in identifying challenges of hybrid working and formulating means of embracing the future of work. Challenges in Africa are peculiar to the rest of the world and as

such, the challenges that have been identified for the rest of the world cannot be for concluded for SSA. The use of hybrid working models has been embraced in certain industries such as technology/software, medical, telecommunications, banking, and education whilst it is still foreign to the mining industry. This paper, therefore, aims to provide a base for mining operations in preparing for this new way of working. With previous research indicating that more and more companies in different industries are leaning towards the hybrid working model (Sokolic, 2022), the mining companies and managers in SSA will need to prepare themselves for this shift.

Post Covid-19 trends indicate that more and more employees enjoy the flexibility of remote or hybrid working. According to research done by FlexJobs- 2022 Career Pulse, 65% of respondents indicated that they would prefer working remotely full time and 32% preferred a hybrid working model (Howington, 2022). These trends indicate that mining companies need to prepare themselves for this new way of working. With millennials prioritising flexible work models such as remote or hybrid working models, this paper looks to address how mining companies, by adopting hybrid working, will be able to remain competitive by means of attracting and retaining skilled employees who are after the flexibility of hybrid working models and assisting with the management of these hybrid teams. This research will therefore provide guidance on how the mining companies can prepare for this new trend and ways of adopting it in their environment.

1.5 Chapter Summary

Chapter 1 highlights the impact of Covid-19 on working models. The radical shift to remote working due to the pandemic has seen an increase to hybrid working post the pandemic. With most industries embracing the hybrid working models, the mining industries in Sub Sahara Africa has encountered some challenges. With employees wanting the flexibility that comes with hybrid working, mining companies must identify these challenges and find means of manoeuvring through them.

2. Literature Review

2.1 Introduction

The literature review focuses on the questions mentioned in chapter 1. It provides an overview of the challenges of transitioning to hybrid working models, the role of technology in leveraging hybrid working and the role of different stakeholders in supporting the transition to hybrid working models. The chapter will first provide the context of mining in SSA and overview of hybrid working. Section 2.4 will address the challenges of hybrid working for both employees and managers. Section 2.5 will present the importance of technology in hybrid working and how it leverages hybrid working. Section 2.6 incorporates the future of work and how different stakeholders can prepare for hybrid working.

2.2 Mining Industry in Sub Sahara Africa

According to (National Geographic, 1996) “mining is the process of extracting useful minerals such as gold, coal and iron ore from the earth”. It falls under the extractive industry. There are technical and non-technical functions within the mining industry. Technical functions are involved with the actual physical extraction of the minerals from the earth. These activities include drilling, blasting, quarrying, crushing, and mining. Non-technical encompasses supply chain, finance, information technology and human resources functions which support the technical function. Non-technical functions are desk workers who don’t have to be on the field physically for them to conduct their work. This research focuses on the non-technical functions as the mining industry in SSA is still too far from technology that doesn’t require human intervention such as driverless trucks. SSA is the area of the African continent that lies to the south of Sahara. This research will cover 3 countries from this region which are Ghana, Guinea, and Tanzania.

2.3 Hybrid Working

According to (Gartner, 2023) (Cisco, 2023), hybrid working is a model that allows employees to work remotely for certain days of the week and some of the days in the office. This gives employees flexibility to work from anywhere. The team members are therefore not in the four walls of an office at the same time as traditional ways of working. Hybrid working results in hybrid teams where some employees in the same team are working in the office, and some are working from home.

Depending on the company, hybrid work models take different forms. The common four types include flexible hybrid, fixed hybrid, office-first hybrid, and remote-first hybrid (Cisco, 2023). Flexible is when employees choose their own working hours and location (Cisco, 2023). Fixed hybrid is when the company determines the days when employees can work in the office or remotely. Office-first allows employees to have the flexibility of choosing a few days a week to work remotely with remote-first allowing employees to meet occasionally and not necessarily in the office space (Cisco, 2023). In this paper, hybrid working refers to the fixed hybrid work model. Since hybrid working is something new to the mining operations, it's better for mining companies to still have some control on the office hours but still giving their employees some flexibility. When they have accustomed to hybrid working, i.e., managing hybrid teams and addressed the challenges, then they can look to explore other hybrid working models.

2.4 Transitioning to hybrid working

As the world emerges from the Covid-19 pandemic, many companies are shifting to a hybrid working model which provides flexible working arrangements (Gratton, 2021). There exists a considerable body of literature on the benefits and challenges of working from home however this is limited to certain industries such as telecommunications and geographical locations in America and Europe. Previous studies have almost exclusively focused on worker productivity and work life balance. A series of recent studies has indicated that employees are more productive when they work from home. Previous research has emphasized

on the benefits of hybrid working such as increased productivity. Contrary to this, (Tejero, Seva, & Fardrilan-Camacho, 2021) states that productivity reduced due to constraints caused by the work life balance. According to (Gibbs, Mengel, & Siemroth, 2021) because employees spent more times in meetings, their focus time reduced which was detrimental to productivity.

Work life balance was another focal point for existing literature on working from home. According to (Tejero, Seva, & Fardrilan-Camacho, 2021) work life balance suffered during working from home. Employees found it difficult to distance themselves from work as they put in more hours of work. Employees reported longer working hours (Awada, Lucas, Becerik-Gerber, & Roll, 2021) and there was an indistinct work life border (Xiao, Becerick-Gerber, Lucal, & Roll, 2021).

With hybrid working models still in their development stages, several questions regarding the implementation of hybrid working in mining companies in Sub Sahara Africa remain to be addressed. Approaches to implementing hybrid working differ (Fayard, Weeks, & Khan, 2021), which makes it important for mining companies to develop strategies to assist hybrid workers. Several factors will negatively impact the success of hybrid teams if they are not adequately addressed. These include, digital accessibility and literacy, internet access, international labour market, gender, social network, and other factors (Armstrong, et al., 2018). The move to a hybrid model will require a change in processes and systems. The redesign of processes and systems will also require new skill sets.

Traditionally, mining companies have always worked on site, face to face. The introduction of virtual teams will face challenges from geographical spaces, and social challenges (Pitagorsky, 2007). Some social challenges relate to disconnecting from society and work life balance (Urbaniec, Malkowska, & Wlodarkiewicz-Klimek, 2022). Since proximity of employees working in the same space creates understanding and togetherness and ultimately a shared purpose (Brower, 2021), its absence due to hybrid working models will pose a challenge. Its therefore important to address these challenges by ensuring that managers and employees attain the necessary skills that will ultimately create a shared purpose in a hybrid working model. Research done by (Gratton, 2021) shows that

any hybrid arrangements must emphasise the company's culture and values and that all employees feel engaged and inspired.

Given the above, it is therefore imperative to understand the challenges encountered in the SSA mining industry, and to do that, the research question formulated from this review is "What are the challenges experienced by a hybrid worker?".

2.5 Leveraging on Information Technology to support hybrid working

Pre Covid-19, mining companies leveraged on the physical workspace for coordination, communication, connection, creativity, and culture, i.e., the 5Cs. With the shift to hybrid working, mining companies must find means of leveraging on technology to support the geographically distributed teams. Several authors have recognised that dependence on technology does not always address the 5Cs. According to (Haas, 2022), reliance on technology can create barriers to communication, social connection problems, paucity of collective creativity and a dearth of company culture. Geographically dispersed locations can create some culture conflict and divisions which impact team collaborations and ultimately the team's productivity (Morrison-Smith & Ruiz, 2020). Productivity is therefore driven by proximity, either real or perceived, as this makes employees feel close, linked, involved, and entwined with each other's success and that of the organisation (Brower, 2021).

Previous research has also emphasized on how companies can leverage technology to address the challenges related to the 5Cs. According to (Niharika, 2012), technology can be used to facilitate team communications, engagement and collaboration through video conferencing, non-formal chat systems, randomised virtual coffee breaks and use of modern collaborative tools that empower employees to embrace collectiveness. These tools allow employees to know what is happening within their teams and create a sense of belonging which ultimately impacts the teams' way of working. This is further supported by (Hidayanto & Setyady, 2014) in their article where they state that the use of

collaborative tools positively influences teams' performance and productivity. This can be via execution of group tasks, a means of communication, knowledge and information sharing and a tool to provide contributions to the group.

Most early studies as well as current work focus on the tools that a hybrid worker must be equipped with. Traditionally, shared offices were equipped with desks, computers and internet connections allowing employees to work effectively (Gratton, 2021). With the shift to working from home, the main equipment that one will need include a laptop, desk and chair, phone, and connectivity (Klevit, 2022). Hybrid workers also require unified communication and collaboration tools like Microsoft teams (Ilag, 2021). These tools bridge the communication and collaboration gaps created by hybrid working (Ilag, 2021).

There exists a considerable body of literature on the increase of cybercrimes as more companies move to the hybrid working model. During the height of the pandemic in 2020, there was an increase in cyber-attacks (Tasheva, 2021). According to (Tasheva, 2021) research indicates that cybersecurity resilience has been very low. Lessons learnt from the peak of the pandemic indicate a need to invest more and improve on cybersecurity. In line with these findings, (Furnell & Shah, 2020), there has been short comings in terms of user awareness and safeguards. To limit these vulnerabilities, there is an opportunity for mining companies in Sub Sahara Africa to instil and expand their cybersecurity awareness to all its employees. With employees working full time onsite pre Covid, mining companies need to investigate strategies to reduce the cyber security risk in preparation for the future of work. Although most of these companies have strategies in place, there seems to be a lack of training or ignorance to comply from employees (Nyarko & Cheuk-wai Fong, 2023).

The above literature indicates that there is a relationship between technology and hybrid way of working, however this must be managed well to attain positive results. Technology can enable and support transformation, but it won't replace certain human abilities and needs (Bauer, 2018). According to the report published by (ICMM, 2020), existing employees required reskilling and up - skilling to better perform in their roles and adapt to the future of work as it is the people who will make or break the transformation (Timmermans, 2021). Only a

few works in literature demonstrate how mining companies can implement these strategies that can assist them to fully utilise technology to achieve the 5Cs and reduces risks related to cybersecurity. The above literature resulted in the formulation of research question 2, “How can technology facilitate the hybrid working model?”

2.6 Role of the mining companies in preparing for hybrid working

An organisation must entrench capabilities that assist with sustaining its success in turbulent environments (Stelz, Roglinger, & Wyrtki, 2020). Companies need to ensure that their employees are equipped with the right skills and resources in facing the ever-changing competitive environment (Fouladgar, Yazdani-Chamzini, Zavadskas, & Moini, 2021). Most early studies as well as current work focus on the organisation’s ambidexterity. A lot of the research suggests that a company’s sustainability depends on its ability to exploit its current competences and the same time exploring novel ones (Tarody, 2016). This exploration of new opportunities and exploitation of current capabilities includes but is not limited to interorganisational relations, structural or contextual approaches (Úbeda-García, Claver-Cortés, Marco-Lajara, & Zaragoza-Sáez, 2020). The above literature indicates that there is a need for organisations to exploit current resources while exploring new opportunities as a means of dealing with the future of work. By doing this mining companies will remain competitive in attracting new skills and adjusting to the 4IR demands.

A series of studies have indicated that companies need to consider the fit between hybrid working and the employees (Wang, Liu, Qian, & Parker, 2020). Some employees even given the opportunity still prefer to work from the office. Research done by (Berger, Falk, & Anja, 2021) suggests that some roles are not suited for the hybrid working model, some employees have preferences and some struggle with isolation. Due to these differences, organisations must provide guidelines to accommodate the different penchants without causing confusion in the way the company works.

Organisational factors hugely impact working from home. Because hybrid working is foreign to the industry, not only do employees lack the experience to work in hybrid models but also companies are not fully prepared to support this practice in a manner that will be sustainable to the business (Wang, Liu, Qian, & Parker, 2020). The organisational factors that influence working from home include access and delivery of information technology training to employees, support from the management team, and digital infrastructure.

According to (Berger, Falk, & Anja, 2021), the success of implementing a hybrid working model heavily depends on senior management and leadership involvement. As a response to globalisation and hybrid working, the management and leadership require certain skills and leadership styles that will work for hybrid teams (Shankar, 2020). The above literature successfully establishes that senior leadership have a responsibility of ensuring that all teams feel that they have a shared purpose regardless of their location. The role of leaders is very important as it builds cultural support, receives hybrid working model initiatives and eases the employee's wellbeing and risks related to hybrid working (Popovici, 2020). The research question formulated from this review is "How can the mining companies support individuals to navigate challenges that can affect hybrid teams?"

2.7 Theoretical Frameworks

The theoretical frameworks that will be used in this research include the self-determination theory (SDT) and the resource-based view (RBV) theory. These frameworks were used to link existing knowledge discussed above to this research.

2.7.1 The Self Determination Theory

The self-determination theory can be used to explain how employees and managers can embrace hybrid working. The theory framework explains how managers or organisations can shape teams' motivation, regardless of their geographical location (Forner, Jones, Berry, & Eidenfalk, 2020). As illustrated in

figure 2, the theory states that organisations that enable employee's satisfaction of competence, autonomy and relatedness can attain high motivation from their employees (Forner, Jones, Berry, & Eidenfalk, 2020). This is supported by (Fotorachian & Kazemi, 2020) who states that information sharing, high level of process integration flexibility, agility and resilience are key components to the performance of teams. It is the extrinsic motivation within the SDT theory (figure 1), that enable managers and employees to adopt to the new ways of working. Research done by (Al- Habeibeh, Watkins, Waried, & Javareshk, 2021) also supports the view that when employees receive extrinsic motivation together with training and social experience, they will produce positive results. Through extrinsic motivation and training, employees will attain the skills they require and the drive to attain goals and ultimately contribute to team productivity. The SDT theory emphasizes the importance of training employees and how it will contribute to achieving the 5Cs and raising awareness of cyber threats.

SELF DETERMINATION THEORY

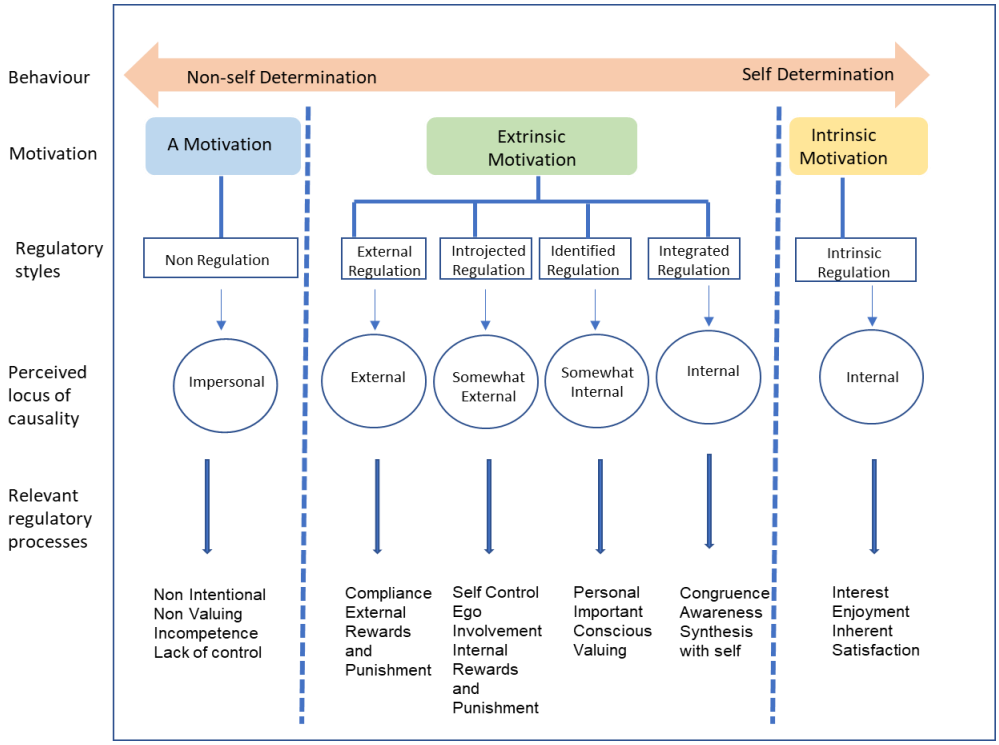


Figure 1 Self Determination Theory

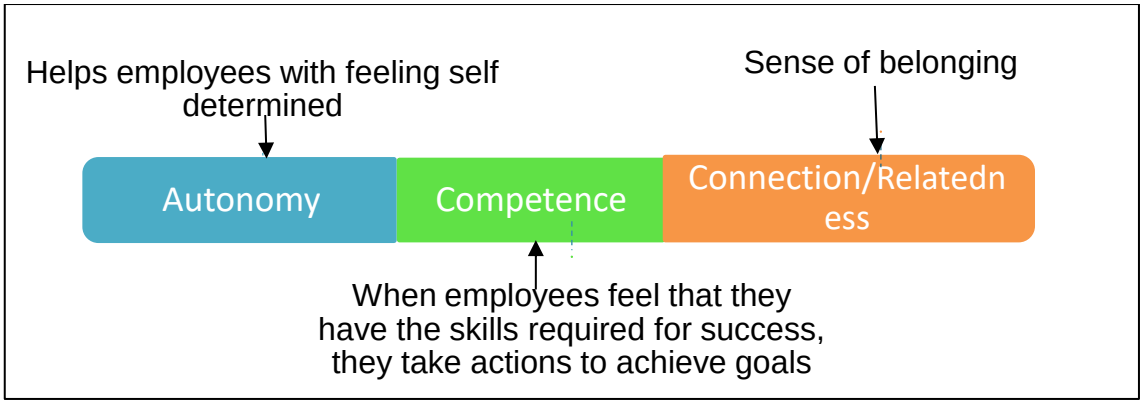


Figure 2 Effect of Autonomy, Competence and Connection on Psychological Growth

2.7.2 The Resource Based View

The Resource Based View Theory is a strategy model that considers organisations resources as key to the company's sustainable competitive advantage (Galbreath, 2005). Based on the theory, organisations must utilise internal resources and not external resources as a means of attaining competitive advantage. Based on this research, figure 3 below illustrates the theory and how it contributes to the success hybrid working models. Mining companies must utilise their financial resources, technical resources, and intangible resources to support hybrid working. Mining companies must provide financial support. This can be done by financing the organisations technological advancements, investing in training of employees and development of hosting communities. As illustrated in the above literature, technical resources are key to the success of a hybrid working model. Organisations need to ensure that the company and its employees have technological tools and infrastructure that enable hybrid working, employee communication and cybercrime protection. Employees will need to be upskilled and trained to be able to use these tools and in doing so, the mining companies will create awareness of risks associated with hybrid working models. The RBV theory can be used to illustrate the importance for mining companies to leverage on technology and the need to train employees on achieving the 5Cs and raising awareness of cyber threats. Supported by the RBV Theory, the mining companies must exploit its current resources in identifying means of dealing the new future of work.

RESOURCE BASED THEORY

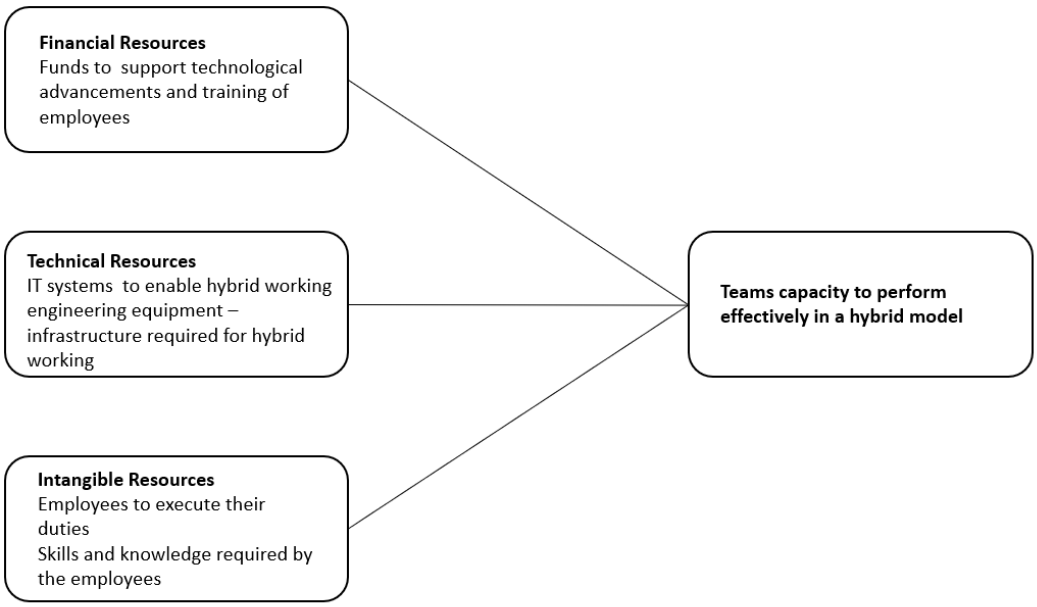


Figure 3 Resource Based Theory

According to the Self Determination Theory, employees who receive extrinsic motivation together with training and social experience, will produce positive results that contribute to hybrid team productivity. Supported by the Resource based view, mining companies can leverage on the internal financial, technical, and intangible resources to ensure a smooth transition to a hybrid working model and, in this way, they will be able to address the challenges that they might face.

2.8 Conceptual Framework

The below Conceptual Framework was developed for this study. Managers from mining companies in SSA can utilise this framework to address the challenges faced by the companies.

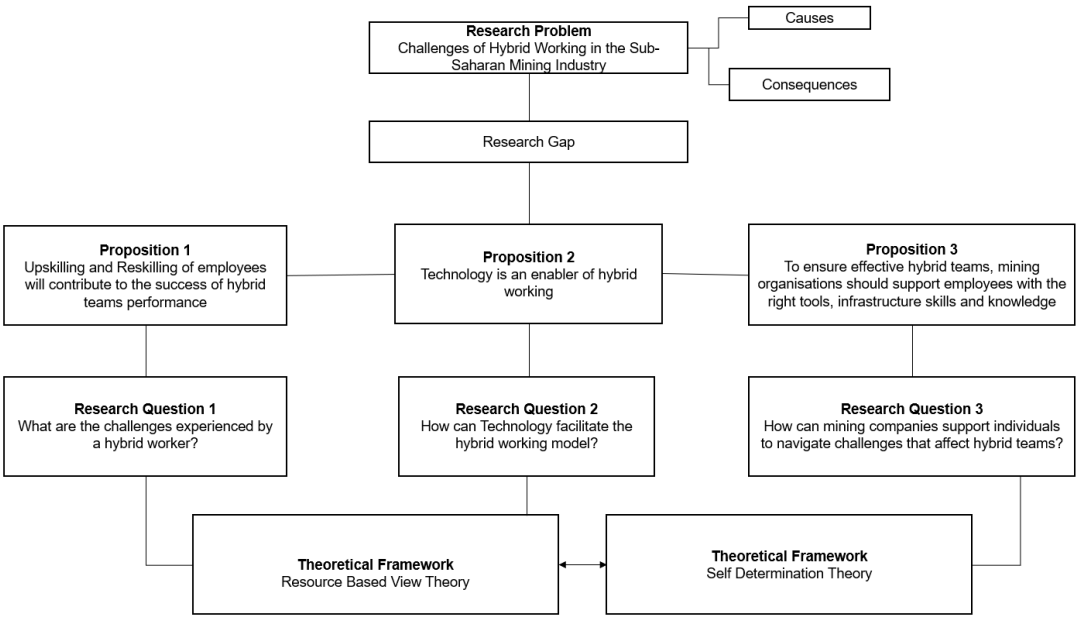


Figure 4 Conceptual Framework

The research problem categorises the cause and consequences to give a better understanding of the problem and the impact this has if it's not adequately addressed. The causes are related to the acceleration of the employees need to work flexibly post the COVID 19 pandemic and influence 4IR technologies in transforming ways of working. If the challenges are not addressed, the mining companies' competitive advantage will be compromised. Based on the literature review conducted, supported by the SDT and RBV theoretical frameworks, the researcher was able to identify propositions and research questions that shaped the research and highlighted consequences that the mining companies will experience if these challenges are not addressed.

The support from mining companies and the managers is very crucial in determine the success of hybrid working for the non-technical functions of mining companies in SSA. The managers can adopt this framework as a guide in managing the challenges presented by hybrid working.

2.9 Research Propositions

The fourth Industrial revolution technologies have changed the way people work. Remote working and hybrid working have become common ways of working for

different industries (Sokolic, 2022) and Covid -19 accelerated the need by employees to work flexibly. To understand this swift in more detail and its impact to the mining companies in SSA, the below propositions were formulated.

Proposition 1

Upskilling and reskilling of employees will contribute to the success of hybrid teams' performance.

Proposition 2

Technology is an enabler of hybrid working.

Proposition 3

To ensure effective hybrid teams, mining organisations should support individuals with the resources that will enable them to work efficiently and effectively

2.10 Chapter Conclusion

Traditionally, mining companies have always followed an onsite office work model were all employees had to work from the mining operations. The need for flexibility through the hybrid work model has heightened. With some employees successfully working remotely during the Covid-19 pandemic, mining companies must consider the shift to a hybrid model. Existing literature indicates the challenges that are experienced by hybrid workers, how technology enables the work from home and the role of companies in supporting hybrid work models. However, there is a gap in research on the challenges in SSA specific to the mining Industry. The following chapters will investigate these gaps further as the mining industry prepares for this future of work. The resource-based view theory points the importance of training with the self-determination theory providing a guide on how companies can utilise its existing resources to overcome the hybrid working model challenges.

3. Research Strategy, Design, Procedure and Methodology

3.1 Introduction

Chapter three will outline research approach and methodology that was used in collecting, processing, and analyzing the data.

The research questions to be answered by this research study are:

1. What are the challenges experienced by a hybrid worker?
2. How can technology facilitate the working of hybrid teams?
3. How can the mining companies support employees to navigate challenges that can affect hybrid working?

3.2 Research Strategy

The research that was used for this study is qualitative. Qualitative data provides in-depth analysis of the challenges of hybrid working for mining companies in SSA. The researcher conducted interviews where specific themes or patterns were identified during the research. The output from the analysis of qualitative data indicated further research in this field. The study was not merely interested on causation which clarifies the use of qualitative data. Because the targeted population was employees in a managerial position, qualitative method was more practical in attaining the right sample size as compared to quantitative method that requires a bigger sample size. According to (Boyce & Neale, 2006) in-depth interviews are ideal for getting detailed information and for exploring new issues. Hybrid working model is new to the mining industry in SSA hence the need for the in-depth interviews. The researcher had access to the interviewers over Microsoft teams.

3.3 Research Design

The general qualitative design was used for this research. It included in depth interviews. According to (Showkat & Parveen, 2017), in-depth interviews are an effective way of relating values, opinions, experiences, and other aspects under study. The in-depth interviews were the primary data of this research. In-depth interviews are an effective way of collecting primary data (Showkat & Parveen, 2017). The interviews assisted with understanding the problem statement from a holistic approach. The study aimed to determine the challenges of hybrid working models in the mining industry and how mining companies can navigate through these challenges. This study is specific to the non-technical mining departments. Although the in-depth interviews provided more detail on the future of work, it had its limitations which included the small sample size, time consumption, bias of selecting the sample size and the ethical and generic issues posed by this research design (Showkat & Parveen, 2017).

3.4 Research Instrument

The research instrument used in this qualitative research was semi structured interviews. The researcher had a schedule of interview questions that guided the interviews. Semi structured interview provided flexibility and the participants were able to fully express their views and opinions on the research topic. The in-depth interviews allowed the researcher to obtain in depth information related to the challenges of hybrid working for mining companies in SSA. The schedule of questions is presented in Appendix 1.

3.5 Research Population

Managers from mining operations in Ghana, Siguiri and Tanzania were the chosen population for this study. The population zoned into employees with managerial positions as they are more critical in making strategic decisions for an organisation (Ometlic, 2016) and they will be responsible for implementing a hybrid work models for the mines. Having experienced remote work from Covid-19, they had some knowledge on some of the challenges they experienced

together with the teams at that time. Having been exposed to remote work, these managers had 1st hand experience of managing remotely and other challenges that their team members experienced.

3.6 Sampling

Purposive Sampling was used for this research. Two of the participants were from the corporate office in South Africa. The participants were from different non-technical departments of mining companies which include Finance and Supply Chain. The population consisted of 8 participants, 2 from South Africa (corporate office), 3 from Ghana, 2 from Guinea and 1 from Tanzania. The participants were all male. The table below indicates the participants.

Research Sample

Participants	
Africa Vice President Finance (corporate office)	1
Site Supply Chain Managers Ghana, Tanzania, and Guinea (mining operations)	4
Ex Ghana Chamber of Mines President (mining operation)	1
Africa Supply Chain Manager Head (corporate office)	1
Guinea Finance Manager (mining operation)	1
Total	**8**

Table 1 Research Sample

3.7 Ethical Considerations

The Ethical areas that were considered in this research are listed below. Respondents were made aware of these at the beginning of each interview. Consideration of these ethical issues is important as it supported collaboration and created trust between the researcher and the participants.

Voluntary participation – respondents were not forced into an interview, meaning that their participation was voluntary.

Informed Consent – Participants were required to give consent of the interview. Full information of the research was provided to the participants before providing their consent. According to (Sanjari, Bahramnezhad, Fomani, Shoghi, & Cheraghi, 2014), informed consent is an integral part of ethics in research. All participants signed the consent forms.

Confidentiality and Anonymity – Participants were ensured of data confidentiality. All identity information was removed from the report.

Company Consent – Permission to interview the employees was granted by the organization.

3.7 Information Collection Process and Storage

To build comprehensive factors around the future of work for mining companies hybrid teams, the researcher collected data and build experiences as provided by the participants. The interviews were conducted, recorded and transcripted over Microsoft teams. The researcher later edited the interview transcripts using Microsoft word to clean up the transcripts. Replaying of the recorded interview assisted with fixing some of the incorrectly transcripted data. The interview transcripts were stored on one drive on a password protected computer. Interviews over Microsoft teams were very convenient for the researcher as it saved costs of travelling to the different countries. The video functionality on Microsoft teams simulated the face-to-face interview.

3.8 Information Processing and Analysis

The researcher analyzed the interview sheets post the interviews to identify common words, trends and comments from the interview using the Delve software tool. It was the researcher's responsibility to interpret the feedback provided by the participants. To avoid bias on interpreting the feedback, the researcher focused on learnings that took place during the interviews. As a means of presenting the findings in a meaningful and comprehensible manner, thematic analysis was used to analyse the data. During the analysis of findings, the researcher excluded responses that were not relevant to this research.

The researcher used both deductive and inductive approaches to determine the themes. Research questions and theoretical frameworks formed the base of the deductive coding approach codes. Refer to Appendix 2. There are some codes that were derived from the interviews which formed part of the inductive coding. Using the Delve qualitative, thematic analysis coding was ultimately used to analyse and conclude the findings from the research.

3.9 Description of the Research Participants

Participant	**Department and Job Title**	**Responsibility**
Participant 1	MD Mine in Ghana & Ex Chamber of Mines President	Oversees all functions within the operation, i.e., Finance, Human Resources, Geology, Engineering, Mining and Supply Chain. Engages with external stakeholders such as the government. Hosting communities and regulatory officials to ensure license to mine and alignment to country legislature. Supports and Promotes mining in Ghana by pricing strategic support and advisory input.

Participant 2	Africa Vice President – Finance (South Africa Corporate Office)	Provides strategic direction a to all operations to all commercial functions within the Africa Business Unit. Ensures that the operations are aligned to the companies' goals and objectives.
Participant 3	Africa Supply Chain Manager (South Africa Corporate Office)	Support all Regional Supply Chain Functions at the mining operations through the different functions of supply chain, i.e., contract optimization, inventory optimization, warehousing, master data, materials engineering, logistics and purchasing.
Participant 4	Guinea Mine - Finance Manager	Provides management expertise as well as manage performance and governance to ensure achievement of the company and the operations financial goals and objectives. Oversees the full commercial function, including finance costing, payrolls, stores, and procurement
Participant 5	Guinea Mine - Supply Chain Manager	Works with operational stakeholders to assess future demands and develop strategies and plans that will reduce costs, improve cash flow, and contribute towards healthy balance sheet. Manager continuously unlocks value through effective efficient and ethical sourcing purchasing and or sourcing activities.
Participant 6	Tanzania Mine -Supply Chain Manager	Works with operational stakeholders to assess future demands and develop strategies and plans that will reduce costs, improve cash flow, and contribute towards healthy balance sheet. Manager continuously unlocks value through effective efficient and ethical sourcing purchasing and or sourcing activities.

Participant 7	Ghana Mine – Supply Chain Manager	Works with operational stakeholders to assess future demands and develop strategies and plans that will reduce costs, improve cash flow, and contribute towards healthy balance sheet. Manager continuously unlocks value through effective efficient and ethical sourcing purchasing and or sourcing activities.
Participant 8	Ghana Mine 2 – Supply Chain Manager	Works with operational stakeholders to assess future demands and develop strategies and plans that will reduce costs, improve cash flow, and contribute towards healthy balance sheet. Manager continuously unlocks value through effective efficient and ethical sourcing purchasing and or sourcing activities.

Table 2 Description of Research Participants

3.10 Research strengths – Reliability and Validity

As a means of establishing neutrality and increasing validity, the researcher used purposeful sampling. The prolonged engagements with the participants during the interviews enabled the researcher to question certain biases. Most of the interviews were between forty-five to sixty minutes. The semi structured interviews gave the researcher and participant an opportunity to question their own biases and perceptions (Franklin & Ballan, 2001) on the challenges of hybrid working in SSA. The use of structured codes to identify themes increased the validity of the research and the researcher was able to produce consistent categories with similar themes. According to (Franklin & Ballan, 2001), this process increases the validity of the research.

Selecting several participants from different locations assisted with reducing biases. The several participants were geographically far apart. The participants were from different geographical locations and the interviews were conducted at different times. The participants did not know the population selected for the interview reducing bias of their responses.

The researcher ensured that the above criterion is followed and presented truthfully. Based on (Franklin & Ballan, 2001) methods of increasing reliability, the research method can be deemed reliable because, the participants responses to questions were in depth and expanded leaving no room for the researcher to assume what the participants meant. Notes from the interview were recorded using computer software and the researcher re listened to the interview updating the transcripts accordingly. The researcher also used a software tool Delve to analyse the data thus increasing its reliability. This

The trustworthiness criteria used in this paper included neutrality, integrity and consistency. The researcher ensured that the participants were asked the same questions in the same context ensuring consistency. As means of ensuring neutrality and avoiding biases, the researcher used Delve to analyse responses and create themes based on actual responses from participants. The interviews were all recorded on teams to ensure that the information from the study participants and the findings are not false.

3.11 Research Weaknesses – Technical and Administrative Limitations

Several limitations were identified by the researcher. First the participants were limited to mining operations that the researcher had access to. The respondent's view is therefore not representation of all the mining companies in SSA. Secondly, because of the nature of qualitative research, i.e. the sample size, the research could have been disadvantaged by the small sample size. The small sample size used during the research might not be representative of SSA which might result in some bias. Third, the responses from participants and the interpretations of the findings are subjective as they are purely based on the individuals. Lastly. the researcher could have had an impact on the participants and vice versa which could have compromised the outcome of the results. Technically, there internet connectivity issues during some of the interviews, which distracted the interview session.

3.12 Conclusion

Chapter 3 presented the research methodology from when data was collected and synthesised. The author ensured that she complied to the ethical considerations to produce dependable research. The chapter highlighted the research strengths and weaknesses and how these could affect the research on challenges of hybrid working in SSA.

4. Presentation Of Research Results

4.1 Introduction

The research aims to explore the challenges of hybrid working models within the mining industry in Sub Saharan Africa. It is specific to the non-technical functions within mining such as Finance, Human resources, and Supply Chain.

The research objectives were to identify the challenges of hybrid working, to assess employees' perceptions of hybrid working and to assess how the mining company's influence the hybrid working model.

The research questions to be answered were:

1. What are the challenges experienced by a hybrid worker?
2. How can technology facilitate the working of hybrid teams?
3. How can the mining companies support employees to navigate challenges that can affect hybrid working?

The methodology used in this research was qualitative. This chapter will present the findings of the qualitative analysis, and these will be discussed below based on the themes formulated from the Analysis.

4.2 Findings

4.2.1 Challenges Experienced by a Hybrid Worker

This theme addresses anything that was related to the research question "What are the challenges experienced by a hybrid worker?". Several sub themes were obtained from the interviews, and these are shown below. The responses from the participants are in italics.

Supporting infrastructure - Some of the respondents mentioned that hybrid workers can face challenges from electricity shortages, internet connection and technology:

"*We are still struggling with the power, the network is not strong enough*

"In our case here in Guinea, you will spend half the day with most of the employees offline because of power issues"

"Between 2020 and 2021 internet to West Africa was cut and created a lot of problems"

Employee conflict - Some respondents indicated that hybrid working can cause friction as not all mine workers can be given laptops and not all roles are flexible to allow hybrid working

"It brings friction., Why are you giving this guy a laptop to go do their work by me? You are not giving me a laptop to go do my work.

"we've now got this divide in culture and ways of working. I can tell you the people that operations are highly upset with us, that that come in and when they visit our office"

"Result a lot of disputes, some people question why they can't work at home, some think people are taking over their jobs, some assume that people are not doing their work which impacts them"

"Result in strenuous relationships amongst co-workers"

Organisational Culture and Remote Management -Other responses received indicated there are some boundaries created by hybrid working which impact the culture and management of teams

"When people are not in the office, you lose sight of how people are working, that cohesiveness is gone and during online meetings you only stick to the agenda and there is no serendipity"

"There is a group of people who tend to be productive when they see their bosses around"

"Then some people will not even open their laptops until late in the day when everyone else is offline"

"Some decisions have been taken either out of experience or not having done thorough analysis"

"a company cannot grow leaders through online interactions. Mining requires hands on, onsite experience. Also, the people skills, how do you learn to address a crowd"

"Technology is not used to the fullest when videos are off. It reflects that people are not 100% present in that meeting. You get some people sending emails during a meeting which shows that they are not concentrating in that meeting"

"External stakeholders who are used to coming to site for face-to-face meetings cannot do so and some do not have the technology to connect online"

"I had to force a new employee to come in everyday for some weeks for purposes of training and coaching. When he started, I wasn't getting the quality of work I needed"

Disadvantages of hybrid working -The other challenges highlighted were related to the employee's personal life

"Some of us, our home places are not made for, people to work from home. We don't have conducive areas, there is no privacy at home. And then discuss some of those confidential information. In some instances, people are working in unhealthy environment. Some sit on the floor and work or on the bed. these are not addressed; this will result in health problems soon like back pains

"Family conflicts or dispute through disturbance of which it can distract your focus. Sometimes you have kids playing around, making noise."

"And then the perception from the community and the balance of life between working and family issues. Community first and then let's say in African way. When people see you at home, they have expectations of seeing you and attending certain things like funerals when you are supposed to be working"

"Some employees look forward to certain benefits provided when one comes to the office, like free meals"

4.2.2 Influence of Technology

This theme addresses anything that was related to the research question "how can technology facilitate the working of hybrid teams?" Several sub themes were obtained from the interviews, and these are shown below.

Technology is an enabler -Several respondents mentioned that technology can be used as an enabler that helps and enhances their work. It is a tool that supports hybrid working but it will not replace an individual's ability or skill.

"Technology has come to help and enhance our work"

"Technology is being used as an enabler"

"Technology in general is an enabler"

Hybrid working and technology - Other respondents indicated that hybrid working is only as good as the technology available to them:

“And remember too, that remote working is only as effective as the technology you have available to allow you to do so”

When I started working in the mining industry, I don’t believe I would have been able to work remotely as I have”

“Working from home needs some connection”

“The other thing is about the supporting environment, which is the infrastructure”

Benefits of Technology - Most respondents mentioned that technology is a force for good that has brought the world closer

“With technology the distance is not there anymore”

“Technology provides flexibility”

“Technology creates value to the business”

Cyber Attacks -Risk of cyber-attacks also popped up:

And how people can be protected, and here we can talk about cybersecurity, for example

4.2.3 Organisational Support

This theme addresses anything that was related to the research question – “How can mining companies support a hybrid worker?” Several sub themes were obtained from the interviews, and these are shown below:

Company Policies – Participants provided a view of what they thought of their organisations policy with regards to company policy is listed below.

“*You would want to have some policy in place to govern certain things like enrolment of new employees, training of employees”*

“There should be policies around compensating people accordingly when they are working from home.”

“Our company does not have any policy on hybrid working. With no policies on hybrid working, not every employee has the maturity of knowing when to be in the office and when not to be in the office.”

Importance of training – Training was emphasized during the interview.

"If people are not trained, it will affect their competency"

"People need to be trained so that they are able to work and use the technology"

"New employees want to be trained"

"There is the change management process, you want to ensure that you have trained people to be comfortable with the technology they use"

4.2.4 Going Forward

This theme was formulated from some input provided by respondents on how mining companies and the government can assist in the shift of hybrid working and adaptation of technology:

Role of Mining Companies – Respondents indicated the need for mining companies to look to change to hybrid working and implement policies and training to support the shift:

"I think the mining industry must change the model of working and accommodate flexibility and hybrid working. Otherwise potentially they will lose good skills. It will come down to the technology provided by the company Also considering the new generation coming out of schools now. They are technology driven"

"From a company perspective, whilst we should be mindful of technology and its impact on our preparedness for hybrid working, we should take cognizance of the peculiarity in respective countries."

Role of the Government – Respondent indicated the need for governments to play a role in adopting technology and implementing legislature that supports hybrid working:

"With almost everything done electronically, Governments must adopt to this new way of working and stop demanding documents in a box, use of non-electronic signatures. Even some external auditors are not aligned to the company technological changes"

“Governments and companies must ensure there is development in communities. That infrastructure for hybrid working must be provided for by governments and companies”

Legislations generally is always a bit behind” Governments must start looking into loopholes from hybrid working, e.g., local employment.

4.3 Conclusion

From the above, the key themes that emerge from the research include challenges of a hybrid worker, the influence of technology, organisational support, and proposals on the way forward. The Research consistency matrix in Appendix 3 illustrates the link between the research questions, interview questions and the formulation of codes and themes. These key findings directly relate to the research questions with certain recommendations that came from the research, which will be discussed in the following chapter. Chapter 5 will illustrate the importance of these findings to this research.

5. Discussion of findings

5.2 Challenges of Hybrid Working

Infrastructure development is the major challenge faced with hybrid workers within the mining industry in SSA. According to the 2019 Afro barometer survey, infrastructure was the most important problem in Ghana, with electricity, also making the top ten list (Ghana Center for Democratic Development, 2019). According to (Bratton & Gyimah-Boadi, 2017), sixty-five percent communities live in areas with an electric grid with ninety three percent living in areas with cellphone services. This data is evident of the infrastructure challenges mentioned in the findings. Without basic infrastructure like electricity, it will be difficult for a hybrid worker to work from home. Although the greatest percentage of the communities have access to internet connectivity, the lack of supporting infrastructure such as electricity will not permit a hybrid worker to work from home. Some mining companies produce their own electricity or have backup power which supports onsite working vs hybrid working. Although mining companies are not immune from the excess power outages in Africa, they have had to use diesel to supplement the national power supply (Cudennec & Kiwelu, 2021). Although there has been steady infrastructural development in the Sub Sahara region, the rate of development remains poorer than that of the rest of the world (Appiah, Onifade, & Gyamfi, 2022).

Based on the findings, hybrid working resulted in a lot of employee conflict. According to (Fayard, Weeks, & Khan, 2021), cognitive psychology and neuroscience studies show that humans cognition depends on how the brain processes signals and the environment in which these signals are received. (Fayard, Weeks, & Khan, 2021) further state that the lack of body language from online meetings can trigger misinterpretations that make employee bonding difficult thus resulting to conflict. Contrary to these findings of employee conflict, research by (Mihaylova, 2021), there is little evidence to support that hybrid working has increased employee conflict in the workplace. In the same line, (Nadjafova, Paresashvili, Maisuradze, & Nokvashvili, 2021), indicates that the number of conflicts decreased during the pandemic as employees were more

empathetic towards one another resulting in more collaboration. With most mining companies operating fully back on site, there is not enough evidence that shows the increase in conflict.

The research findings indicate several disadvantages related to remote work such as building team cohesiveness, remote management and incorporating new employees into the organisations which ultimately impacts the corporate culture. In line with previous studies, (Berger, Falk, & Anja, 2021), 89% of the companies they surveyed indicated the need to keep and foster the corporate culture as the number one challenge with main reference to onboarding of new employees and remote management. These results tie well with previous studies wherein (Fayard, Weeks, & Khan, 2021) confirms that new employees learn better from directly observing peers around them. A similar conclusion was reached by (Warzel & Petersen, 2022), in their book “Out of office” where they mention the difficulties of creating a wholesome company culture in a fulltime office setup and even harder in a group chat. Research done by (Yang, et al., 2021) indicate that people are less likely to have serendipitous conversations that encourage knowledges sharing and disruptive ideas. (Berger, Falk, & Anja, 2021), research indicates that 69% of the companies surveyed, presented managing teams remotely as a challenge with 72% indicating effective collaboration as another key challenge.

These research findings are therefore consistent with existing literature proving that hybrid working impacts company culture, team collaboration and remote management. Supported by the SDT theory, if employees lack that sense of belonging it impacts their autonomy and competence and ultimately their productivity.

5.3 Technology as an Enabler

Although the benefits of technology were at play before the Covid-19 pandemic, technology greatly enabled employees to work remotely and in a more effective way during the pandemic (Fayard, Weeks, & Khan, 2021). Technology was used to facilitate knowledge sharing and to automate a lot of the routine work (Fayard,

Weeks, & Khan, 2021). This research is in line with the research findings which illustrate that technology is an enabler. According to (Urbaniec, Malkowska, & Wlodarkiewicz-Klimek, 2022), hybrid working has a great dependency on technology.

Based on the research findings, there is not enough data that confirms the lack of availability of technological tools required for one to perform their job in a hybrid working model in SSA. However, concerns were raised on the risk of cybercrimes and how employees have little or no knowledge of this. Cybercrime is a huge threat to any organization and with more people working from home this risk has heightened. These findings are in line with previous research. (Ahmad, 2020) states that employees have limited cybersecurity resources and they need to be educated on cyber privacy and cybersecurity. The World Economic Forum stated that the risk of cybercrimes is a threat on the rise in the technology space. In the same line, (Fontanilla, 2020) states that cybercrime is a huge threat to companies and people in the world. (Fontanilla, 2020) further states that it is critical for organisations to ensure that their employees understand the cyber threats.

The research findings are aligned to existing research and further supports the hypothesis that technology is an enabler of hybrid working. Existing research also indicates that there are threats and or risks posed by technology such as cybercrimes. Supported by the RBV theory, organisations need to utilize their technological resources to ensure that employees can perform their duties and ultimately remain productive.

5.4 Organisational Support

From the research findings, little that has been done by mining companies in SSA to implement policies around hybrid working. A similar conclusion was reached by (Berger, Falk, & Anja, 2021), where their results demonstrate that companies expressed concerns around the lack of regulations on global office home setups. Supported by country legislature, the mining companies must consider looking into policies that will clarify the rights of both employers and employees for hybrid working. These facts were revealed by the research results were several

respondents indicated the need for regulations and polices to guide the implementation of hybrid working models.

The results indicate that mining companies must look to exploit their internal resources. These findings are linked to the RBV theoretical framework. As a way of ensuring that teams perform effectively in a hybrid working model, companies must provide financial resources to support technological advancements, provide skills and knowledge for their employees to perform in an effective manner and technical resources that form a base for infrastructure required for hybrid working. According to (Galbreath, 2005) utilization of these resources will ensure that mining companies remain sustainably competitive as they move to hybrid working models. This can be done by deploying the right technologies and nurturing employee skills. These findings are consistent with what has been found in previous research, where (Berger, Falk, & Anja, 2021) emphasizes the need for new training methods for the future of work. (Berger, Falk, & Anja, 2021) further states that company training curriculums must be adjusted accordingly as face-to-face training is very different from remote training. This analysis therefore supports the proposition that upskilling, and reskilling of employees will contribute to the success of hybrid of hybrid teams' performance. The same analysis supports the proposition that mining organisations should support individuals with the resources that will enable them to work efficiently and effectively

5.5 Going Forward

With mining companies back to the traditional mode of working, i.e., working from the operations 100%, research findings revealed that the mining industry in SSA must accommodate hybrid working as a way of retaining skilled employees who are after flexibility. The research findings reveal that hybrid working models are a way of attracting new skills especially the tech savvy generation. These findings are in accordance with results reported by (Berger, Falk, & Anja, 2021) where 87% of companies in their research considered the hybrid working models as a prodigious means of growing the organisations appeal. A similar conclusion was reached by (Summerfield, 2022) who indicates that hybrid working models assist

with retaining and recruiting talent. This analysis is consistent with the proposition that mining organisations have a role to play to ensure effective hybrid teams

Other findings revealed in the research point to the role of governments in adopting technology and implementing legislature that supports hybrid working. According to (AFR-IX, 2022), Africa as a continent lag in technology capacity because of outdated policies and that the governments do not encourage developments in technology. In the same line, the Tony Blair Institute for Global change confirms that the efforts of governments in SSA to digitalise are hindered by poor digital infrastructure and the absence of supporting regulations (Barasa, 2022). Literature supports the recommendations from the research findings.

Research findings revealed the importance of government and mining companies working together A similar conclusion was reached by (Armstrong, et al., 2018), who states that the collaboration between government and companies has a shared purpose of assisting employees to work, supporting with career advancement, and ensuring that employees have the appropriate skills to support the different industries and the economy. (Armstrong, et al., 2018) further states that it is important for governments and companies to align their efforts to support the development of skills required for the fourth industrial revolution, hybrid working and team productivity. These findings are directly in line with previous findings from (World Economic Forum, 2016) that indicate that these collaborations will assist with managing the transformation of employment skills and education in preparation for the future of work, that they are crucial for social and economy developments and that they form the foundation required for successful future of work and hybrid models(Vecchi, 2020). This analysis is consistent with the proposition that mining organisations have a role to play to ensure effective hybrid teams with other research emphasising the importance of collaborating with the government.

5.6 Summary of Findings

From the above, the key findings that emerge indicate that there are indeed challenges faced by the non-technical functions of the mining companies in SSA

when it comes to hybrid working models. These challenges relate mainly to infrastructure development, team cohesiveness and the need to fully utilize technological tools to their complete advantage. The findings established the impact of hybrid working on the organisational culture and management of remote teams. The hybrid working model needs to be guided by company policies and supported by training of employees. The mining companies and hosting governments both have a role to play in ensuring the smooth transition to hybrid working. If these challenges are not addressed and if mining operations do not implement the proposed solutions, the productivity of the teams will be impacted, managers will not be able to keep the teams interconnected and mining organisations and governments will not be aligned in managing these hybrid working models.

Regarding the limitations of this research, it can be argued that the participants in the research were only senior managers. There is no information that was included from the employee's perspective on their challenges of hybrid working. The sample size was small too small to represent SSA, hence, the results might not be a true reflection of all the countries in SSA. The sample population was also subjective meaning it does not represent the perceptions of all mangers within the SSA mining industry.

6. Conclusion and Recommendations

6.1 Introduction

The aim of the study was to determine the challenges of hybrid working models in the mining industry for non-technical mining functions in SSA and how the mining companies can navigate through these challenges. As illustrated in chapter 4 and 5, the challenges identified through this research include poor infrastructure, employee conflict, negative impact on the organisational culture, difficulty of managing remote teams, risk of cyberattacks and the lack of company policies and government regulations that can guide the establishment of the rules of conduct for hybrid working models. As for how the mining companies can navigate through this challenge, the research identified several means which include: mining companies must consider the hybrid working models going forward, hosting governments must adopt technologies to support hybrid working and implement regulations that guide mining companies adopting the hybrid working model and the mining companies and governments must collaborate in supporting hybrid working models. The following section will discuss the implications.

6.1 Implications

The key challenges identified in this research relate to lack of infrastructure, the need to preserve and foster the company culture and the management of a hybrid team. SSA infrastructural development does not support working from home due to the electricity shortages and poor network connectivity. Without basic infrastructural developments, hybrid working will not be a success in SSA. Defining the organisations culture is a challenge that needs to be addressed. With employees working from home, the research deemed it will be difficult for companies to maintain that organisations character and personality that fosters the right values, behaviors, interactions among employees. Remote management is something new for managers as they have always managed their teams on site

face to face. The shift to using technologies to manage teams and keeping the team together is a key challenge for the managers.

Technology was recognized as an enabler, however not all employees have that skill to utilize technology to its full advantage. There were concerns raised on cybersecurity and how employees have little or no knowledge on the threat of cyber-crimes.

The results highlight that little has been done with regards to countries legislature on hybrid working. It is however important to note that the Africa governments are peculiar from those of western countries. The lack of legal regulation creates uncertainties for companies. There is a need for a systematic and theoretical analysis on country regulations that govern mining companies with regards insurance and compensation of hybrid workers.

Using the SDT and RBV theoretical frameworks, mining companies must start the process of preparing for this future of work. They need to ensure that their employees have the right tools that support hybrid working. Mining companies in SSA need to implement strategies and policies that support a fixed hybrid model. These strategies must be inclusive of training and or upskilling of employees on the use of technology and awareness of cybercrimes. Managers must develop systems that enable them to manage hybrid teams, keep the teams together and create and sustain a positive culture and a healthy working environment, at the same time allowing employees the flexibility they require through the hybrid model. Mining companies must work with hosting communities to develop infrastructure that promotes hybrid working and this can be part of their shared value initiatives. Ultimately all these initiatives must sustain the company's competitive advantage.

6.2 Future Research

This research has contributed to the challenges faced by the mining companies in SSA and how they can maneuver through these challenges. However, there is need for future research in the same field. Additional studies to understand more comprehensively the key advantages of hybrid working for mining companies in

SSA is required. The paper zoomed in on the challenges of hybrid working in SSA and it lacked the comprehensive benefits it will bring for the mining company. With 4IR on the rise with new technologies such as driverless truck and remote control of machinery operating of machines remotely, there is also an opportunity to extend these studies to the technical departments of mining companies in SSA. Currently these functions are labor intensive as humans must control the machinery on site. Further studies that can be conducted include the protection of both the employees and employers under the hybrid working model and compensation models for employees working from home.

6.3 Conclusion

The implementation of hybrid working models is still in its early stages for most companies across different industries. It is a matter of when and how to implement hybrid working models for mining companies in SSA as we embrace the future of work. As more and more companies embrace hybrid working, there is a need for mining companies to be more intentional in their choices and compromises if they are to remain sustainably competitive (Gratton, Four Principles To Ensue Hybrid Work is Productive Work, 2021).

7. References

Adekoya, O. d., & Adisa, T. A. (2022). Going Forward: Remote Working in the Post-COVID-19 Era. *Employee Relations*, 1410-1427.

AFR-IX. (2022, November 15). *Why is Africa lagging behind the world in Technology?* Retrieved from AFR-IX telecom: https://afr-ix.com/why-is-africa-lagging-behind-the-world-in-technology/

Ahmad, T. (2020). Corona Virus (Covid-19) Pandemic and Work from Home:Challenges if Cybercrimes and Cybersecurity. *Available at SSRN 3568830*.

Al- Habeibeh, A., Watkins, M., Waried, K., & Javareshk, M. B. (2021). Challenges and opportunities of remotely working from home during Covid-19 pandemic. *Global Transitions*, 99-108.

Anamarija, C., Amadeja, L., & Jakob, S. (2019). How digitilisation changes the workplace. *Dyanamic Relationships Managment Journal*, 3-12.

Antonacopoulou, E. P., & Georgiadou, A. (2021). Leading through social distancing:The future of work ,corporations and leadership from home. *Gender, Work & Organization*, 749-767.

Appiah, M., Onifade, S. T., & Gyamfi, B. A. (2022). Building Critical Infrastructures:Evaluating the roles of governance and Institutions in Infrastructural Developments in Sub Sahara African Countries. *Evaluation Review*, 1-25.

Armstrong, K., Parmelee, M., Santifort, S., Burley, J., Van Fleet, J. W., Koziol, M., . . . Tetrick, R. (2018). *Preparing tomorrow's workforce for the fourth industrial revoultion for business: A framework for action.* Johannesburg: Delloitte & The Global Business Coalition for Education.

Awada, M., Lucas, G., Becerik-Gerber, B., & Roll, S. (2021). Working from home during the COVID-19 pandemic: Impact on office worker productivity and work experience. *Work*, 1171-1189.

Barasa, H. (2022, March 14). *Digital Government*. Retrieved from Tony Blair Institute for Global Change: https://institute.global/policy/digital-government-sub-saharan-africa-evolving-fast-lacking-frameworks

Bauer, W. V. (2018). Transforming to an Agile Enterprise – How to Handle the Challenge of Organizational Ambidexterity. *Advances in Intelligent Systems*, 21-25.

Bendel, A., & Latniak, E. (2018). On the impact of digitilization on team based organisation strucures and working conditions - experiences from change processes in German companies. *International Workshop on Teamworking(IWOT)22: Teamworking and Thechnology at work.* Leiden: APRODI.

Berger, S., Falk, W., & Anja, B. (2021). *Hybrid Work Compass, Navigating the future of how we work.* Dufourstrasse: University of St.Gallen.

Boyce, C., & Neale, P. (2006). *Conducting in-depth interviews: A guide for designing and conducting in-depth interviews for evaluation input(Vol 2).* Pathfinder International: Watertown, MA.

Bratton, M., & Gyimah-Boadi, E. (2017). *Infrsatructure, jobs, good governance: Bringing Africans' priorities to the G20 table.* Ghana: Afrobarometer.

Brower, T. (2021, February 7). *Forbes*. Retrieved from Forbes: https://www.forbes.com/sites/tracybrower/2021/02/07/how-to-sustain-company-culture-in-a-hybrid-work-model/?sh=2d22b9bb1009

Campbell, R., Goodman-Williams, R., Feenay, H., & Fejler-Cabral, G. (2018). Assessing Triangulation Across Methodologies, Methods, and Stakeholder Groups: The Joys, Woes, and Politics of Interpreting Convergent and Divergent Data. *American Journal of evaluation*, 125-144.

Cherubini, F., Newman, N., & Nielsen, R. K. (2021). *Hybrid working and improving diversity remain twin challenges for publishers.* Oxford: Reuters Institute for the study of Journalism at the University of Oxford.

Cisco. (2023). *What is Hybrid Work*. Retrieved from Webex: https://www.webex.com/what-is-hybrid-work.html

Cudennec, S., & Kiwelu, L. (2021, April 26). *Inside AFrica*. Retrieved from Norton Rose Fulbright: https://www.nortonrosefulbright.com/en/inside-africa/blog/2021/04/powering-mining-in-africa-the-rise-of-the-mini-grid-and-captive-model

Dwivedi, Y. K., Hughes, L. D., Coombs, C., Constantiou, I., Duan, Y., Edwards, J. S., . . . Upadhyay, N. (2020). Impact of COVID-19 pandemic on information management research and practice: Transforming education, work and life. *International Journal of Information Management*, 1-20.

Fayard, A.-L., Weeks, J., & Khan, M. (2021, March 1). Designing the hybrid office. *Havard Business Review 99*, 114-123.

Ferreira, R., Pereira, R., Bianchi, I. S., & Mira da Silav, M. (2021). Decison Factors for Remote Work Adoption:Advantages, Disadantages, Driving Forces and Challenges. *Journal of Open Innovation:Technology, Makret and Complexity*, 1-24.

Flores, M. F. (2019). Understanding the challenges of remote working and its impact to workers. *International Journal of Business Marketing and Managment(IJBMM)*, 40-44.

Fontanilla, M. V. (2020). Cybercrime pandemic. *Eubios Journal of Asian and International Biotehics 30(4)*, 161-165.

Forner, V. W., Jones, M., Berry, Y., & Eidenfalk, J. (2020). Motivating workers: how leaders apply self-determination theory in organizations. *Organization Managment Journal*, 76-94.

Fotorachian, H., & Kazemi, H. (2020). Impact of Industry 4.0 on supply chain performance. *Production, Planning & Conrol*, 63-81.

Fouladgar, M. M., Yazdani-Chamzini, A., Zavadskas, E. K., & Moini, H. H. (2021). A new hybrid model for evaluating the working strategies: case study of

construction company. *Technological and Economic Development of Economy*, 164-188.

Franklin, C., & Ballan, M. (2001). Reliability and validity in qualitative research. *The handbook of social work research methods methods 4*, 273-292.

Furnell, S., & Shah, J. N. (2020). Home working and cybersecurity- an outbreak of unpreparedness. *Computer Fraud & Security*, 6-12.

Galbreath, J. (2005). Which Resources matter the most to the firm sucess? An explaratory study of resource-based theory. *Technovation*, 979-987.

Gartner. (2023). *Information Technology*. Retrieved from Gartner: https://www.gartner.com/en/information-technology/glossary/hybrid-work

Ghana Center for Democratic Development. (2019). *Infrastructure and roads Ghananians' most imprtnant problem, new Afrobarometer study shows.* Accra: Afrobarometer.

Gibbs, M., Mengel, F., & Siemroth, C. (2021). Work from home and productivity: Evidence from personnel and analytics data on IT professionals . *Journal of Political Economy Microeconomics*.

Gratton, L. (2021). Four Principles To Ensue Hybrid Work is Productive Work. *MIT Sloan management review 62(2)*, 11A-16A.

Gratton, L. (2021). How to do hybrid right. *Havard Business review, 99(3)*, 65-74.

Haas, M. (2022). *5 Challenges of Hybrid Work - And How to Overcome Them.* Massachusetts: Havard Business School.

Hadidi, R., & Power, D. J. (2019). Technology Adoption and Disruption -- Organizational Implications for the Future of Work. *Journal of the Midwest Association for Information Systems*, 1-6.

Hass, M. (2022, February 15). *Harvard Business Review*. Retrieved from Collaboration and Teams: https://hbr.org/2022/02/5-challenges-of-hybrid-work-and-how-to-overcome-them

Hidayanto, A. N., & Setyady, S. T. (2014). Impact of collaborative tools utilisation on group performance in university students. *The Turkish Journal Of Educational Technology*, 88-98.

Horton, R. (2022). *A technology-enabled future: Mining remotely.* Johannesburg: Partners in Performance.

Howington, J. (2022, August). *Job News*. Retrieved from Flexjobs: https://www.flexjobs.com/blog/post/work-life-balance-or-better-pay-two-thirds-choose-balance

ICMM. (2020). *Future of jobs in mining and mining regions: Sector Briefing.* London: ICMM.

Ilag, B. N. (2021). Tools and Technology for effective remote work general terms. *International Journal of Computer Applications*, 13-16.

Johan, H. (2022). Hybrid Working. *ITNow*, 16-17.

Klevit, A. (2022, January 5). *What Equipment Do You Need to Work from Home Successfully?* Retrieved from Linkedin: https://www.linkedin.com/pulse/what-equipment-do-you-need-work-from-home-adi-klevit/

Manyika, J. (2017, May). *Technology, jobs ad the future of work.* Retrieved from DLN: http://dln.jaipuria.ac.in:8080/jspui/bitstream/123456789/1891/1/MGI-Future-of-Work-Briefing-note-May-2017.pdf

Mihaylova, I. (2021). The impact of Covid-19 pandemic on the incidence of conflicts in organisations:An employee perspective. *KNOWLEDGE - International Journal* , 165-171.

Morrison-Smith, S., & Ruiz, J. (2020). Challenges and barriers in virtual teams: a literature review . *SN Applied Sciences*, 1-33.

Nadjafova, Z., Paresashvili, N., Maisuradze, T., & Nokvashvili, M. (2021). Organisational Conflict Management during Covid-19. *70th International Scientific Conference on Economic Development*, 788-795.

National Geographic. (1996). *Encyclopedic Entry*. Retrieved from National Geographic: https://education.nationalgeographic.org/resource/mining/

Niharika, G. (2012). Collaborative tools and virtual team effectiveness: an indutively derived approach in ndias software sector. *Decison(0304-0941)*, 5-27.

Nyarko, D. A., & Cheuk-wai Fong, R. (2023). Cyber Security Compliance Among Remote Workers. *Cybersecurity in the age of smart societies*, 343-369.

Ometlic, D. (2016). *The importance of interviewing CEOs and higher managment when writing case studies.* Halmstad: Halmstad University.

Phillips, S. (2020). Working through the pandemic: Accelerating the transition to remote working. *Business Information Review*, 129-134.

Pitagorsky, G. (2007). Managing virtual teams for high performance. *PMI Global Congress .* Atalanta: Project Management Institute.

Popovici, V. P.-L. (2020). Remote Work Revolution: Current Opportunities and Challenges for Organisations. *Economic Sciences Series*, 468-472.

Powell, K. (2022). Hybrid Working Takeshold. *Nature*, 537-539.

Sanjari, M., Bahramnezhad, F., Fomani, F. K., Shoghi, M., & Cheraghi, M. A. (2014). Ethical challenges of researchers in qualitative studies: the necessity to develop a specific guideline. *Journal of Medical Ethics and History of Medicine*, 7, 14.

Shankar, K. (2020). The Impact of COVID-19 on IT Services Industry - Expected Transformations. *British Journal of Management*, 450-452.

Showkat, N., & Parveen, H. (2017). In-Depthe Interview. *Media and Communication Studies*, 1-10.

Sokolic, D. (2022). Remote Work and Hybrid Work Organisations. *78th International Scientific Conference on Economic and Social Development*, 24-25.

Stelz, K., Roglinger, M., & Wyrtki, K. (2020). Building an ambidextrous organization: a maturity model for organizational ambidexterity. *Business Research*, 1203-1230.

Summerfield, R. (2022). Hybrid working can help recruit and retain talent, upskill leaders and boost team working, suggests a case study from an international professional services firm. *Strateguc HR Review*, 34-40.

Tarody, D. (2016). Organizational ambidexterity as a new research pardigm in strategic management. *Vezetestudomany-Budapest Managment Review*, 39-52.

Tasheva, I. (2021). Cybersecurity post-COVID-19:Lessons learned and policy recommendations. *European View 20(2)*, 140-149.

Tejero, L. M., Seva, R. R., & Fardrilan-Camacho, V. F. (2021). Factors Associated with Work-Life Balance and Productivity Before and During Work From Home. *J Occup Environ Med*, 1065-1072.

Timmermans, K. (2021). *Accenture*. Retrieved from Accenture: https://www.accenture.com/_acnmedia/PDF-165/Accenture-Supply-Chain-Workforce-of-the-Future-2021.pdf#zoom=50

Úbeda-García, M., Claver-Cortés, E., Marco-Lajara, B., & Zaragoza-Sáez, P. (2020). Toward a dynamic construction of organizational ambidexterity: Exploring the synergies between structural differentiation, organizational context, and interorganizational relations. *Journal of Business Research*, 363-372.

Urbaniec, M., Malkowska, A., & Wlodarkiewicz-Klimek, H. (2022). The impact of technoligal developments on remote working: insights from the Polish Managers Perspective. *Sustainabilit 2*, 1-18.

Vecchi, V. (2020). *Public- Private Partnerships for skills deveopment: A Governance Perspective.* European Training Foundation.

Wang, B., Liu, Y., Qian, J., & Parker, S. P. (2020). Achieving effective remote working during the covid-19 pandemic: A work design perspective. *International Associal of Applied Psychology*, 16-59.

Warzel, C., & Petersen, A. H. (2022). *Out of office - The big problem and bigger promise of working from home.* London: Scribe Publications.

World Economic Forum. (2016). *The Future of jobs : Employment, skills and workforce startegy for the fourth indutrisl revolution.* World Economic Forum.

Xiao, Y., Becerick-Gerber, B., Lucal, G., & Roll, S. C. (2021). Impacts of Working From Home During Covid-19 Pandemic on Physical and Mental Well Being of Office Workstation Users. *J Occup Environ Med*, 181-190.

Yang, L. H., Jaffe, S., Suri, S., Sinha, S., Weston, J., Joyce, C., . . . Teevan, J. (2021). The effects of remote work on collaboration among workers. *Nature Human Behaviou*, 43-54.

Yang, L., Holtz, D., Jaffe, S., Suri, S., Sinha, S., Weston, J., . . . Teevan, J. (2022). The effects of remote work on collaboration among information workers. *Nature Human Behaviour*, 43-54.

8. Appendices

8.1 Appendix 1 Data Collection Instrument

Below is the interview guide with the interview questions that were asked during the interviews.

Introduction – Greetings and Confidentiality

Question 1 - Tell me about your experience working within the mining industry with reference to evolution of technology

Question 2 – What are some of the ways that people have dealt with hybrid working

Question 3- What are some of the responses received from employees with introduction of technology within supply chain

Question 4 – What are your thoughts on policies and legislature with regards to hybrid working (industry specific)

Question 5 – How can technology make it better for employee collaboration and productivity

Question 6 – What are some of the implications of hybrid working

Question 7 - What are your thoughts on the societal impact of technology within the teams?

Question 8 - How do you think the company can prepare its employees and hosting communities for the future of work

Question 9 - Is there anything you would like to add with regards to this research

8.2 Appendix 2 Codes and Themes

The codes are highlighted in yellow and the themes in green.

Research Project Hybrid Working [Code x Descriptor Matrix]

Generated from Delve (www.DelveTool.com)

Order of Code in List	Nested Level	Code Name	Classification
1	>	General	
2	>>	Advantages of hybrid working	
3	>>	Other Industries impacted by hybrid working	
4	>>	Disadvantages of onsite working	
5	>	Influence of Technology	Theme
6	>>	Technology as an enabler	Code
7	>>	Technology and Hybrid working	Code
8	>>	Benefits of Technology	Code
9	>>	Technology Risks/Cyber Attacks	Code
10	>	Going Forward	Theme
11	>>	Role of mining companies	Code
13	>>	Role of Government	Code
14	>	Organisational Support	Theme
15	>>	Policy and Legislature	Code
16	>>	Importance of training	Code
17	>	Challenges experienced by a hybrid worker	Theme
18	>>	Supporting Infrastructure	Code
19	>>	Employee Conflict	Code
20	>>	Organisational Culture and Remote Management	Code
21	>>	Disadvantages of hybrid working	Code

Figure 4 Codes and Themes

8.3 Appendix 3 Research Consistency Matrix

Research Question	**Interview Questions**	**Codes and Themes**
What are the challenges experienced by a hybrid worker?	What are some of the ways that people have dealt with hybrid working? What are some of the implications of hybrid working? Is there anything you would like to add with regards to this research? What are some of the responses received from employees with introduction of technology within supply chain	**Challenges experienced by a hybrid worker** • Supporting Infrastructure • Employee Conflict • Organisational Culture and Remote Management • Disadvantages of hybrid working

How can technology facilitate the working of hybrid teams?	Tell me about your experience working within the mining industry with reference to evolution of technology? What are some of the responses received from employees with introduction of technology within supply chain? How can technology make it better for employee collaboration and productivity? Is there anything you would like to add with regards to this research?	**Influence of Technology** • Technology as an enabler • Technology and Hybrid working • Benefits of technology • Technology risks/cyber attacks

How can the mining companies support employees to navigate challenges that can affect work hybrid?	What are some of the responses received from employees with introduction of technology within supply chain? How can technology make it better for employee collaboration and productivity? What are your thoughts on the societal impact of technology within the teams? (Industry specific) How do you think the company can prepare its employees and hosting communities for the future of work? Is there anything you would like to add with regards to this research?	**Organisational Support** • Policy and Legislature • Importance of training **Going Forward** • Role of mining companies • Role of Government

Table 3 Research Consistency Matrix

4.1 Appendix 4 Approval of Title

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Private Bag 3 Wits, 2050
Fax:
Tel:

Reference: Ms Jennifer Mgolodela
E-mail: jennifer.mgolodela@wits.ac.za

01 November 2022
Person No: 2482811
PAG

Mrs M Dube
36 Ash Road
Bryanston
2191
South Africa

Dear Mrs Miriam Dube

Master of Business Administration: Approval of Title

We have pleasure in advising that your proposal entitled *Challenges of hybrid working in the Sub-Saharan mining industry* has been approved. Please note that any amendments to this title have to be endorsed by the Faculty's higher degrees committee and formally approved.

Yours sincerely

Mrs Marike Bosman
Faculty Registrar
Faculty of Commerce, Law and Management