LABOUR LED STRATEGY TOWARDS THE FOURTH INDUSTRIAL REVOLUTION: A CRITICAL APPRAISAL OF NUMSA's APPROACH TO WORKER CONTROL

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Research Report Submitted in Partial Fulfilment of the Requirements for the Degree of Master of Arts in the Faculty of Humanities, University of Witwatersrand

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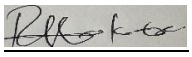
DECLARATION

I, Mamolaba Ruth Ntlokotse; 524459, declare that this thesis has been composed solely by myself and has not been submitted to any academic institution in application for a degree. I conducted this study independently under the guidance of my supervisor. At this moment, I submit this research report for examination in partial fulfilment of the requirements for the Master of Arts Degree in the Faculty of Humanities, University of Witwatersrand.



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ABSTRACT

This study explores the need for trade unions, focusing on the National Union of Metal Workers of South Africa (NUMSA), to be included in a sustainable and technologically advanced economy. Labour must shape the work reorganisation discourse to protect and defend workers' interests. Trade unions must proactively prioritise workers' needs and not always react when new technology has introduced changes in the workplace. The transition towards modern technology should be democratised, and workers must be empowered to protect their agency and autonomy in the labour process. The study adopts an exploratory approach to gain insight into Alstom Ubunye and BMW and how NUMSA has responded to the shift of automation and digitisation in the context of the Fourth Industrial Revolution (4IR). The research project involves a qualitative research approach which analyses social reality within the union (NUMSA) and in some workplaces through semi-structured interviews, focus groups, documentary analysis, and (non) -participant observation.

The post-Fordism strategy adopted by the union has not worked because it does not address South African realities in the workplace. In Alstom Ubunye, Manufacturing Electronic System (MES) technology has created an autonomous worker to the detriment of demoting supervisors. The intervention by the union has been minimal for those displaced by automation and digitisation. Workers are left to navigate for themselves. Shop stewards believe that the union must empower workers to engage management and wrestle control of the labour process independently. Trade unions in South Africa are unresponsive to workplace transformation issues, such that they react after technology has been introduced and or decided on by management. There is a crisis of trade union strategy to deal with technological change in the labour process. This research will demonstrate the importance of trade unions in South Africa if they reconsider their strategic stance on the institutional mechanism of workplace forums.

ABBREVIATIONS AND ACRONYMS

ACTU: Australian Council of Trade Unions

AI: Artificial Intelligence

ALP: Australian Labour Party

ANC: African National Congress

APDP: Automotive Production and Development Program

BC: Bargaining Conference

BMW: Bayerische Motoren Werke

CEO: Chief Executive Officer

COSATU: Congress of South African Trade Unions

CTLE: Commuter Transport and Locomotive Engineering

CWAO: Causal Workers Advice Office

DE: Digital Economy

ERC: Employee Relations Committee

ESKOM: Electricity Supply and Commission

FP: Flexible Specialization

GDP: Gross Domestic Products

ICT: Information Communication Technology

IDC: Industrial Development Corporation

IoT: Internet of Things

IPAP: Industry Policy Action Plan

IP: Intellectual Property

IR: Industrial Revolution

JSW: Joint Strategic Workshop

LP: Lean Production

LRA: Labour Relations Act

MAWU: Metal and Allied Workers Union.

MEC: Mineral Energy Complex

MEIBC: Metal and Engineering Industries Bargaining Council

MES: Manufacturing Electronic System

NC: National Congress

NEC: National Executive Committee

NDP: National Development Plan

NGO: Non-Governmental Organization

NUMSA: National Union of Metal Workers of South Africa

NUTGTWN: National Union of Textile, Garment and Tailoring of Nigeria

OCCB: Organizing Campaign Coordination and Bargaining

OEM: Original Equipment Manufacturer

PERC: Production Employee Relations Committee

PRASA: Passenger Rail Agency of South Africa

PWC: Price water Coppers

RDG: Research and Development Group

R&D: Research and Development

RPP: Regaining Power Project

SACP: South African Communist Party

SAFTU: South African Federation of Trade Unions of South Africa

Stats SA: Statistics of South Africa

SUV: Sport Utility Vehicle

SWF: Simunye Workers Forum

TQM: Total Quality Management

UAW: United Auto Workers

UWC: Union Carriage and Wagon

US: United State

WEF: World Economic Forum

CHAPTER 1

INTRODUCTION

1.1 Introduction

The debate around the fourth industrial revolution (4IR) is polarised in the public discourse. According to Kenny in Ngwane and Tshoaedi (2021), some see progress with limitless new opportunities. The 4IR is presented as a panacea that will fundamentally alter our world. There is excitement that 4IR will bring a people-less world where robots will replace people and today's troubles will be overcome. One major drawback of this approach is that it fails to recognise the massive dislocation of jobs and the economic exclusions due to the increased unemployment rate. The automation and digitisation of work processes are reshaping the work landscape with specific roles eliminated, where workers are urged to adapt and acquire new skills to remain relevant in the changing job market (Ngwane and Tshoaedi 2021). Recent technological changes have heightened the need for the trade union movement to take advantage of, engage in, and shape the alternative to thrive in the new environment. The conversation about how work will and must evolve due to technological changes relies on management control, strategic response, and the significant voice of labour in the debate.

1.2 Problem statement

The Fourth Industrial Revolution (4IR) has become a buzzword globally, and everyone is expected to embrace the concept without questioning it. According to Mapadimeng (2021), in the public discourse, there is no consensus on exactly where we are; others argue that there is no such phenomenon because of the lack of evidence of the digital technology that is completely revolutionising labour, societal structures, and the dynamics of global influence. For Moll (2021), we are in the advanced stage of the Third Industrial Revolution (3IR). Similar sentiments were also shared by NUMSA's head of research, who argues that the 4IR is the World Bank concept, which is questionable and should not be embraced without questioning it. He argued that to see that there is new technology, new social relations and a new labour regime must be introduced, and in the current conjuncture, there are no changes. Mapadimeng (2021) went further to caution that the present discourse of technological advancement is misleading and confusing and must be approached with caution, wisdom, and open minds as it is riddled with distortions.

Moll (2021) posits that the framing of 4IR is more ideological; it does not exist as a substantive socio-economic phenomenon; the term was coined by the World Economic Forum (WEF) to naturalise the continuing global economic order of neo-liberal capitalism, which deepens the exploitation and marginalisation of the world's poorer nations (WEF 2016). The concept seeks to regulate the beliefs, experiences and thoughts that technology has acquired power over society. Ideology influences every aspect of our lives profoundly. Kenny in Ngwane and Tshoaedi (2021) highlighted that 4IR promotes the "*myth of progress"*, an American accent that promises universal progress and benefits of civilisation.

For others, while 4IR promises significant advancements and benefits, they acknowledge its disruptive nature in many sectors of the economy. Integrating modern technologies into the manufacturing processes has been complex and costly in the manufacturing sector. Automation and artificial intelligence lead to the displacement of manual labour and increase demand for workers with data analysis and software development skills. Workers must acquire new skills to remain employable in the 4IR economy. Kwagga (2018) deduces that while scientific evidence has shown that 4IR can lead to more efficient processes, it can also increase energy consumption and environmental impact if not managed carefully. The increased extractivism depletes natural resources and causes ecological degradation (Bambrick 2018). According to Kwagga (2018), balancing technological advancements with sustainability goals can be challenging. This requires the cooperation of social forces to ensure the protection of jobs, an investment that prioritises environmental sustainability, holistic support systems for displaced workers, and initiatives for skill enhancement (Mulaisi & Cock 2022).

Trade unions should be included in a more sustainable and technologically advanced economy; they have a central role that ensures workers' rights are protected. The South African Federation of Trade Unions (SAFTU) calls for trade unions to engage with all stakeholders proactively, prioritise workers' needs, and advocate for policies and practices that ensure a fair transition during technological changes. Additionally, COSATU argued that despite the arrival of 4IR, workers will still be needed in the workplace to promote production, which remains central to any economic activity (COSATU July 2022). This approach can help protect workers' rights and livelihoods while facilitating economic progress and innovation (SAFTU NEC July 2022). Mulaisi and Cock (2022) argue that the transition towards modern technology should be subjected to democratising the concept of a just transition process for the benefit of most people, as this has the potential to worsen the already existing social inequalities.

NUMSA 1993 bargaining conference views this technological change as an ideological onslaught on the working class and workers. The conference argued that even the earlier technological changes were not associated with the interest of the working class (NUMSA 1993 bargaining conference). Technological changes in the workplace create a dual society where the owners of technology benefit from the system, and workers are expected to be spectators. If they remain uncontested in the workplace, the negotiation powers rest in the hands of the employer (Kaggwa 2019).

So far, more attention needs to be paid to labour movements, especially in the global south, and this is demonstrated by the shortfall in their strategy. Kaggwa (2018) describes the trade union strategy towards the 4IR as a work in progress. There needs to be more discussion within the trade union space about the impact of 4IR in the world of work and the strategy to be employed. According to Forrest (2011), NUMSA's strategy for restructuring in the workplace due to technological changes was last adopted by the 1993 bargaining conference and endorsed by the 1996 National Congress. The union continuously focuses more on bread-and-butter issues and neglects to discuss changes in the workplace brought about by introducing new technologies (Hlatshwayo & Buhlungu 2017). Instead, the union moved to a more reactive approach once management introduced new technology. One observer has already drawn attention to the paradox of the unions' approach to work reorganisation due to technological changes.

Section 33(4) of the Metal Engineering Industries Bargaining Council (MEIBC) collective agreement guides parties on processes to be followed during work reorganisation. Employers are compelled to consult and discuss with the trade union when they intend to introduce significant work reorganisation, which will substantially impact the workers. Furthermore, the agreement empowers an ergonometric committee of trade union representatives to address the implications of technological changes in the work environment. (MEIBC 2011). The union acknowledges that the risk of automation cannot be felt equally. It differs from country to country and sector to sector, entering into different collective agreements of various sectors. However, little attention has been paid to ensuring that employees whose jobs are adversely affected are trained or retrained before they can be displaced.

1.3 Research question

NUMSA is one of the unions at the forefront in championing workers and working-class interests. Many victories were achieved through shop-floor mobilisation, which gave the union

power and the impetus to engage in many struggles against the Apartheid regime (Hlatshwayo 2017). This study is aimed at answering the central question*:*

In the fourth industrial revolution context, how has labour responded to the shift towards digitisation and automation?

Sub questions.

1.3.1 ***How has the labour process changed?***

1.3.2 How have workers and NUMSA responded?

1.3.3 How has technology impacted worker control and trade union strategy?

1.3.4 What does this mean for the future of work?

1.4 Rationale

What has inspired my research is a problematisation of prevailing realities that are taking place on the shop floor. I realised that in South Africa, most jobs are shed in several sectors where NUMSA organises workers. The primary reason attributed to workplace restructuring is technological change. Jobs in manufacturing are becoming precarious, and retrenchments are announced daily. Most NUMSA members work for a short time, and the union is largely forced to negotiate training layoff schemes. NUMSA convened a national bargaining conference in 2019 to adopt the new bargaining strategy. What prompted my research interest is that union strategy has limitations in addressing challenges our members face due to technological changes at their workplaces.

So far, little attention has been paid to the just transition for workers who would lose their jobs due to economic technological innovations. The last strategy adopted by the union was confronted with challenges and setbacks because it failed to address accelerated and sophisticated technologies employed to enhance the speed of production, which led to increased work.

The post-Fordism approach adopted by NUMSA was inspired by Australian strategic unionism, which aimed to influence industrial policy and workplace change to build workers' power. The main aim of the union was to transform and bring democratic order to the workplace (Forrest 2011). According to the union, the post-1996 strategy brought successes

in the auto sector and setbacks in the metal and engineering sectors. The union should have acknowledged the differences between the sectors, which would require different strategies.

In reading the literature on the 4.0 industrial revolution, I realised that there needs to be more balance around the discussions on how automation and artificial intelligence change the nature of the jobs currently in the economy. In mainstream economics, technological change is the primary driver for growth and development, and businesses argue that responding favourably towards technological changes ensures a company's survival. Placing these questions at the center of the discussion might shift the conversation from one which center around business only. Trade unions should bargain and contest for their space to shape technological change. All these matters are too important to be left to the prerogative of governments, businesses, and management. The voice of labour is essential in the economy since without labour, there would not be any production, and the country's economy would suffer as a result. Through their labour power, collective labour can force companies to provide fairness on the job and better working conditions so that workers become productive and grow the country's economy for the benefit of all.

1.5 Structure of the report

This thesis studies the changes in the labour process from a Marxist approach and the response by labour to the shift towards automation and digitisation. Chapter two compares the work of Marx, Braverman, and Burawoy and investigates the literature review of the labour process debates and the different forms of trade unionism that exist in digital capitalism. The next chapter deals with research methodology. A qualitative research approach was followed, and data was collected through semi-structured interviews and focus groups. Qualitative research is employed to comprehend and delve deeper into issues that have not been previously investigated. Chapter four engages the available literature concerning digital technology in global capitalism. This section will explore the current debates on determining the Industrial Revolution. Finally, chapter five will investigate the response of trade unions to technological changes, focusing on NUMSA case studies of Alstom Ubunye in Nigel Ekurhuleni and the BMW Rosslyn plant in Tshwane, both in Gauteng province.

CHAPTER TWO

THEORY AND LITERATURE REVIEW: FROM MARX TO POST-BRAVERMAN DEBATE

2.1 Introduction

The roots of the labour process begin with Marx's analyses of how it shifted from simple cooperation to manufacture and the modern industrial stage, which eliminated the skilled craft workers' ability to exercise their judgment and authority over their labour power (Majeed 2021). Braverman takes a new look at skill, technology, and work organisation. He argued there is a greater possibility for managerial control, which resulted in the wide-range deskilling of the workers. The Labour Process debate in the late 1970s attempted to include essential changes in the labour process. The discourse surrounding labour process development has contributed to the growth of theoretical and empirical literature in work sociology (Spencer 2000).

This thesis studies the labour process with a Marxist approach to examine the impact of work reorganisation under industrial capitalism and its effects on workers and their agency. This chapter will compare the work of Marx (1859,1867,1887,1978,2005,2014), Braverman (1974), and Burawoy (1979,1982) and set out its limitations and contradictions. Furthermore, it will investigate the literature review of the labour process debates from the first to the third wave of the labour process. Finally, it will look at different forms of trade unionism existing in digital capitalism.

2.2 Marx's Conception of the Labour Process

To understand the labour process in the contemporary capitalist mode of production, reference to its historical genesis is necessary. The labour process is at the centre of Marx's analysis of the capitalist economy. Marx ([1887] (2008) uses the labour process to explain the universal condition of human existence. Man and woman are defined not only by their thoughts and knowledge but also by their relationship with nature and other men. Men and women depend on nature to survive; in Grundrisse, the relationship of men and women with nature is referred to as "*the totality of needs and drives*" (Marx [1887]1974).

Marx states, "*All human activity has a basis in nature… labour and production constitute the active human transformation of nature, but also of human nature, the human relation to nature and human beings themselves*." (Marx [1887] 1974:64) That is, as we interact with nature, we

change it, but we are also changing ourselves at the same time. For Marx, man's relationship with nature is closely interwoven when not distorted by capitalism. Marx wrote ([1844]2018), "*Nature is man's inorganic body, which is to say, nature in so far as it is not the human body. Man lives from nature . . . and he must maintain a continuing dialogue with it if he is not to die. To say that man's physical and mental life is linked to nature means that nature is linked to itself, for man is a part of nature*.". This conception of humans and nature as parts of a single totality, from one of the 1844 manuscripts, can be found throughout Marx and Engels's work. The labour process is where humans interact with nature to produce use values that satisfy human needs necessary for living. As natural beings, in one respect, men reshape nature and, in another respect, are conditioned, confined and limited by nature. Men and women possess a dual existence of relying on nature and transcending it simultaneously (Marx [1887] 2008).

Under capitalist production, labour uses its power to produce value to satisfy a "*want of some sort"*. According to Marx ([1887] (2008), during this process, man and woman and nature "*on his accord start, regulate and control material."* Labour acts by changing nature using his *"arms and legs, head and hands…*" to produce his own wants through the imaginations which existed before the commencement of the process. Marx further emphasised nature as a precondition for effective labour that a worker needs to utilise as an instrument of his power to serve the imaginative purpose. He argues that "… *man not only affects a change of form in the material he works but also realise a purpose of his own that gives the law to his modus operandi to which he must subordinate his will*." (Marx [1887]2008).

Braverman (1974) further explained that human activity acts upon nature to change its forms to suit its material needs. "*Human work is conscious and purposive*", as Braverman says, powered by conceptual thoughts and guided by intelligence (Braverman 1974). Man possesses the human capacity to effect change on the raw material to get results that suit the purpose that existed in the imagination before the commencement of the labour process. However, humans work to provide for capitalist needs in a capitalist society only by creating a surplus for a corporation that humans make necessities for themselves.

According to Burawoy (1979), for men and women to survive, they must transform nature into useful things, and there must be economic activity. The labour process is also better understood as the set of relations men and women enter as they transform raw materials from nature into the object of their imagination to suit their purpose (Burawoy 1979).

2.2.1 Elements of Labour Process

According to Marx (2014), the labour process has three elementary factors. The labour activity refers to work organisation. This involves the actual activities undertaken by labour to produce use-value. The second factor is the subject of work; these are all things delivered separately from the environment provided by nature. Marx, inspired by Hegel, appreciates that it is not only the productivist model of the labour process that exists. He acknowledges that there are formative activities through social relations where subjects and objects (nature) change and develop because of social ties (Marx 2005). Society comes into being when men and women enter social relations with one another as they appropriate nature. Marx draws attention to the commodities with the form of value attached to them, which differs according to the mode of production. Marx stresses that the universal process is found in all societies and has existed within different historical modes of production (Marx [1887] 2008). In non-capitalist modes of production, men, through the productive transformation of nature, produce *use values* to satisfy needs and wants. Marx continues to explain (1975a: 277), "*Through this production, nature appears as his work and his reality*". Marx reminds us that not all subjects of labour are raw material.

Lastly, it is *the instrument of labour*, which is a thing that labour uses to conduct an activity to produce use-value. As Marx (1961:180) further explains, "*In the labour process. . . man's activity, with the help of the instruments of labour, effects an alteration, designed from the commencement, in the material worked upon. The process disappears in the product; the latter is a use-value, Nature's material adapted by a change of form to the wants of man. Labour has incorporated itself with its subject: the former is materialised, the latter transformed.* Marx acknowledges that the instrument of labour will change occasionally because it demonstrates the social conditions under which labour is carried out. In the earliest period of human history, nature was used as an instrument of labour; for example, stone was used for grinding and with the development of time, technology took over.

In the capitalist mode of production, both the instrument of labour and the subject of labour are the objective factors of the means of production, and the labour activity is a productive labour, the subjective condition of production. For production to carry on, both objective and subjective factors must unite. This unity represents the social structure of the labour process. For Marx ([1887] 2008), "*the specific manner in which this union is accomplished distinguishes the different economic epochs of the structure of society from one another*." Marx

labels these *"economic epochs*" of all the modes of production (Marx 2008/1887). The connection between labour and the means of production is "*appropriation through labour*" (Marx 1978).

2.2.1.1 Work organisation of the labour process

Marx chose the labour process theory because it best explains the value of production in different social structures**.** Under the capitalist mode of production, the work organisation exploits workers to sell their labour power, assuming that they will maintain their material and symbolic existence. The different labour regimes illustrate the capitalist social structure of accumulation, *simple cooperation, manufacture, and large-scale industry*. Marx's concepts of work organisation offer qualitative differences between one working regime and another (Marx 2014). The "*simple cooperation"* is a fundamental form of capitalist production. Under simple cooperation, a significant number of workers are gathered to perform the same tasks and cooperate through the collective power of the masses as required by the labour process. Marx argues that "*when labourers cooperate systematically with others, he strips off the fetters of his individuality and develops the capabilities of his species*." According to Marx ([1887]2008), the way work is organised in a capitalist society is not a neutral, productive instrument but a political instrument. By subjecting themselves to capital, workers begin the labour process intended to exploit labour power and extract the greatness of surplus value.

Rather than purchasing the labour capacity of an individual man and woman, capitalists buy many labourers and enter contracts with many unconnected workers who are made to compete against each other. Workers are independent of each other, individuals get isolated, and they cease to belong to themselves. They are now regarded as '*co-operators… members of organism'. They* are *'…special modes of existence of capitals.*' Their power now remains the productive power of capital. The connection and cooperation will always suit the capitalist preconceived plan to produce surplus value (Marx 2014).

Capitalist production always strives to find instruments of labour which exist independently of labour's property. As cooperation extends, capitalist hands supervise the labour process under despotic supervision, who will command in the name of the capitalist. The workers get alienated and are disconnected from the method meant to increase their productivity (Marx 2014). The labour process and workers fall under the control of the capital, "*formal subsumption of labour under capital*" (Marx 2014). The social nature of capitalist production is not developed by the workers' will but by the coercive force of capital (Marx 2014).

The next step in creating the capital-labour process is under *"manufacture"*. Under manufacture, work still assumes the subjective factor (Marx 2014). Capital transformed its labour process to produce surplus value better, and the division of labour was introduced. According to Durkheim (1982), when the aspects of makeup work are set up into components and co-functioning processes, the tasks used to be performed by individual workers get fragmented as their exclusive functions get fragmented (Marx 2014). Durkheim defines the division of labour as follows: "*...social harmony comes essentially from the division of labour. It is characterised by cooperation, which is automatically produced by pursuing each individual's interests. Each consecrates himself to a special function in order, by the force of events, to make himself solidary with others".*

In manufacturing, commonness among workers is predominant, let alone divisions created by capital. Workers believe they are connected through similar work and value systems; Durkheim refers to unity as mechanical solidarity, the solidarity of resemblance. In mechanical solidarity, the specialisation of functions is limited to a few social roles with a lack of tolerance for individuality. In a society where there is mechanical solidarity, individuals are similar. There is coherence; society shares the same desires, feelings and ideas about producing any product, and there is collective conscience (Durkheim 1982).

Based on the division of labour, cooperation is critical in capitalist production. The despotic management of the labour process can further disconnect and make labour cooperate by assigning different tasks to different operators. The division of labour necessitates separating different production stages, making them independent. Labourers are divided according to the skills they possess. The independence of speciality is stripped off as directed by despotic supervision (Marx 2015/1887). The hierarchy of labour power with different wages then gets created. However, capital will always strive to maximize surplus value through the manipulation of production processes, ultimately leading to the fall of the value of the labour power for the benefit of capital (Marx 2014).

The division of labour is a technical necessity for capitalist production. It determines the number of labourers that a capitalist needs to employ. According to Marx 2014, *'... the division of labour is used to create a mathematical ratio for quantitative parts relative number of labours for each operation to produce for a certain scale.*'

Capitalist production cripples labour power and creates new conditions of dominance of capital over labour. It presents itself as an economic development of society whilst, conversely, it

creates conditions for a '*refined and civilised method of exploitation'* (Marx 2014*).* According to Marx (2014), the division of labour is the foundation of the division of society into classes. It separates labour into skilled and unskilled labour with a '*hierarchic arrangement in classes'* (Marx 2014). The changes put in place by simple cooperation and manufacture in the capitalist mode of production create an opportunity for increased appropriation of the means of production, the creation of *actual appropriation* to match *formal appropriation*. This process is completed under the "*large scale industry*" work organisation (Marx 2014). In large-scale industries, the division of labour becomes complex, with the specialisation of work being interdependent from one another. Durkheim refers to the unity of individuals in society as organic solidarity, where "… there is a *high level of specialisation and specificity of differentiated organs designated for specific functions for the completion of a given function or task that when combined makes the organism a complete functioning unit*" (Durkheim 1982:253). Organic solidarity emerges with the growth of the division of labour, and collective conscience lessens. Collaboration is very vital in the division of labour. If a partner does not collaborate, individual parts will mean nothing.

The transition from manufacturing to large-scale industry illustrates the changes in the labour process. The process is a passage from formal to real subsumption of labour. It creates an environment where once a certain technical level is reached, workers are now "subjugated to the technical conditions of capital". They can no longer work independently (Marx 2014). The technical reliance on the productive processes replaces workers' knowledge once machinery is utilised. In capitalist production with large-scale industry, productivity increases, and production time decreases. According to Marx (2014), in large-scale industries where machinery is used, the gap between the production process (all instances where raw material is not processed, i.e., dead cycle stage) and the labour process (when raw material is processed) gradually narrows.

Before the capitalist mode of production, work was more creative and flexible. Artisans would produce goods at their own pace and control what they make and how they create it. Industrialisation changed the work of the artisans to that of the workers in a factory. Instead of owning the spinning wheels and buying their raw material, they worked on the wheels belonging to the merchant in the factory. This fundamental shift in work organisation meant that every aspect of life was transformed. Men lost control of the product of their labour; what they produced belonged to the capitalists who owned factories. Labour became a commodity

which could be sold in the market. Marx referred to the *subordination of labour* to capital (Marx 2014).

2.2.1.2 Objective factors in the labour process

Marx was not questioning technology itself but rather the social and economic relations in which it was embedded, especially in capitalist society. He was concerned with the way technology and the means of production were used to shape and maintain capitalist relations (Marx 2014). The capitalists produced machinery to revolutionaries' instruments of labour. The usage of machinery augments labour power and further exacerbates exploitation by allowing the employment of women and children at a lesser wage (Marx 2014). The exploitative nature of capitalist production reveals its moral degradation of allowing the vulnerable members of society to produce the surplus. At some point, capitalists increase working hours to extract more absolute surplus value. This arrangement opens for the exploitation of women and children and to cheapen the prices of commodities.

Instruments of labour are used as competitors of labour. In capitalist production, labour power becomes unsaleable and no longer needed by capital; it "… *marks an end of subjective organisation of work.*" (Marx 2014). Machinery creates misery for the masses and causes inconvenience; it takes over specific production processes of use value and exchange value and is used to maximise relative surplus value. For Marx (2014), the two always have antagonism and contradictions. It is used to increase capital wealth and reduce workers to paupers.

The use of machinery squeezes the processes together, sometimes ending the division of labour. It merges different roles into one. Labour exploitation worsens once machinery is utilised, and the power of resistance to delivery diminishes with the dissemination of work. Competition for work among labourers increases with the fear of becoming redundant (Marx 2014).

The machinery within the labour process can be used to de-skill workers; the classical manufacturing division of labour gets reorganised and sometimes loses its existence and becomes redundant (Marx 2014). Capital uses machinery as a weapon against the working class. With machinery usage in capitalist production, certain working positions and individuals decline, and machines replace the reliance on skills supply; thus, the strike's power is broken down.

Be that as it may, Marx (2014) further demonstrates that in as much as machinery displaces labour, it creates employment elsewhere. He argued that production ultimately increases with

the growing demand for the commodities. The demand for raw materials and the need for labour also increases. Marx also acknowledges that rest periods interrupt the transitional phases (Marx 2014).

Capitalists always transform the labour process to produce surplus value better. For Marx, division of labour increases capitalist control over the labour process by removing knowledge and discretion from a worker and centralize it in the hands of capital. Previously, crafts workers would make decisions about how to coordinate their work. However, under capitalism, workers' knowledge is no longer necessary; workers become powerless to resist exploitation; they cooperate. The real subsumption of labour to capital develops through a revolutionary development of the forces of production; a worker is stripped of the possibility of controlling the labour process. The transformation of the labour process never ends. It requires the constant revolutionising of materials and machinery (Marx 2015).

For Marx, *machinery* is a mechanism that performs the same operations that workers formally perform after being set into motion. The mechanisation of production ends the subjective organisation of work, which is human activity, and the dominance of the objective organisation of work. Machinery lowers the value of workers and raises the rate of surplus value.

Furthermore, Marx (2014) argues that it is not only machinery that facilitates class domination and oppression but the development of capitalism. Under capitalism, machinery is a tool for class struggle; it allows capital to take away knowledge and skills from a worker.

2.2.2 Social Structure of the Labour Process

2.2.2.1 Labour and control

According to Marx ([1887]2008), to produce any commodity that progresses well, both subjective and objective elements should unite, resulting in the unity of the social structure. The unity will always resemble the different economic epochs of society. The subjective and objective factors of the labour process define each mode of production.

The property question is critical in defining a mode of production, which Marx refers to as "*relations of production."* These are relations between humans and the means of production and between humans. For Marx (1859), the emergence of capitalism brought changes in social ties engendered with class. The relation of production comprises those who own the means of production and the property-less wage labour, which is exploited by the dominant class (Marx 2008). According to Marx, as cited in Gartman (1978:389), "*the property connection is the*

class structure within the material process of production that takes place." The class structure determines the development of the labour process. The capitalist mode of production is defined by the labour process in which producers of surplus value are separated from the actual appropriation of the means of production.

The subordination of the labour process to capital first subjects a worker to bow down to capital control's command, direction, and supervision. This process takes away workers' possession of the means of production. Marx (2008) refers to the formal and real subsumption of labour under capital. This is the economic epoch where the concentration of ownership and total control of the means of production lies in the hands of capital.

Capital develops conditions in the labour process, taking control of skilled and independent workers and alienating them. The type of control exerted on labour varies depending on the circumstances. For greater productivity, capital will always employ *essential control* to coordinate workers and direct their actions to their intended objective (Marx 2014).

Marx ([1887] 2008) focused on the human capacity to produce commodities under actual appropriation and exploitative capitalist conditions. In capitalist production, value creation is not meant to satisfy human needs but used to create *exchange values* determined by the market forces (Marx [1887] 2008). When capitalists sell finished commodities in the market, they extract surplus value from labour by paying them less than the value of their completed work (Marx [1887] 2008). The production of commodities depends on the appropriation of labour when they encounter machinery and raw materials.

2.2.2.2 Labour process and social change

As the capitalist mode of production evolves, conflicts arise between society's material productive capabilities and its current relations of production. (Marx 1978). The productive forces and the relations of production are interdependent; at times, they mutually reinforce and sometimes contradict each other. According to Marx (2020), the process of capitalist production is thus inherently contradictory, being *"…on the one hand a social labour process for the creation of a product, and on the other hand capital's process of valorisation"* (Marx 2020).

Despite the capitalist dominance and control in the labour process, the dominant class suffers from setbacks which seek to undermine its actual appropriation (Marx 2014). In the workplace, contradictions are caused by conflicting pressures within the labour and valorisation processes.

In large-scale industries, a technical change brings progressive and regressive tendencies towards the tendency to deskill. Marx (1990) states, "*Large-scale industry, by its very nature, necessitates variations of labour, fluidity of functions and mobility of the worker in all direction*s." Marx (1978), in his "*Law of the Tendency of the Rate of Profit to Fall*", argues that although the ongoing technological change brings changes to the labour process, at the same time, it undermines the conditions of its existence. Replacing workers with machinery in large-scale industries undermines the only value-creating element of production (Marx 1978). The division of labour and mechanisation degrades labour and creates a reserve army. Marx's critique of the capitalist labour process is that it causes social alienation and physical degradation.

According to Marx ([1844] 2014) in *Economic and Philosophic Manuscripts,* a worker in a capitalist society gets alienated in multiple ways. Firstly, workers get alienated from the product of labour; by capitalists owning the means of production, they confiscate and control surplus value. Secondly, capitalists decide what commodities to make and set up work conditions; workers are alienated from their labour activity. A worker finds no purpose, is unworthy, and is insignificant in the product's contribution. Workers cannot consciously control their creative labour. As Marx ([1844] 2014) put it, "…*in his work, therefore, he does not affirm himself but denies himself, does not feel content but unhappy*…" In a capitalist mode of production, workers are meant to compete against each other for jobs and wages. They see each other as opposing competition. Capitalism consistently undermines workers' solidarity for its benefit. Workers are alienated from other fellow workers (Marx 2014).

For Marx, the capitalist labour process weakened the working class, and at the time, it strengthened workers in the political struggle. The same measure, which renders workers weak on the shop floor, organises and turns them into a class for itself, a conscious, active class which challenges the relations of capitalist production (Marx 1978). In the capitalist labour process, workers are not passive victims of deeper underlying processes; they have autonomy and agency to challenge their oppressors actively, argues Max (2014). The social change hinges on the class struggle.

The characteristics of each labour regime explain the scope of the struggle for any social change. Under manufacture, labour still maintains its subjective basis, and control is not yet subjected to a system of machinery. Irrespective of labour fragmentation, workers are still in charge of specific processes within the labour process because of their skills. Workers

collectively can bring social change as only individual workers get disqualified. Collective workers fighting together have technical resources to challenge exploitation within the workplace.

As Durkheim (1982) wrote, in large-scale industries where society develops, and the division of labour becomes more complex, conflicts between labour and capital become eminent, which may lead to a break of organic solidarity. As capitalism develops, the gap between workers and capital widens, and the division of labour does not produce any form of solidarity.

2.3 Braverman Perspective on the Labor Process

Harry Braverman acknowledged his indebtedness to Marx. He didn't claim to have developed any original theories. Still, he positioned himself as a proponent of Marx's analysis of capitalism, embracing Marx's depiction of the factory system in a specific manner.

Braverman (1974), in *Labour and Monopoly of Capital*, joins the queue from Marx and argues further that the capitalist labour process begins with the signed contract of agreement governing the conditions of sale of labour power of a worker over an agreed period. The deal includes the dictates of the length of working hours, supervision, and enforcement rules against distraction. Under this arrangement, a new labour regime is created, which surrenders its capital interest and gets alienated in the production processes. As the proponent of improving workers ' effectiveness in capitalist production, Taylor in Braverman (1974) advocates for total control of the labour process under the hands of management.

Braverman (1974) believes that workers who are controlled by general orders and discipline need to be adequately controlled because they still have a grip on the actual labour process. Under capitalism, the employer takes charge of the labour process, including the mode of performance under the stewardship of management (Braverman 1974).

Braverman (1974) described capitalism as a system dominated and shaped by capital needs. Due to the pressure of competition from market forces, management is continually forced to renew and extend its control over the employed workforce. Capital always renegotiates dominance over labour and will grow to where small firms get replaced and, at some stage, dominated by significant monopoly capital. Surplus is generated in the era of monopoly capital, which is used to train pay management to administer and exert control over workers in the production processes. As Braverman (1974) showed in his thesis, industrialisation left significant production areas to skilled workers who still maintain control of the labour process.

To gain control of capital, scientific management should be introduced, which results in deskilling, fragmentation, and degradation of work.

2.3.1 Braverman and Deskilling of Labour.

Capital has a monopoly of knowledge and power in the relations of production. Work gets reorganised and divided according to occupation. As deduced by Barber in Braverman (1974), "*The most common mode to cheapen labour power … break it up into simplest elements"*. Proponents of scientific management state that management can only increase productivity by dividing work into smaller pieces and turning each stage into a completely different job occupied by an additional worker. During this stage of capitalist production, market forces chaotically introduced the social division of labour. The expertise of a worker remains the property of an employer; it is a commodity that can be bought and sold to suit the needs of the purchaser who is an employer.

However, Braverman (1974) rejects that notion, arguing that efficiency does not necessarily stem from specialised detailed work. Moreover, Braverman (1974) affirms that the division of crafts tasks into smaller parts to make them less complicated pushes management to hire more unskilled labour to perform details, and this will thus make workers more dependent on management.

Furthermore, Braverman's critique of the introduction of the scientific management notion stemmed from the view that it results in deskilling and routinisation of tasks performed by workers, which is used by capital to decrease the production costs and increase workers' productivity. Upon the deskilling of labour, employees are more accessible to control and replacement because workers do not have to utilise intellectual skills but only follow managers' instructions in carrying out their work tasks (Braverman 1974).

The capitalist labour process alienates workers; it brings antagonistic social relations which separate, according to Braverman 1974), "… *hands and brain in a hostile and less human ways".* The workers are unable to fully engage directly in production. Capital assigns mental functions elsewhere in the planning department and concentrates brainwork on management. Workers are utilised in inhuman ways; their intelligence remains a threat to the capital. This process seeks to produce a model of a worker which produces results desired by management. Braverman (1974) views this notion as supplementing the more robust work degradation. As Braverman (1974) wrote, capitalism serves as a driveway towards continuously lowering skills

within industries and the economy. For Braverman, the degradation of work depends not only on technology; this started in the workshops in the early days of capitalism when technology did not exist.

Braverman (1974) concludes that Taylorism is premised on three different principles: the first principle involves dissociating labour from the labour process. In addition, the focus is on the division between conceptualization and execution, between intellectual and manual labour Finally, the concept of knowledge concentration lies within the authority of management to oversee every aspect of the labour process and its implementation.

2.3.2 The Use of Technology in the Labour Process

In the capitalist mode of production, the hands and minds of workers are further attacked by employing science and technology. The subjective elements of the labour process get subordinated to the objective factors. The workers are reduced to an instrument level and treated as machines; time and motion studies are conducted. Management is not interested in a worker's person but in how a worker is utilised in production processes. For Braverman (1974), "*… a worker is a general purposive machine operated by management*". The human instrument is adopted to produce machinery to suit the machine's capacity specification. Braverman argues that the deskilling of workers is further exacerbated by the usage of technology in the labour process and the erosion of craft workers' skills.

In capitalism, machinery is not a servant of humanity, but an instrument used by capital to increase labour productivity. Through machinery, the capacity of a worker to control the labour process is seized. The development of machinery becomes the source of labour's enslavement and helplessness, and it reduces a worker to little or nothing. Machinery offers an upper hand to management to do as they please. Machine operation is centralised under the control of management (Braverman 1974).

2.3.3 Digital Taylorism in the 4IR era

Braverman builds upon the ideas of Frederick W. Taylor's scientific management principles and incorporates digital technologies, known as digital Taylorism. According to Ngcwango in Tshoaedi et al. (2023: 123), the twentieth century was marked by mechanical Taylorism and the twenty-first century is defined by *digital Taylorism*. "*This involves translating knowledge work of managers, professionals and technicians into working knowledge*…" Braverman's work laid the foundation for understanding how the organisation of work, particularly in

manufacturing, was changing with the advance of technology. He argues that technology led to the deskilling of labour and increased managerial control over workers (Braverman 1974).

In the context of Digital Taylorism, technology is often used to fragment tasks, closely monitor worker performance, and optimise production processes. This can lead to a form of "deskilling" in which workers are reduced to performing repetitive, narrowly defined tasks while closely following automated instructions.

2.4 The Labour Process Debates: Literature Review

2.4.1 Second Wave of the Labour Process: Manufacturing Consent

The labour process debates post-Braverman attempted to include essential changes in the labour process, which harbour the development of theoretical and empirical sociology of work. According to Majeed (2021), this represents a fresh departure in the field. Burawoy, in his book "*The Manufacturing Consent"*, admits that he conducted his studies from the Marxist perspective but simultaneously challenged the inadequacies of Marxism's notion of "*subject less of subject*." His sociological work intends to bring to attention the subjective moments of labour and dispute Marx's idea of manipulation and the incapability of workers' resistance, which reduces labour to objects that can be bought and sold. Burawoy suggests the need to "*go beyond Marx*" (Burawoy 1979). According to Burawoy (1979), the capitalist labour process assumes that workers consent to capital.

In his book *The Manufacturing Consent*, Burawoy (1979) introduced Gramsci's concept of hegemony into the workplace. He famously uses the "game" analogy to demonstrate how workers consent to participate in managerial productivity objectives through social interactions within the factory setting. Burawoy argues that work realities make workers autonomously either connive or actively assist in playing a game that was supposed to undermine management. They develop their standards, which makes them effectively participate, and management enforces the rules which coerce them to subordinate to the dictates of the labour process. The game is the product of a society that reproduces "voluntary servitude", the consent given by workers (Burawoy 1979). During consent manufacturing, workers are seen as individuals rather than members of a class distinguished by a particular relationship to the means of production. Workers have the autonomy to control their machines rather than being controlled by the machine. They always compete with one another and end up playing the game

while at the same time respecting its rules. When an individual violates, the rules get punished as an individual, not as a collective, which reinforces consent (Burawoy 1979).

Furthermore, Burawoy (1979) notes that workers today embrace the fundamentals of capitalism that constrain them. Workers engage in meaningful actions that alienate them from the capitalist labour process and give their consent to increase the rate of exploitation through increased productivity to service capital (Burawoy 1979). There is a convergence of interest between workers and capital. Workers regard their contingent livelihood as the survival and expansion of capitalist employers. As Burawoy (1979) highlighted, management will always develop strategies to increase the subordination of workers to the labour process. For instance, the "*Piece-rate Pay System" w*as used as a game to give workers incentives after surpassing expected production quotas. Workers were meant to compete against each other to increase productivity. Engaging in the game fostered agreement with its rules and offered a stimulating distraction from the monotony of repetitive work. (Burawoy 1979). The enhanced internal job mobility enabled management to diminish conflicts and enhance the perception that workers had options. Potential labour conflicts could be avoided by separating workers. The improved opportunities for internal job movement empowered management to mitigate conflicts and create the impression that workers had more choices available to them (Burawoy 1979).

The most critical matter to consider is that games do create rules that threaten the reproduction of consent. According to Burawoy, workers' corporations rely on minimal uncertainties; games should be able to provide minimum wage failure to, which will result in workers' withdrawal and cause a *"legitimation crisis*". Burawoy explicitly demonstrates the impact of the external orientation of workers on the game uncertainties (Burawoy 1979).

2.4.1.1 Labour Process: The Despotic and Hegemonic Regime

In the capitalist labour process, workers contribute with objective and subjective capabilities, which are the learned skills and ability to work in producing surplus values. Unlike Marx, who discusses coercion, Burawoy emphasises consent in extracting surplus value. In *Politics of Production (1985),* Burawoy argues that the exchange value produced as a result of cooperative labour is the source for the reproduction of labour power and the sustainability of the capitalist. Capitalist production develops from a despotic to a hegemonic regime. Marx neglected the political apparatus of production and put more emphasis on the market despotism of the factory regime. According to Burawoy (1985), Marx characterised conditions in which workers get coerced in the labour process. Firstly, the dependence on labour in capitalist production for

wages wherein workers have no other means of livelihood, and in order to survive, they sell their labour power. Burawoy argues that measures brought by the state, such as social insurance legislation, grievance machinery, collective bargaining, etc., reproduce labour power "at a certain minimal level of independence" and enhance workers' autonomy. With the development of workers' political and social rights, management is obliged to persuade workers to cooperate, and their interests are incorporated with those of capital. However, Burawoy is mindful of the fact that with the development of capitalism, coercion is through consent; "*discipline and punishment become the object of consent*" (Burawoy 1985).

Burawoy brought forward how Braverman deskilling and perfect competition among firms as conditions of market despotism were highly challenged. Braverman states that deskilling happens under monopoly capitalism when management strategies of direct control and autonomy crash workers' resistance. Burawoy highlighted historical forms of controls as reconstructed by Richard Edwards. The nineteenth century "*simple control"* where management exercised "*arbitrary, personalistic domination over workers*." The incorporation of "*technology*" into the labour process was another control by management which generated its own struggles and gave way to "bureaucratic regulation", where rules define work tasks (Burawoy 1985).

For Burawoy (1985), a hegemonic regime resembles a geographical and sectorial character; the level of political intervention dictates labour power. In the competitive sector, there is a balance between coercion and consent, and in the monopoly sector, workers have considerable control over the labour process. The mobility of capital from national to international space has led to the new despotism built within the hegemonic regime. Workers face job losses due to rationalization and technological changes and are forced to give concessions for downward variation of their conditions of service, which leads to "*hegemonic despotism*" (Burawoy 1985).

Under hegemonic despotism, the interests of both labour and capital get coordinated, and concessions are made in the interest of profitability, failure to which workers will be forced to take salary cuts. Workers are meant to compete against each other for the fears of being fired, in constant fears of capital flight, that operation being transferred to another country. Burawoy brings forward the concerted effort to de-unionise workers so that concessions are made outside the bargaining forum. With the development of capitalism, Burawoy anticipates working class

demobilisation in that their interests will not be achieved under the anarchy of the market and despotic production (Burawoy 1985).

The level of intervention from the political apparatus depends on capital development. According to Burawoy, the mechanism by which a state intervenes differs over time and varies from country to country. Although the state is the instrument to manage the dominant class and always serves the interest of capital, mechanisms will be set in place. Capitalism, with its uneven development, dictates the level of state intervention. In some countries, the state intervenes by regulating production apparatus through the introduction of sets of variables which reproduce labour power. As Burawoy argued, "*different forms of state interventions are conditioned by class interest and class capacities …*" Furthermore, Panitch in Burawoy explain that *"state politics does not hang from the clouds, it rises from the ground*." The strength of struggles on the ground sets limits for state intervention. The role of social forces is critical in exerting pressure to shape the balance of class forces in setting factory limits. (Burawoy 1985).

2.4.1.2 Struggles in the Labour Process: Coercion vs Consent

For Burawoy, struggles on the shop floor are shaped by conflicts which happen on many fronts of the labour process. The economic struggle for bargaining for better wages and other social conditions brings conflict. Management strives to cut wages and increase efficiency while workers struggle for the opposite. The "*time study*" was a "*game"* used to monitor movements and ultimately cut the price according to the *"Piece rate Pay system*" and increase the speed of the production process where the rules of the game are not clear and always dictated by management workers, undermining the rules of the game (Burawoy 1979).

Economic struggles can sometimes spill over and lay the basis for political struggles. These are the struggles about the relations in production. The hierarchal control introduced by management "exercises *considerable control over workers' activities*." According to Burawoy, economic struggles can reinforce consent by reminding workers that they are just subordinates and that their autonomy is confined and limited. Management will always ensure that workers follow the rules to meet production goals. Sometimes, in anticipation of struggle, management, when change gets introduced, will dispense benefits to get concessions from workers. The changes in the labour process in response to capitalist competition intensify the class struggle in society. Burawoy outlines four ways a firm can sustain itself in the labour market. The introduction of new technology to improve productivity, cutting costs by reducing wages and down varying social benefits of workers. Lastly, specialisation was introduced to improve

economies of scale. Workers get furious because they sometimes get blamed for failures to make a profit. However, the introduction of measures to curb capitalist competition can lead to curtailment of struggles on the shop floor. The rationalisation of production by introducing new technology leads to the reduction of operators.

The effect of capitalist competition gives rise to an internal labour market. The struggle on the shopfloor diminishes and gets absorbed at the bargaining table. The changes to the organisation of work get negotiated at the bargaining table. The new technology requires new skills; the reclassification of job categories takes away the powers of the foreman to negotiate for him/herself. The unions must take advantage to negotiate on behalf of all workers at the collective bargaining table. For Burawoy (1979), the internal labour market is a terrain for future class struggle. The changes in the labour process are brought by both struggles (internal and external forces) and competition.

2.4.2 Critique of Marx and Braverman Labour Process Conceptualisation

Within the labour process debates, Carter (2001) brings forward that there are those theorists who seek to undermine Marx and Braverman's contribution and those who defend their work and go further to fill in the gaps.

According to Littler & Salaman (1982), following Braverman's "*Labour and Monopoly Capital*," criticisms have emerged suggesting that labour process analysis has become exhausted, according to (Storey 1985) and deemed irrelevant as argued by (Lash and Urry in 1994). Doubts have been expressed in its theoretical coherence, the neglect of agency, subjectivity, and resistance in the class struggle. Braverman is accused of bringing only one strategy of scientific management as a panacea to remedy labour process problems. Many thinkers believed that Taylorism only existed in theory rather than practice and was only introduced by a handful of firms. Braverman is criticised for assuming that "*capitalism developed in a particular fashion, i.e. deskilling and degradation of craft work excluding workers enskilling, workers resistance and management control as the exclusive form of control*". Majeed's (2021) criticisms are arranged in three headings.

2.4.2.1 Criticism of class struggles

Braverman is accused of ignoring or minimising the role of class struggles in shaping the labour process. According to Majeed (2021), Braverman depicted capitalists as having unchallenged and sole authority over the labour process. For Littler (2001), there were various forms of

workers' resistance, i.e. in Italy and France, skilled workers with craft training engaged in political struggles, which became widespread and created an obstacle in the valorisation of the accumulation of capital.

2.4.2.2 Criticism of Control

The second phase of the labour process management develops control strategies over the labour force, which may vary independently of Taylorism. The *panacea fallacy* was criticised; Friedman contended that the resistance from workers compelled management to embrace novel methods of control within the labour process. Whilst Majeed (2021), argued that capitalists do not only rely on a single form of control. During competitive capitalism, simple control was exercised in the late 19th century and the beginning of the 20th century. In a system of simple control, owners directly oversee work and make decisions for each situation within the labour process. Technical control involved structural management through machinery; production technology dictated the pace and nature of work. involved structural management through machinery; production technology dictated the pace and nature of work (Majeed 2021). As the organisations grew, monopoly capitalism and increased class struggle through workers' struggles brought bureaucratic control (Smith and Thompson 1999). The one-dimensional view of Braverman management control was criticised mainly, and these three forms of control would sometimes coexist (Edward 1979).

The continued antagonism between labour and capital resulted from formal and informal rules, the presence or absence of trade unions, and specific legal frameworks, which led to continued negotiations. According to Friedman (1977), Taylorism would be the result that would allow management to exercise their authority and give workers the freedom to identify with the company's competitiveness with minimal supervision; this is what he termed "*Responsible Autonomy*".

At this stage, there was an admission of control by consensus, not its reduction to repression, as illustrated by Burawoy in Manufacturing Consent. The conclusion made is that not only despotic control exists but also consensus that workers do not always need to be controlled. There is also a legitimisation of ideas not imposed by management, as alluded to by Braverman (Smith & Thompson 1999).

2.4.2.3 Criticism of Deskilling

Many scholars believe that industries need a high level and variety of skills. Therefore, there will always be a need for a continuous upgrade of skills. Critics of Braverman's deskilling thesis argue that the development of science and technology has resulted in both deskilling and upskilling of workers. Automation stimulates workers' reskilling, leading to diversity and specialisation of workers. Technological advancements mean more complex types of work and a high level of skills (Majeed 2021).

2.4.3 Labour Process and the Third Wave Debate

The third wave of the labour process is characterised by what its proponents regard as a total paradigm shift, which brings to the fore "the *new production and society perspective such as specialisation and post-Fordism…"* (Smith & Thompson 1998).

Smith and Thompson (1998) show that the labour process theory associated with deskilling was outdated. They argue that some perspectives go beyond Braverman to the new forms of craft labour, such as Flexible Specialisation (FS), which facilitates the reintegration of intellectual and physical labour and, to some extent, provides autonomy within the work environment. Additionally, Lean Production (LP) calls for a smarter and more autonomous worker, teamwork operation and multi-skilled workers. Lastly is the Total Quality Management (TQM), which offers an interdependent workplace that reduces hierarchy (Smith and Thompson 1998).

Some of the post-Braverman writing has advocated for a post-managerial, post-Taylorist model of capitalism and looks for national examples, i.e. Germany, Japan, etc., as a source of a new model of capitalism. This model puts more emphasis on cooperative relations between firms, workers management and the state. Such a move beyond market relations towards reciprocity. The unresolved tension in these theories is importing systems from one society to another without first understanding the nature of their enterprise. This universalistic thinking about the labour processes is the best way to squeeze national out of the picture and create many models of capitalism, as there are many national states (Smith & Thompson 1998).

The problem with this school is that it disconnects the idea of capitalist labour process forgetting that nation states are constraints by capital, and the ideas such as globalisation suggest the demise of a nation state as an economic actor. Dominants countries always evolve ways of organizing work, which emulates by other firms in different countries. Smith &

Thompson (1998), agree with Panitch in Burawoy that the political dimensions have become critical important in deciding the agency of the class struggle.

2.4.3.1 Skills and the Division of Labour: Introduction of Just in Time Initiative

In the third wave of the labour process, variety of skills is necessary to deal with management initiatives such as Just in time (JIT). The self-management of labour under the disguise of teamwork is explored which create a possibility of labour process. Smith &Thompson (1998) show that the team working creates a break or sometimes an elimination of a craft work. In some factories the restructuring affects supervisory roles, they either gets eliminated or moved sideways. Critics to the third wave analogy argue that the so-called new developments are built on the old pattern, echoing Braverman theme of proletarianization (Smith & Thompson 1998). The continuity from Taylorist elements is demonstrated in most advanced manufacturing factories with lean production; the role of the operator is still ninety-five per cent prescription and five per cent discretion.

Third-wave researchers have shown a transition from dependence on the social and technical skills of the workforce to an industrial model marked by the standardization of tasks and routine work (Smith & Thompson 1998). The working smarter rather than harder principle accompanied by JIT, which relies on controlling pressure and elimination of waste, increases the workload of workers. Lean production with continuous improvement restricts workers' time and actions and brings new responsibilities under competitive conditions. According to Smith & Thompson (1998), the increased workload leads to the degradation of labour working under tremendous pressure to meet production outcomes.

Braverman universalised the US experience. However, Smith & Thompson (1998) argue for the call of global and national experience when studying a particular labour process. Braverman was further criticised by British writers for universalising the deskilling thesis. Most theorists brought into focus different patterns of training and skills formation.

2.4.3.2 Control of the Labour Process: Move from Control to Commitment.

Smith & Thompson (1998) argue that organisations moved away from control to commitment, where self-management teamwork becomes the way of operation with an emphasis on delegating authority with autonomous decision-making. Although workers are controlling and monitoring themselves, the new subordination of labour has emerged; tasks are strictly monitored and controlled aided by technology, which restores the centrality of management

control (Smith & Thompson 1998). The critics have claimed that the autonomy of workers in decision-making is limited, sometimes reduced to only electing their team leader, and the vast responsibility relies on management. Under the new paradigm shift of the labour process, emphasis is placed on teamwork as opposed to Braverman individualism. Many individualised tasks continue to be deskilled by standard operating procedures and the use of technology (Smith &Thompson 1998).

The third wave of studies has demonstrated under TQM that although workers can unleash their expertise with reduced supervision, they are still constrained by hierarchy, especially when it comes to delegation of powers. The tasks are strictly monitored and controlled by technology and surveillance. Although Burawoy challenged the inadequacies of Marx's notion of the "subject less of the subject" and brought to the fore the participation of workers in the game, which ultimately gave their consent. Smith and Thompson argue that there are instances where labour has gone missing. Management has emerged as the primary driver behind new initiatives and disciplinary measures to which labourers adhere. Labour is not seen as the resistive subject; the subject of action is lost. Smith and Thompson deduce that there is continuous cooperation and contestation in the workplace, labour vs capital, subject to a power struggle. They do so to assert their identities or shape others (Smith & Thompson 1998).

2.5 Literature Review

2.5.1 Theme 1: Digital Technology and Global Capitalism

2.5.1.1 Understanding Digital Technology in the Global Capitalist Economy.

The relationship between digital technology and global capitalism is nuanced and textured. Digital technology has revolutionised the global economy, transforming how businesses operate, and individuals engage in economic activities. The digital economy has opened up fresh possibilities for businesses, enabling them to access global markets and engage with customers in unprecedented ways (Vlachou et al.2023). The rise of digital technology has led to increased connectivity, automation, and data-driven decision-making, all of which have significant implications for enterprises, skills, and employment. (WEF 2021). This study constitutes an example of critically engaged research which aims not only to explain a situation but also to guide union strategy in the future.

However, along with these advancements come challenges that need to be addressed. One of the critical concerns is the digital divide, which refers to unequal access to digital technology

and internet connectivity. This divide can further exacerbate existing inequalities, particularly in developing countries where access to technology is limited. With the progress of technology, there are still some challenges that require attention. One of the most significant concerns is the digital divide, which refers to unequal access to digital technology and internet connectivity. This divide can further widen the gap between people, particularly in developing countries, where access to technology is limited.

Furthermore, the rapid pace of technological advancement can lead to societal challenges, such as the need for new approaches and infrastructure to accommodate digital technologies (Vlachou et al.2023). These challenges include privacy, security, and the potential for job displacement as automation and artificial intelligence become more prevalent. In addition, the evolving nature of digital technology requires continuous learning and adaptation, which can create a skills gap between those who can keep up with the latest technological developments and those who are left behind. As a result, policymakers and stakeholders must address these challenges and ensure that digital technology is harnessed to benefit all members of society, including the poor and vulnerable.

The digital divide, both within countries and between developed and developing countries, remains a significant barrier to inclusive development and must be addressed through efforts to improve access to technology, provide digital skills training, and ensure the affordability of digital services. The digital divide is a complex issue that requires a multi-faceted approach to overcome. With the digital divide playing a crucial role in exacerbating existing inequalities, it is essential to address not only the technological barriers but also the political and social barriers that contribute to unequal access to digital technologies (Homberg et al. 2018).

2.5.1.2 Exploring the Pitfalls of Digital Technology.

The rapid advancement and widespread use of digital technology in recent years have undoubtedly brought numerous benefits and conveniences to our daily lives. According to Vickery & Mickleit (2023), an increasing argument posits a trade-off between advancing digital technologies and conserving the environment. The evidence indicates that nations might need to prioritise one objective over another to achieve success. The use of digital technologies can improve environmental performance and address climate change across all sectors of the economy (Vickery and Mickleit 2023). The application of smarter, cleaner environmental and economic strategies will tackle the challenge of global warming and contribute to “green growth” and clean innovation in the economic crisis and recovery. I tend to agree with Truong

(2022), that the production of ICT machinery and devices leads to the depletion of natural resources and increasing levels of CO2 emissions. In alternative research, scholars have highlighted that waste from electrical and electronic equipment contains hazardous substances, presenting substantial environmental and health hazards if not properly managed during disposal.

2.5.1.3 The Dark Side of Advanced Digital Technology

Trittin-Ulbrich et al. (2020) emphasise that "*digitalisation can have different subjects (drivers, providers, or beneficiaries) and objects (targets, victims, or recipients) in different situations or contexts"*. According to the WEF report (2016), wealthy countries and companies are still far more digitally connected than poorer ones. Closing a gap will not be a simple task due to the inequalities prevailing in the global economy. Moreover, this is due to the fact that success in the digital economy is not measured solely by the proliferation of mobile phones and wireless connections, but rather by ownership of infrastructure, code, and data (WEF 2021). The United States and China collectively represent more than 75 percent of the cloud computing market, 75 percent of all blockchain-related patents, and 50 percent of expenditures on the Internet of Things (IoT). (WEF 2021). Consequently, certain nations, corporations, and industries are reaping greater benefits from digitalization compared to others. The advantages of the digital economy are still disproportionately distributed

Furthermore, the digital economy is producing significant adverse side effects, such as exacerbating climate change (Banjo et al. 2020). Despite attempts by certain technology companies to improve their practices, they are still regarded as among the least sustainable and environmentally harmful globally. To satisfy the ever-growing need for hardware, these firms are intensifying the extraction of rare earth minerals and other valuable metals like cobalt. The proliferation of redundant technology and planned obsolescence is contributing to immense amounts of waste. (Banjo et al. 2020).

In 2020, the emergence of a global pandemic made remote digital work a crucial mode of operation for numerous knowledge workers, often termed as 'the world's largest work-from-home experiment (Banjo et al. 2020). Remote work, or a blend of remote and office work, is expected to persist (Puranik et al., 2019). While digital work offers significant advantages, it's also recognized to entail unintended negative outcomes, including technology-induced stress and anxiety. Understanding these consequences is crucial for developing an optimal digital work model that benefits both organizations and employees (Powell 2013). However, for many

users, the experience is challenging and overwhelming, as devices and applications can lead to anxiety, overload, addiction, distraction, and, in some cases, stress, fatigue, and burnout (Stich et al. 2018).

The productivity improvements from remote work may come with significant drawbacks in the form of prolonged work-related stress and mental health issues for employees. Addressing or alleviating technological distress in the digital workplace necessitates a comprehensive understanding of employees' overall digital work experience, including tasks such as logging in from various locations, managing emails, using messaging apps on smartphones, navigating multiple applications, and the potential array of negative psychological effects that may arise (Sarabandi et al. 2018).

Schiller (2018) points out that digital technology has changed employment. In the era of digital capitalism, employment has become more adaptable and dynamic, characterized by a rise in part-time positions and employment arrangements such as the outsourcing economy, the gig economy, and sharing platforms. Digital technology fosters workers' flexibility and capacity to enhance their marketable skills, offering the potential for lucrative earnings but also posing the risk of complete unemployment (Powell 2013).

Digitalisation has far-reaching implications for individuals, organisations, and society. Amid new digitalization-enabling technology, where it can be challenging to find skilled employees, finding a tech-skilled one is even more difficult. Skill shortages and high employee turnover are rampant. Most executives struggle to address their higher demand for flexibility in the workforce to prevent business inconsistencies. The increased chance of them acting maliciously against the company is a top concern. Employees can put organisations at risk in many ways, intentionally or unintentionally. Internal dangers are frequently overlooked. It is because businesses trust their employees. However, employees can access private data, passwords, logins, and financial accounts. These dark digital issues are essential to address and need close monitoring to reduce organizational risks (Newland 2020).

Digitalization also facilitates novel methods of organizing that could have beneficial outcomes for democracy. Digital technologies play a role in establishing entirely new platforms for citizenship engagement, allowing individuals to voice their opinions, share information, and mobilize against entrenched authorities (Whelan et al. 2013). Moreover, it facilitates a fresh type of activism, where activists and social movements can challenge existing powers and promote the public good through innovative means. Various studies have explored how digital

technologies can advance liberal and democratic principles, such as accountability, equality, and freedom (Whelan et al., 2013). Members of civil society, including activists and social movements, can effectively utilize social media and platforms for citizen engagement to communicate, share information, and mobilize against established power structures (Castells 2012).

Conversely, various concerns have been raised, particularly regarding privacy and surveillance, from which state agencies and large technology corporations may derive benefits, but which can have significant negative repercussions for society as a whole. Advocacy groups focused on digital rights, such as the Electronic Frontier Foundation, as well as human rights organizations like Amnesty International and Liberty, are striving to hold both corporations and governments accountable for frequent infringements on our digital rights, including privacy, freedom of expression, access to information, and freedom of association. know, and the freedom of association (Benkler 2013). Research suggests that these corporations increasingly rely on a poorly compensated and unstable workforce lacking sufficient labour rights. In this environment, workers are subjected to surveillance and face repercussions for their efforts to advocate for improved rights (De Stefano 2019).

2.5.2 *Theme 2: Trade Union Form*

Globally, history has shown that the trade union, from its inception, let alone its challenges, continued to improve and intensify its struggles to ensure better conditions for its members through collective bargaining, challenging unfair dismissals and creating channels through which conflicts can be amicably resolved between workers and employers (Waterman 2004). Even in the Global South, particularly in most African countries, trade unions have lobbied the political office holders and government agencies through legislation and policies that are favourable to their members.

Trade unions in Africa played a fantastic role in so far as political, economic and social development. They have pushed for a social-cultural atmosphere and a peaceful political transition; they were actively involved in ending colonialism and apartheid in South Africa. Olaore (2022:13) posits that post-independence and apartheid trade unions "*pushed for good governance from the political class, equity, social justice, respect for human rights and workers' rights*". Situating the theoretical background related to trade unions, the Alienation theory by Karl Marx is applicable on the basis that workers who experience alienation in the workplace, i.e., rights are not protected, will come together to ensure that their voice is heard.

Despite trade unions doing everything possible to ensure that the rights of their members are protected, and their interests are represented, they continue to encounter various challenges. According to Kenny (2020), there is a debate taking place as to whether trade unions are the truly representatives of the working class. This is informed by the fact that they tend to organize workers only in the formal sector of the economy, neglecting those in the informal sector. The figures from LRS have shown that in South Africa, more than 77 percent of workers do not belong to trade unions. These are the marginalised, poor, and powerless members of the working class.

The discussion often delves into questioning the significance of trade unions in today's world, particularly within the context of globalization. Their inability to attract the young and educated youth. According to Vissers (2019), young workers do not find trade unions attractive and relevant and view them as a waste of time. According to Kenny (2020), unions have lost political appeal for many, including young workers. Furthermore, only 48.6 percent of workers are in formal sectors, 13,2percent in informal sectors, 3,6 percent in agriculture, and 5,4 percent in private households (Kenny 2020).

Casualisation of jobs in the global south is prevalent; workers in the precariat positions do not enjoy the protection of rights, conditions of work have deteriorated and stagnated, wages do not increase, and trade unions are unable to represent them. The trade union movement should be worried that their existence and influence are threatened (Kenny 2020).

Amid all these challenges, I agree with Kelly (1988) when she argues that *"let alone the decline in density and influence by the trade union, trade unions will continue to play an essential role as the principal agents of the working-class mobilisation"*. However, their success depends on their ability to anticipate change and be able to put measures which will contribute towards the future of work(ers).

2.5.2.1 Different discourse and behaviours of trade unions

Trade union movements can take various forms, and the outcome varies depending on the particular context and goals of the workers engaged. According to Von Holdt (2002) cited in Pillay (2013), trade unions are challenged by macro and micro-environment. Their decisions are shaped by their geographic location, the era they inhabit, and the array of choices available to them. The following are some typical behaviours, both discourse and practice

a) Social movement unionism

According to Lambert and Webster (1988: 23), "*the social movement unionism concept was developed by Waterman in 1984 and applied by progressive scholars in the Global South with an effort to understand the militant mobilisation in opposition to authoritarian regimes and repressive workplaces in newly industrialised nations*" The purpose of Webster and Lambert (1988) was to illustrate how the emerging trade unions in South Africa maintain their independence in the shop floor democracy while combining workplace struggles with popular struggles. Pillay (2013) argues that in South Africa, social movement unionism was associated with the Congress of South African Trade Unions (COSATU) during the 1980s.

Social movement unionism, also known as social justice unionism or social unionism is an approach to trade unionism that goes beyond traditional collective bargaining and workplace-focused activities. Waterman (1993) posits that social movement emphasizes the broader social and political issues, aiming to address not only the immediate concerns of union members but also the more significant societal problems affecting workers and marginalised communities. Fairbrother (2000) found that social movement is a rank-and-file union that seeks to build alliance and solidarity with other social movements such as environmental, civil rights, gender equality and community organisations. It recognises that the struggles for workers' rights are interconnected with broader social justice issues. Social movement unionism recognised the importance of engaging and organising within local communities. Unions actively participate in community-based campaigns, support community initiatives and address the concerns of non-unionised workers.

In advocating for social and political justice, Van der Walt (2014) demonstrates that social movement unions end up drifting to degenerate to political unionism as they combine class with national politics this was evident when COSATU became an alliance with SACP and the ANC, although they argued to always maintain its independence, and insisted on alliances based on equality between the partners (Pillay 2013). According to Pillay (2013), the elements of oligarchy have crept in within COSATU which has stifled internal democracy and marginalised and side-lined those who were calling for an end to the alliance. Van der Walt (2014) advocates for syndicalist unionism which is anti-bureaucratic and bottom-up and focuses on "*societal transformation through the union-led workplace that will institute self-management and participating in economic planning, the abolition of markets, hierarchy and the state".* However, according to Pillay (2013), syndicalism shares many features with anti-

systemic social movement unions. The only difference is the approach to state power and political parties. Overall, Pillay put forward that social movement unionism aspires to the hegemony of the working class to achieve a "*participatory democratic form of socialism*", which can be archived through the inclusive scope of active participation and worker control (Pillay 2013:15).

b) Political unionism

Political unionism refers to trade unionism actively involved in state political battles, often aligned with a political party, typically in a subordinate role It has a hierarchal structure with oligarchic forms of representative democracy. According to Pillay (2013), most of the union leaders are also leaders of the political party and the office bearer operates autonomously to the rank and file. They make decisions on behalf of everyone even if power and authority is vested in membership. Says Mitchel (1911), leaders develop values that are at odds with those of members. The leader's social position is different to that of the rank and file. Members join the union for protection, whilst for leader's organisation is for full-time employment. Pillay (2013) brought forward different subtypes of political unionism.

i. **Marxist and Leninism trade unionism**: they possess a wider socialist awareness that encompasses class interests, including those of the unemployed. They believe workers and the unemployed should stand together regardless of their social standing. Such trade unionism is influenced by Lenin's conception of trade that it must subordinate to the Marxist vanguard party led by professional revolutionaries (Pillay 2013).
ii. **Nationalist unionism**: these are the populist trade unions that neglect the shop floor and mobilise to support political parties to achieve national democracy (Pillay 2013).
iii. **Social democratic unionism**: These are well organised and hierarchal with weaker relationships with political parties. They embrace a reformist strategy aimed at enhancing workers' employment conditions within the capitalist framework (Pillay 2013). It has been argued by its proponents that social democratic unionism is the most successful worker organisation in modern history. Their participation in tripartite corporatism can effectively redistribute gains for membership (Ibsen 20121).

c) *Economic unionism*

Pillay (2013), posits that economic unionism, also known as collective bargaining unionism, confines their activities to the workplace to improve the condition of service of workers. Sometimes referred to as a workerism union which tends to think mainly of factory-based struggles over wages and working conditions which are bread and butter issues. They use a monopoly of power to defend their economic interest by encouraging worker solidarity and support through collective action (Pillay 2013). Economic unions participate in setting up systems in place to address grievances and disputes in the workplace. The SACP (1986) strongly criticized workerist unions during the struggle against the apartheid system, asserting that unions promoting this form of economism tend to downplay the importance of the political struggle.

Business unionism shares similar features to economic unions in the sense that it seeks to improve the price of labour of the unionised workers either through collective bargaining or other means provided by the union. According to Taft (1963), the philosophy around business unionism is that of "pure wage consciousness" accepting the existence of capitalism; it is all about "*aloofness from other movements*". In the last twenty years, South Africa has witnessed the re-emergence of business unionism tendencies where trade unions ventured into capitalist means through investment companies intending to offer members and their dependents better benefits such as bursaries, pension funds and funeral schemes (Iheduru 2001). According to Xaba in Tshoaedi et al. (2023), this model has been marred with financial mismanagement, corruption of senior union leaders and cronyism.

Business unionism opens space for social capital unionism that focuses on organising around people who build social networks among members inside and outside the workplace as well as personal relationships. Trade unions such as Solidarity are known "*to strive to create communities inside and beyond workplaces where shared interest, solidarity action are traditionally based"* (Xaba in Tshoaedi et al. 2023:213). Social capital unionism emphasises the importance of social connection, collaboration, trust and community engagement.

2.5.3 New Form of Working Class and Worker Organisation

Within sustained criticism of trade unions and models of organising, with its ongoing marginalisation of those not in stable jobs and dualisation where unions defend only existing strongholds. Carmen Ludwig in Webster and Lyn (2023) has demonstrated how precarious workers, through the assistance of the NGOs' have produced strategies for collective workers'

struggles to emerge; this is a new formation of precarious workers. This is regarded as *"substitutionism"* of unions, where the Non-Governmental Organisation (NGO) social movements fill the vacuum by providing specific services to precarious workers.

The Casual Workers Advice Office (CWAO) is a non-profit organization which provides support and advice to contract, labour brokers and other precarious workers. In June 2023, the labour court granted Simunye Workers Forum (SWF) to be registered as a trade union in terms of section 96 of the LRA. The judge argued that freedom of association of workers is a constitutional right which must be respected (Case no: J1375/2022).

Webster & Lyn (2023) acknowledge the difficulties in organising informal workers, as collective organising is unlikely to succeed; hence, the form of agency available is individualised resistance. The National Union of Textile, Garment and Tailoring Workers of Nigeria (NUTGTWN) tried to unite the sector around comma on interest. This has led to the union's increase of membership.

2.5.4 Trade Unions Operating in Global Digital Capitalism

Trade unions face significant challenges in the globalized economy, struggling for survival and relevance. Researchers such as Manuel Castells and others in Webster & Lyn (2023) declared that *"…the atomising effect of the new technologies of the 'information age' to presage the 'end of labour'*. In so far as the introduction of new digital technologies he went further to state that *"there is little doubt that the labour movement worldwide is no longer the social force it was in the twentieth century'.* They contend with the fragmentation of labour, the mobility of capital, and the weakening of workers' bargaining power. Globalisation has led to increased competition, pressuring firms to reduce costs, often at the expense of workers' wages and conditions. Unions are criticised for not adapting to changes and are urged to restructure to better advocate for workers' interests and counter globalisation's negative impacts. (Kenny 2020) argue that is a matter of fact for trade unions to find relevancy, they must find new ways to organize workers and build collective identities, especially as traditional union models become less effective in the face of global economic dynamics.

Organised labour has been adapting to digital capitalism by engaging in both offensive and defensive struggles, aiming to organise new industries and protect existing standards. Trade unions and grassroots initiatives have challenged powerful platform companies, contesting the use of technology that undermines labour standards. There's a rise in "*platform cooperativism*"

with worker-controlled technologies, diversifying collective representation. The landscape now includes small but impactful groups like the Couriers Collective and the YouTubers Union. The variety of collective associations, including informal worker groups and cooperatives, is becoming the new normal, suggesting a shift beyond traditional trade unionism (Basualdo, *et al* 2021).

CHAPTER 3

RESEARCH METHODOLOGY

This study adopts exploratory research to gain insight into how labour has responded to the shift to digitisation and automation in the context of the fourth industrial revolution. Exploratory research in social science is usually useful when the topic is poorly understood or has not been extensively researched. Stebbins (2011) found that exploratory research provides valuable insight and generates ideas or theories. The fourth industrial revolution subject is relatively ignored or not received much attention by labour in general, especially by South African trade unions. Singh (2021) argues that exploratory research clarifies the exact nature of the problem to be solved; it is flexible and adaptable.

3.1 Research approach

The research project involves a qualitative research approach which analyses social reality within the union (NUMSA) and in some workplaces through semi-structured interviews, focus groups, documentary analysis, and (non) -participant observation. As part of the union leadership serving in different structures, I had the privilege to attend numerous meetings organised by the union where strategies were discussed. I was able to access all secondary data and information on the union. Qualitative research is mostly used to understand and gain a deeper understanding of issues that have not been explored before; for Greenstein et al. (2003), it is useful for exploring new territories. The researcher believes that a qualitative approach may be appropriate to investigate the research question by talking to the right people who the subjects of the study.

3.2 Data collection instruments

Data in research represent all empirical evidence, facts and information collected to address the research question (Greenstein et al. 2003). All data collected serve as the base which influences the research process, findings, and conclusion.

3.2.1 Semi-structured interviews

According to Greenstein et al. (2003), the interview is an interaction or conversation for gathering data, insight and information between the interviewer and the interviewee. Furthermore, Masondo (2018) went further to argue that an interview is about asking questions and listening. The choice of the setting of the interviews allowed different platforms, face-to-

face interaction, and online platforms such as Zoom and Teams. One-on-one interviews are commonly used in social science because they allow the researcher to collect rich and detailed data about the participants' experiences and perspectives (Ryan & Deci, 2009).

The researcher arranged in advance with the participants and explained why they were approached and the purpose of the interview. These interviews were mostly conducted in English, although isiZulu and Sesotho were used to enhance communication and gain more reliable information. While the selected list of questions was prepared to allow a structured type of interaction, the conversation gave room for unanticipated open-ended responses and allowed the flexibility for less structured questions and following the direction of the participant's response (Moyle 2002). Ryan & Deci (2009) reminds us that regardless of the type of chosen approach, what is pertinent is that the interview must be incongruent with the research question.

In this study, semi-structured interviews were conducted with eighteen participants: eleven NUMSA shop stewards (eight from Alstom Ubunye and four from BMW), technicians from Alstom Ubunye, two NUMSA sector coordinators linked with auto and engineering sectors, one NUMSA regional organiser (who organises and services auto companies and engineering at the regional level), one NUMSA head of research, one NUMSA head of Organizing, Campaigns, Coordination and Bargaining (OCCB) and two company representatives from Alstom Ubunye and BMW.

Some of the interviews took place in union offices, which were accessible to union officials and company premises for shop stewards and technicians, and where it was not possible, the online interviews took place with company representatives.

3.2.2 Sampling

The semi-structured interviews were conducted on individuals selected because of their experience and expertise essential to the research subject, which is known as purposive sampling. Giddens (2006) defines sampling as selecting a portion of the overall group. Officials of the union were experts in sampling; they have specialised knowledge of the research subject because they work with numerous companies daily. The shop stewards are typical case sampling because they represent the union and the company establishment during the research process. During the interviews, technicians were not part of the initial plan but were

recommended by sector coordinators and shop stewards because of their vast experience of the subject matter; this is what Greenstein et al. (2003) referred to as snowball sampling.

3.2.3 Focus group

Focus group discussions were conducted to supplement data obtained from semi-structured interviews. According to Greenstein (2003), the focus group size ranges from eight to twelve participants from similar backgrounds or experiences. Furthermore, he argues that a smaller group size may allow more intimate, open and interactive discussion. While there is no exact fixed size for a focus group, the researcher must be thoughtful when determining the size, always ensuring that a balanced and conducive environment is created to get the depth and data relevant to research findings (Giddens 2006).

For this study, two focus groups were held with eight shop stewards from Alstom Ubunye and 3 shop stewards from BMW. Krueger and Casey (2009) posit that focus groups are important for social science research because they provide a comfortable environment for participants to reveal their thoughts and freely express their opinions on the research topic. They allow the researcher to get rich, contextual insights into the verbal and non-verbal behaviours and to learn the participants' language.

The researcher who introduced the topic led the discussions. While allowing flexibility, she always maintained a degree of control, redirecting whenever the discussion moved too far from the objective research topic. She ensured that she got as much information as possible.

3.2.4 Data analysis

The study employed a thematic data analysis method to analyze data received from semi-structured interviews, focus groups, documentary analysis, and participant observation. Being a member of the union does not suggest that the researcher must bring her preconceived interference with the identification of themes because it can lead to biased results and inaccurate conclusions and undermine the credibility of the research project (Greenstein et al. 2013). Yale and Kumar (2016) argue that researchers with preconceived notions may be likely to interpret data not objectively, but in a way that supports their beliefs. They went further to demonstrate that "*bias can occur in any phase of the research; during planning, implementation data collection, analysis and during publication stage*" (Yale and Kumar 2016: 1644). According to Greenstein et al. (2003), the researcher can employ rigorous strategies and practices to minimize and mitigate bias during data analysis.

One method to be utilized is triangulation, which eliminates or reduces biases and increases the validity and reliability of the study (Jonsen and Jehn, 2009). This can be done by comparing data sources and corroborate and cross verify the analysis. Vaughn & Turner (2015) offers a sterling warning that triangulation needs to be considered as the original research design not introduced ad hoc during data analysis.

For Greenstein et al (2003), thematic analysis is a flexible and accessible method to account for and interpret rich data collected and it involves a number of steps. The collection was organized from written notes and recorded interviews. Documentary data refers to reports from the National Congress (NC), Bargaining conferences (BC)/ Policy Workshop and National Sector meetings of the union. The BMW blogs, and company annual reports

After data has been collected from the field, it will be transcribed, thoroughly verified to check its consistency, organized into sections, use coding to categorise information according to the research questions and summarized the themes. The themes will be further examined in relation to the research question, whether it is refuting or confirming it.

3.2.5 Challenges and Constraints Experienced During the Research Project.

The nature of the research question chosen "*How has labour (NUMSA) responded to the shift towards digitisation and automation"* versus the position occupied by the researcher when collecting data (second deputy president of NUMSA). Some of the participants, especially staff members, were not speaking freely at the beginning because of the fears of victimization and possible disciplinary action taken against them because of the contribution they would have made. The researcher had given an assurance that their participation would remain confidential as dictated by the University ethics protocols. Hence the utilization of pseudo-names, for this study. Additionally, when the researcher was collecting data in workplaces, she was expected to respond to the failures of the union as the leader during workplace reorganization. The researcher had given participants an undertaking that once the report is concluded and released by the university it will be shared with the entire union so that it can form the basis of discussion. Balancing research activities and union-related commitments was a challenge, hence there was a delay in concluding the process.

The study was limited to two sectors within NUMSA, which are Auto and metal and engineering, both companies are multinational. For this reason, the study cannot be generalized to other sectors. It is recommended that further studies should be conducted to include a broader

spectrum of other sectors, multinationals and locally owned companies. By the time of concluding this report, the researcher was expelled from her union for reasons not related to the research project. However, the researcher avoided any biases as guided by the ethics protocol adopted by the university.

3.2.6 Ethical consideration

The research topic has been approved by the Ethics Committee of the University of Witwatersrand, Johannesburg. All ethical considerations were adhered to throughout the study. The objectives of the study were adequately explained to the participants, and they were made to sign the consent form without being coerced and without suffering any prejudice.

The participants were informed that their names would remain confidential unless they so decided, and participation was voluntary. Pseudonyms will be used and real names to those wished to be identified. Unfortunately, two of the participants are now late, may their souls find eternal peace. The recorded file is confidential and will be destroyed after completion of the project.

CHAPTER 4

THE SHIFTS TOWARDS 4IR DIGITIZATION AND AUTOMATION

4.1 Introduction

This chapter attempts to engage the available literature concerning the shift towards digitisation and automation. The literature review helps to provide the past and the current state of information towards replacing manual labour with the supervision of machinery in the labour process. The automation of the labour process has evolved from the use of basic hydraulic and pneumatic to robotics and, lately, to the amalgamation of artificial intelligence and machines. This advancement has brought about a technology that enables machines to communicate with and interact with each other. Instead of relying on a central control panel operated by a highly skilled worker, these machines can now operate entirely independently. (IndustriALL Global Union 2017).

It has been deduced by its proponents, the fourth industrial revolution, that the large-scale industry with the latest technologies improves efficiency and production of high-quality products (Boisset 2018). The intensification of technology has an impact in the labour process and the position of workers (Hlatshwayo 2017). Essentially, what makes the fourth wave different is its speed and lasting impact on the economy. Work has changed, and this affects the developed and the developing nations differently.

4.2 Criteria to Determine Industrial Revolution.

Historically there have been debates about when the period of change should be regarded as an industrial revolution. According to Moll (2021), others argue that a long period of socio-economic change or structural change is a revolution which is based on the system of redistribution. The historians look at technological, economic, social, political and cultural change as the *"techno-economic paradigm*" the involvement of technology for economic prosperity as the revolution (Moll 2021).

The industrial revolution must make technology fast and radicalized and be able to transform society. Brian H Roberts (2015) states that the Industrial Revolution began slowly but over time gained momentum and had an impact on shaping the way of doing things, how things get produced, the way of communication and the movement. At the same time, Ather (2019) deduce that technology which is constantly evolving with no completed social process such as changes in the labour market and negative effects of unemployment cannot be regarded as an

industrial revolution. The focus only to changes in labour to technology is the view of capitalist maximization of profit. For the period to count as an industrial revolution it must have long socio-economic change at a structural level.

4.2.1 The Industrial Revolutions

It has been argued by various scholars that the world has witnessed four industrial revolutions (fig 2). The First Industrial Revolution (1IR) occurred during the 18th century from 1765 mainly in Europe and North America (Roberts 2015). The defining feature of the first revolution was rapid industrialization with increased productivity through the introduction of mechanization of the steam engine, coal, iron, railroad and the textile industry. The labour process during the first revolution was characterized by the introduction of technologies in production processes, which introduced hierarchy. According to Marx (1990), the labour regime during the 1IR was that of cooperation, which subjected workers to lose autonomy and work under stricter and lousy working conditions. The workers were forced to work long hours, 16 hours under grueling supervision with no breaks. According to Roberts (2015), workers were subjected to repetitive tasks and physically burned out after shifts. The emergence of the working class was brought by the clear hierarchy between workers and the bosses (Moll 2019).

At that time, the level of migration of farmers to cities was high, with people subjected to appalling living conditions. The women and children were subjected to slavery and forced to work in exploitative conditions, i.e. forced to work under dangerous conditions with the trauma of machinery and cramped work areas with poor ventilation, which brought health hazards. The workers did not have rights; with the dominant ideology of classical liberalism, which promoted individualism, there was no government involvement to protect workers (Roberts (2015).

Baldwin (2019) notes that in the textile industry, technology was used to make sure workers produced knitted goods as fast as compared to when they used their hands. In challenging the changes to the conditions of work, a group of skilled textile workers known as the Luddites emerged, which acted against the changes in the textile industry. The Luddites targeted the textile factories set them alight and destroyed their machines. The role of the Luddites was always misconstrued, according to Klein (2019) the Luddites "*did not object to the use of a new kind of machine, but to the use of existing machines in ways that reduced wages and produced shoddy clothing*." The group was not against innovation but against unfair labour practices.

Moll (2019) points out that despite economic growth people in the rural areas were subjected to gruesome social conditions and many of them received material welfare. There was an increase in the number of three classes of society: the bourgeoisie, lower middle class and the manufacturing workforce. The Second Industrial Revolution (2IR) is usually dated from 1870-1914 and was a period of expansion of electricity, steel and petroleum (fig. 2). Moykr (1998) argues that the *"period 1859-1873 has been characterized as one of the most fruitful and dense in innovations in history*". The changes in technology have brought huge transformations in the labour process with mass production in the assembly lines where the product and production processes became standardized. In 1913, Ford Motor Company introduced assembly lines for efficient high-volume manufacture (Moll 2019). The automated assembly line was a defining feature of the 2IR.

According to Moll (2019), the outcome of the study conducted by Taylor in 1911 brought success to US motor companies until 1955 and then declined thereafter. As it was commonly known, Taylorism introduced scientific management, which divided planning from execution with required skills and qualifications. Degen (2011) noted that the separation of mental labour from physical execution brought stagnation to career progression, especially for unskilled workers. At Ford Motor Company, the specialisation of tasks had simplified training. It made the work of assemblers quicker and more accessible than that of the foreman to identify any defects in the products (Degen 2011). The ideas of the division of labour and specialisation functions introduced to improve productivity were highly criticised by Braverman (1979) as the source of control and deskilling of workers by management.

The hierarchy of work implemented took away the autonomy of workers, and work was conducted under constant supervision of management. The conditions of workers under assembly lines were unbearable, and conflicting interests with management changed the social relations (Moll 2019). According to Degen (2011), workers were seen as "comprising variable costs" in the labour process, and they would be dismissed at a go once volumes went down. Many countries saw the upsurge of trade union movement; the US saw the rise of United Auto Workers (UAW). The factory outputs were affected by the number of strikes organized by trade unions and the government had to intervene to restore order. For instance, the UAW was regarded as a "*job-control unionism*" due to its focus of seniority and job rights (Womack et al in Degen 2011).

Moll (2019) noted the social contradictions which emerged during the 2IR period where technology had a "*double-edged sword*" which accelerated economic growth and also brought social stability with improved living conditions. As a result, the working-class population grew. During that period, Moykr (1998) states that infant mortality and life expectancy increased. The people's income increased, and they started living in less congested areas with running water. Although migration to the cities increased drastically, bringing class segregation, social movements that challenged poverty, housing and health also emerged. Furthermore, many socialist and political parties were formed at the height of the 2IR (Moll 2019).

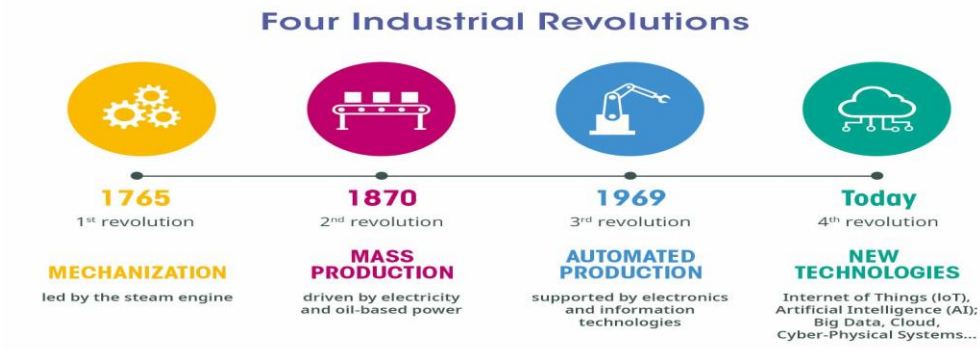
According to Moll (2019), there was a lull moment of about four decades between the second and the third industrial revolution. This was the war period of the First and the Second World Wars. Although there were technological innovations such as the introduction of aeronautics, rockets, radio technology, etc., the technology used was from the 2IR. The labour relations stayed the same, and social conditions deteriorated with deep economic depression.

The Third Industrial Revolution (3IR) began in 1969 and was known as the "*digital age"* or "network society", with advanced technology such as digitisation, computer networks, the internet and the explosion of knowledge (Roberts 2015). Robotics and digitisation were the major technological innovations of the 3IR labour process. The 3IR has changed social relations by creating and destroying jobs and changing the relations of workers to production. There is a shift from permanent full-time to casual work, and the relationship with production is individualized, for example, the consultants and freelancers (Moll 2021).

Globalisation is another form of socio-economic transformation brought by 3IR; it has opened space for trading outside national borders. The network technology has allowed the labour processes of corporations to outsource and relocate production outside national borders in order to maximise profit and reduce production (Moll 2021). Many companies have outsourced their warehouse and transportation of finished products. The same workplaces are found in different geographical localities, manufacturing the same products with cheaper production and labour costs. Fewer but more skilled workers with the expertise to manage global networks are required in the 3IR. The lower-level jobs are replaced by technology and jobs that are created are precarious work "*piece jobs*" and unsustainable (Moll 2021).

The individualized nature of the relationship of workers with production came at the detriment of workers' identity and collectiveness. Trade unions struggle to address the divergent needs of workers (Moll 2021). The cloud of uncertainty hangs in the future of trade unions as the

decline of the manufacturing sector increases and the rise of flexible work. According to Jelle Visser (2019), the absence of collective bargaining and the violation of union rights in some other parts of the world has led to the decline of trade union density. The *"new instability of work"* characterises twenty-first-century labour relations (Visser 2019). Social hierarchy created by globalisation exacerbates inequality with the elites being paid well while the working poor are directionless, living from hand to mouth and unable to afford the necessities (Moll 2019). Bourdieu (1984) spoke about the set of behavior and practices that society adopts, which seeks to normalise their existence despite inequalities created by the dominant class; this is created and reproduced unconsciously. According to Bourdieu, cited in Burawoy (2012), habitus is a sense in which the dominant class/status feels that they are part of the structure, and there is an acceptance of the system, and there is no mental space to challenge it, and it has become routine. Habitus is created through a social rather than individual process, leading to patterns. Suffice it to say that habitus is neither a result of free will nor determined by structures but created by a kind of interplay between the two over time (Bourdieu 1984). The next important question we should be asking ourselves is what prohibits society from challenging the ills of the system, and what makes them think that things are normal when they conform to symbolic domination?



(fig.1)

4.2.2 The Fourth Industrial Revolution and its Controversies

The Fourth Industrial Revolution (4IR) is a term frequently used in literature, but to date there is no consensus about its definition. This has led to some to even question its existence. The concept of 4IR was apparently coined by Klaus Schwab at the World Economic Forum (WEF) annual meeting in 2016 when he refers to changes in technology which fuses physical, digital and biological world (Lee et al 2018). These developments affect all disciplines, economic

industries and everyone. The proponents of 4IR asserts that the unprecedented technological revolution paves for transformative changes in all spheres of life, especially how we relate to one another, do things, or work (Visser/ILO 2019).

Meanwhile, Gordon (2016) posits that the revolution is marked with controversies and ambiguities because "*it does not uniformly describe the technical paradigm shift*" as it was the case with the previous revolution. The performance of technical innovation could not spread across all economic societies because of the level of inequality. Furthermore, Lee et al. (2018) argue that it is revolutionary change that occurs when Information Technology (IT) proliferates in all societies, that is, in primary, secondary and tertiary industries. The 4IR is equated with the combination of technical innovation and institutional innovation (Lee et al. 2018).

For Ian Moll (2021), the industrial revolution should encompass transformation in the labour process, social relations and socio-economic transformation. He argues that the new entrants of technology such as the Internet of Things (IoT), Big Data, Artificial Intelligence (AI), 3D printing, cloud, simulation, etc. which are said "*to transform every part of our lives*" be it political, social and economic transformation are not yet upon everyone because of the level of inequalities. Moll (2021) brings forward that the alleged 4IR cannot be said to be a fundamental change which brought socioeconomic practices and innovations and questions whether such developments can be equated to the Industrial Revolution.

While various definitions of the term 4IR have been suggested, this thesis will treat the Industrial Revolution as a fundamental transformation in multiple social and economic dimensions. Been inspired by Moll (2021) that fundamental change to represent the Industrial Revolution should encompass technological change, transformation in the labour process that is the nature of work, transformation of labour relations in the workplace, and, more importantly, fundamental changes in everyday social life.

4.3 The Changing Economic Structure of South Africa: From MEC to MEFC

Historically SA economic development reliant heavily on the mining and mineral sector which forms the basis of the Mineral Energy Complex (MEC). This complex was characterized by the extraction and exports of minerals such as gold, and diamond as well as the production and distribution of energy resources particularly coal-based electricity (Mohammed 2006). For Mohammed (2006), the formation of MEC was a political compromise between the large English and Afrikaner businesses shaped by the oppression and strict control of black workers.

De Venage (2017) explains that this industrial path relied heavily on state support and the exploitation of the black majority. The diversification within mining saw platinum emerges as one of the raw materials on which the country relies. The mining industry stood at the heart of the Apartheid South African economy. Heavy industries that rely upon mineral extraction and processing have determined South Africa's developmental path (Fine &Rustomjee 1996).

Fine & Rustomjee (1996) deny the developmental state literature which separates economic from political and treats them separately because they gave rise to a particular system of capital accumulation. The MEC was developed around the South African economy's mining, energy, and financial sectors. A handful of corporations controlled the mining houses. The Oppenheim family controlled almost half of the country's gold and platinum. The MEC, as Fine & Rustomjee (1996) see it, evolves depending on the balance and distribution of power amongst stakeholders in the mineral sector. These mining linkages provided the state revenue to invest in the state-owned enterprises, for example in Sasol and Iscor (Leeuw 2012).

According to Fine & Rustomjee (1996), despite the level of maturity of the well-developed infrastructure, the MEC prevented diversification of the manufacturing industry, and the state of manufacturing has not adequately diversified. Most sectors with linkages of MEC have remained weak even to date with no state support, except automobile and components manufacturers. The country has emerged as a major producer and exporter of raw materials, and it imports manufactured goods.

The mining sector operated within the framework of racial discrimination and economic inequality. The working conditions of black workers were unbearable, people often worked long hours under dark and poorly ventilated conditions. There was no compensation made during accidents. The coal sector was even worse, with frequent rocks, fall accidents and many physical deformities because of the unsafe and unhealthy working conditions (Storey 1985). Bond (2006) explains that by the 1980s, the South African accumulation crisis brought on social resistance as well as contradictions and began to compel political and economic changes.

Following the democratic transition in 1994, SA underwent economic reforms aimed at diversifying and modernizing its economy. The MEFC expands the focus beyond traditional resource extraction to include the financial sector. The SA growth developed along the same lines as that of English and US systems. The financial sector become increasingly integrated with the minerals and energy sectors, facilitating investment, capital flows and financial transactions related to resource extraction and energy production (Mohammed 2006). The

MEFC, with its dependency on mineral resources and energy, exposes the economy to global market fluctuations and commodity price fluctuations.

The financialization of the SA economy occurred in the structure dominated by MEC where the manufacturing sector is adequately developed and diversified (Fine & Rustomjee 1996). The infrastructure and institutions of the economy had developed to support the MEC. The inflows of short-term capital led to increased debt-driven consumption by households (Mohammed 2006). The consequences of financialization have been the continued high levels of unemployment and trends of casualization, outsourcing, and informatization that make employment more precarious with weakened organized labour (Mohammed 2019).

The have been concerns about environmental sustainability and social justice as extractive activities have adverse health effects on nearby communities, workers and the ecosystem. Workers in extractive industries are exposed to hazardous conditions and occupational health risks. The mining and energy sectors exacerbate inequalities by concentrating wealth and power in the hands of a few while marginalizing and disenfranchising local communities. Kinda & Thiombana (2021) found that extractive activities often cause environmental damage, which harms biodiversity, disrupts the ecosystem and threatens the long-term sustainability of natural resources.

South Africa has been grappling with various economic challenges for many years. The official unemployment rate, according to Stats SA for Q3 of 2023, is seated at 31.9 per cent and is among the highest in the world. The youth unemployment rate is above 60 per cent, with women bearing the brunt of making means to provide for unemployed households (Stats SA 2023). With the energy crisis, uncertainty in the commodity price environment and high level of public debt, economic growth confronts substantial hurdles (Parker 2023). These issues have been exacerbated by factors such as corruption, policy uncertainty, infrastructure constraints and the impact of the COVID-19 pandemic.

The SA government initiatives to embrace digital technology and promote innovations as part of the economic development agenda. According to the study conducted by Price Water Coppers (PWC), 72 per cent of workers are concerned with the further increase of the unemployment rate brought by automation and digitalization (Moyo 2023). While Maharaj cited in Moyo (2023) admittedly argues that in as much as there will be a decline of repetitive tasks this will be counterbalanced by an increase of new formal jobs created in the service sector with improvement in earnings and the negatively impacted workers must be retained and

given opportunities in created jobs. However, approaches of this kind carry with them various well-known limitations. According to Kenny (2023), technology provides the "*myth of progress*", she argues that technology perpetuates hierarchies where impact felt is by different social groups where the marginalised workers including women are disproportionately affected by job displacement and precarious working conditions. Kenny shows that concerns about which jobs will go, and which will remain in SA ignore ways in which labour is organized. The universalism about the progressiveness of technology has an American accent with a superiority complex that fails to recognize differences in each country.

CHAPTER 5

THE TRADE UNION RESPONSE TO TECHNOLOGICAL CHANGES: A NUMSA CASE STUDY

5.1 Introduction

This chapter investigates the response of trade unions to technological changes and focuses more on the case studies of NUMSA. The study will compare the union approach within its sectors when dealing with restructuring due to technological changes. The focus will be on Alstom Ubunye, an African rail company, previously known as Union Carriage and Wagon (UWC) situated in Nigel, Ekurhuleni in South Africa. The company specializes in the manufacturing of electrical and mechanical components for trains and provides services such as maintenance and refurbishment of trains. In terms of union sectors, the company belongs to the traditional metal and engineering sector. The study will also investigate BMW, the auto company, situated in Rosslyn, South Africa. These companies were selected for investigation due to their strategic location in manufacturing industries in different sectors of production, employment significance, relatively high rate of unionisation and potential growth and indication of their restructuring.

The first section will investigate workers' participation on the shop floor. According to Hatcher (2007), workplace democracy is an essential pillar for workers when dealing with any transformation in the workplace because it brings a sense of equality and increases the power of the broader group of people on the shop floor to influence the decisions and activities of an organisation. The study will reflect on the different approaches adopted by trade unions in different countries on the involvement of workers in workplace governance and management processes. The following section will concentrate on NUMSAs' case studies, responding to the main research questions on how labour responds to the shift towards digitisation and automation. Each case study will be dealt with separately to assess whether the union's approach is uniform across all sectors. Furthermore, this section will also highlight the limits and consequences of NUMSAs' response to the workplace digital transformation. Finally, the chapter will conclude by assessing initiatives undertaken by the union.

5.2 Workplace Democracy

Workplace democracy exists only if workers participate in strategic planning and goal setting of an organization in ensuring that their needs are met (Foley & Polanyi 2006). Recent

evidence suggests that democratising the workplace benefits the quality of work and thus reduces alienation (Frega et al. 2019). Increasing employee participation improves workplace productivity and creativity which enables the organization to remain competitive. Participation is sometimes about giving input into the organizational goal. Foley & Polanyi (2006) argue that the participation of workers is necessary for workplace democracy though insufficient if workers do not have some real influence over the strategic direction of the company.

Foley & Polanyi (2006) draw our attention to the liberal argument which suggests that workers' participation in the processes of production leads to company serious efficiency failures because it restricts freedom of capital and the inability of shareholders to fund companies where they do not have a say. The Marxists argue that workers' participation in the strategic direction of the company is a serious weakness because it creates enterprise consciousness as opposed to class consciousness. This notion suggests that trade unions no longer struggle for the betterment of workers in general but only advance the cause of a specific sector or a company. Furthermore, this democratic workplace detaches workers from larger struggles and becomes a company union which works out the best deal with management to keep the firm competitive (Compa 2006).

According to Bemmel & Yonata (2012), the participatory strategy has yet to escape criticism; evidence has suggested that even if workers are granted participatory rights, this cannot be translated to equal say to management. However, there are limits to how far this idea can be taken. I agree with Masondo (2003) that trade unions should exert more control to stop enterprises from doing as they please. The union strategy must focus more on policy adjustment, which will change the workplace rules.

Although Bemmel & Yonata (2012) acknowledge that the presence of a trade union does not automatically guarantee that workers' interests are adequately represented, it is upon the strategies employed by workers to achieve influential voices in all management processes. This study will argue for the importance of workplace democracy that must be championed by all workers on the shop floor. To date, various methods have been developed and introduced by trade unions across the globe, and each has its advantages and setbacks. The central issue is whether collective bargaining is an appropriate vehicle for workplace democracy or can workplace democracy be achieved through a codeterministic approach.

5.2.1 Involvement of Workers in Workplace Governance and Management Processes

The move by the trade union movement to give workers a say in decisions which affect their working lives is very crucial. Countries such as Sweden and Germany utilize codetermination platforms to ensure that the introduction of new technologies in the workplace is handled with sensitivity for the welfare of workers (Berger & Vaccarino 2016). Codermination gives workers representation in workplace governance and management processes. Jager et al. (2023:3) refer to the approach to "*board-level codetermination"* mainly based in European countries and *"shop floor codetermination*" predominantly in Germany. In Germany, shopfloor Codermination representatives have co-decision-making rights over a similar set of areas, workers can veto dismissals and force employers to take the matter to the labour court (Jager et al. 2023).

The studies have shown that stronger forms of codetermination could help alleviate the power imbalance between employers and employees by acting as a buffer against any unfair labour practices. According to Jager et al. (2021), American companies have been reluctant to incorporate codetermination practices in their companies because they believe that it will be harder for executives to remove employee influence in the company's management. Countries, such as Germany, Austria, and the Netherlands where the codetermination practice is common have mandatory laws. However, the strength of authority given by those laws varies. Codetermination gives workers directed access to engage and participate in management processes through works councils not only through third parties such as organized labour. The Nordic codetermination is used to extend the role of union representatives in the workplace. In Norway, the codetermination arrangements established gave workers less powers and focused narrowly on firms' performance (Jager et al. 2023).

The Codetermination approach has its weaknesses and limitations, it does not shift power to workers. According to Jager et al. (2023), the board-level codetermination gives workers minority powers to overrule shareholders and management decisions in firms' governing platforms. This vehicle lacks substantive decision-making authority. Workers with minority votes complain that the approach does not provide them with decision-making authority, it is the platform for formality, the agenda gets decided elsewhere and workers are made to rubber stamp the decisions (Jager et al. 2021).

On the contrary, other trade unions rely on pro labour institutions such as collective bargaining as the vehicle for workers to exercise their collective voice to management and to address

workplace policy changes (Hertel-Fernandez et al.2018). The traditional unions, especially in the US and in Africa concentrate on collective bargaining to improve workers' conditions of service and choose to abstain from influencing the firms' strategic decisions as they believe that it will endanger the independence of unions in the workplace. According to Bischoff et al. (2018), the union opted for processes where they independently engage the employer using the agenda of the meeting. As opposed to the works council as a model of participation, management introduced joint committees of workers and management to address shop-floor issues. According to Masondo (2003), management introduced forms of worker participation structures such as the Green Area, in which VWSA has a Joint Strategic Workshop (JSW), and in all OEMs, they have *Quarterly General Meetings* (QGM). At Alstom Ubunye, they have a *Production Employment Relations Committee* (*PERC),* where all issues are discussed, it is a forum for shop stewards, foremen and team leaders.

In South Africa, the government has legislated the workplace forum, Section 79 of the Labour Relations Act (LRA), which provides workers with the right to be consulted to reach consensus, joint decision-making, and disclosure of information (LRA 1996). Workplace cooperation is voluntary in South Africa and must be triggered by the majority trade union.

According to Buhlungu (1999), the method still presents challenges to the trade unions as there have been debates about whether the method coopts workers or advances workers' struggle for greater control of the shop floor. Buhlungu (1996) argues that worker participation advances struggle and thus presents an opportunity to push back managerial control. Unions understand workplace forums as a manifestation of class contradictions. NUMSA in 1996 Congress resolved that:

> *"Codetermination in the private sector together with the participation in board of directors is politically dangerous… the union must not trigger the workplace forum must instead fight for extended collective bargaining on issues relating to production which are up to now been regarded as management prerogative*."

The workplace forum coops and weakens unions militancy and reduce workers' solidarity. Similar views of cooption were shared by Lehulere (1995) when he argues that "*codetermination makes workers to give up to strike"* on issues covered by codetermination and prolong the process to socialism and makes workers to believe that they have common interest with capitalists.

Table 1 as compiled by Bischoff et al. (2018) shows some of the reasons advanced by companies not to trigger workplace forums.

Table 1. Reasons why workplace forums were not established (by 1999).

Reason	Percentage
Trade union opposition	**50%**
Do not meet CCMA criteria	**27%**
Inappropriate organization	**11%**
Management opposition	**8%**
Not disclosed	**4%**
Total	**100%**

Source: Psoulis et al., in Bischoff et.al (2018).

For Buhlungu (1999), codetermination and workplace democracy contain both opportunities to push back managerial control in the labour process while at the same time presenting dangers to labour movements, for each situation there are costs and benefits. Through the workplace forum, the employer is compelled to consult with forum members on any issues which may affect workers in the workplace and there must be a joint decision-making process (LRA ch.5 sections 83 and 85). Additionally, according to section 84 on specific matters for consultation, the employer should consult on "*restructuring the workplace, including the introduction of new technology and new work methods… and changes on the organisation of work"*

Furthermore, Buhlungu (1999) cautions against the notion which views participation as either cooption or the advancement of labour. Trade unions in South Africa have always been struggling for their involvement in decision-making processes. For many years labour has been excluded in policy formulation of labour-related matters. The participation of workers offers creativity and control to some extent in the labour process, which is contrary to the classical Marxist notion of subordination of labour in production, argues Buhlungu (1999). Democratization of the workplace cannot be separated from the struggles confronted by workers in their day-to-day challenges in production.

5.3 How Has Labour Responded Towards the Shift of Automation and Digitization: NUMSA Case Studies

During the 1980s and 1990s, there were significant economic developments across the world. The changes to restructure the workplace, according to Murakam (1999), can be viewed as the continuation of the old Fordism model of mass production and consumption or the new paradigm shift which brought the structural transformation of labour and evolution of the

workplace. Forrest (2011) posits that the construct of post-Fordism finds resonance in South Africa, especially during the democratic transition.

With South Africa coming from isolation, everyone got involved in the global economic developments, with trade unions concentrating on the world trends in the restructuring of work (Forrest 2011). According to Hampson & Morgan (1999), many leftists looked at post-Fordism with optimism because they believed that conceptually it would help to disarm economic liberal restructuring. It is associated with industrial relations characterized by collective bargaining with trade unions in promoting industrial peace (Miller & Molatsky 1993).

NUMSA did not fall behind, the union in its 1993 bargaining conference was influenced by Australian strategic unionism which adopted the post–Fordist order. In Australia, through political unionism, both ACTU and ALP were able to reach an agreement with the hope that in implementing the post-Fordism order the broader working class would benefit from high rates of economic and employment growth. Trade unions saw the socialist elements of the post-Fordist order which they believe will bring a human-centered workplace. According to Forrest (2011), NUMSA asserts that post-Fordism encourages innovations, with high technology, high skills, and delegation of power to the shop floor, it demands a cooperative new workplace. It was a transition from resistance to cooperation and reconstruction.

The proponents of post-Fordist work organisation state that it is a win-win strategy for labour and business. It is about practices such as multiskilling, teamwork, and worker involvement initiatives, which bring overall flexibility and creativity in the workplace that would pave a "high road" that will benefit not only productivity but also redressing SA's legacy of racially skewed labour market and human resource development (Hunter 2000). In dealing with workplace organization, the union did not only focus on workplaces, but they also targeted the industrial policy, which was influenced by post-Fordist elements. NUMSA, in its 1996 congress, resolved that for work reorganization, "*the union must intervene both at the shop floor level and at a micro-level where industrial and macro-economic policies are made. The survival of companies depends not only on shopfloor restructuring but also on interventionist industrial policy…"* The union has planned to set up a restructuring forum and strengthen its research capacity (Forrest 2011).

Many analysts now argue that the strategy of post-Fordism has not been successful, Hunter (2000), for example argue that it is imposed, not addressing SA material realities. South Africa has its challenges that may influence the applicability of post-Fordism. According to Bird in

Forrest (2011), the workplace still reflects the apartheid state where workers are still policed and controlled rather than being self-managed- there is a stubborn managerial tradition. Workers and trade unions have less power to influence today's economy. Capital is more mobile; it uses threats of relocation to freeze wages (Hampson & Morgan 1999). Most factory union representatives lack the experience and capacity to advance control in workplace processes; decisions are taken by management- there is no paradigm shift from Fordism production (Hampson & Morgan 1999). Post-Fordism has been able to increase work intensification and worsen conditions instead of improvement for workers. The principle of flexibility has led to the loss of real work and replaced by a non-standard form of precarious employment (Hampson and Morgan 1999).

5.3.1 The Case Study of Alstom Ubunye

5.3.1.1 Background of the Company

Alstom Ubunye, previously known as Union Carriage and Wagon (UCW), is a rail company based in Nigel, Ekurhuleni, Gauteng province, with about 500 staff compliments, of which 83 percent come from the local community of the greater Nigel. The company has the capacity to manufacture and refurbish both locomotives and passenger coaches. In 1964 the UCW delivered its first electrical locomotive to the South African Rail market, the 5E1(Figure 2) (Alstom)

South African Class 5E1, Series 2. Picture by UCW

The commuter rail services of South Africa rely heavily on the train sets built by the company. Alstom Ubunye is supplying 87 components for new Passenger Rail Agency of South Africa (PRASA) trains. In 2008, UCW, under the partnership agreement with Bombardier Transportation assembled units for Gautrain, the continent's first high-speed rail project. The legacy project associated with the former premier of Gauteng, Mbhazima Shilowa was marked

with criticisms, the project was scheduled to cost about R30 billion (Thomas 2013). The proponents of the project argued that the benefits of Gautrain were to reduce traffic congestion and job creation. According to Thomas (2013), the train is meant to connect Tshwane, Johannesburg and OR International Airport. In 2013 Murray and Roberts sold its interest to the Commuter Transport and Locomotive Engineering (CTLE) consortium, by then the company had more than 1000 employees. In 2016 Alstom acquired 51 percent shares of CTLE and renamed its company Alstom Ubunye (Railways Africa 2018).

5.3.1.2 Digital technology and labour process

The technological era has also challenged the rail sector to move away from traditional modalities to embrace a number of technologies and passenger railways. According to Railways Africa (2016), companies are challenged to implement systems to meet the ever-changing world's needs. Post-2016, in preparation for future rail projects, such as the X'Trapolis mega passenger trains, for PRASA.

The Alstom Ubunye adopted the modernisation program and went through an evolution process which transformed the facility. Through the modernisation project, the redesigning of the facility also took place, with two robotic welding stations, and CNC milling machines for 3D dimensions (Alstom). The factory is ISO 9000, EN 15080 CLI certified and has been awarded the highest welding certification in the industry and is now a world-class facility. The plant improved its automation and digitised technologies such as the introduction of a Manufacturing Electronic System (MES).

The MES is a computerised system used to schedule production activities, track work in progress, monitor equipment performance and enforce standard operating procedures, in a nutshell, it provides real-time information about manufacturing processes (da Costa Dias et al. 2019) The MES was developed in the US in the mid-1990s, it involves the integration of advanced technologies and automation on the shop floor (da Costa Dias et al. 2019). The proponents of the system claim that the smart factory must have a collaborative system that is able to respond in real-time to meet the changing demands and conditions of the production process. For da Costa Dias et al. (2019), automation means any computer-based system replaces humans to improve efficiency and productivity.

With the advancement of technology brought by Industry 4.0, the MES must be adapted and enhanced to work together, and workers may need to adapt to operate alongside automated

systems, leading to changes in job roles and skills requirements (da Costa Dias et al. 2019). According to the shop stewards interviewed through the study, they argue that the "*MES technology broad autonomous worker, supervisors are now demoted, and the system is now giving workers instructions, supervisors no longer have a role, the workflow is automated".* Workers may need additional training to use MES and understand the new technologies implemented effectively. The shop stewards explain that the challenge in Alstom Ubunye is that most employees are still computer illiterate, and there is contestation among workers, "*the old vs a young worker*". The ultimate intention of the company is to remain with young workers (Focus Group discussions, 10 January 2020).

When the company was assembling Gautrain, in 2008, a few blue-collar workers were trained internationally in France. The company brought the expatriates from England and argued that South Africans were not trainable. There were plans to transfer the skills to only some of the workforce. The shop stewards raised serious concerns that "*laws of the country are so relaxed on how to deal with expatriates*" (Focus Group discussions, 10 January 2020). The only training offered by the company is not accredited, only tailored for a specific project, argued the shop stewards. The Alstom Technician, Moloko, interviewed (10 January 2020) explained that before any project gets introduced, production processes get reviewed, and the ergonomics study gets conducted, which is meant to promote the well-being, efficiency and safety of workers. Workers will be encouraged to bring suggestions, however sometimes not incorporated. From the suggestions accepted workers will not get credit for them at the end of the process. He evaluates that some of the changes bring better and sometimes worsened conditions for workers, "*at some stage safety gets compromised"* (interview, Technician, 10 January 2020).

According to the shop stewards interviewed, when the plant introduced the robotic welding station, young workers were trained by the company welding academy which is meant to train the unemployed youth from local communities in the greater Nigel area. Workers were not happy because it further increased contestation between the young workers and the old workers who were doing welding. For the company, Liale highlighted that "*training unemployed youth provides them with skills that will benefit them for any future employment which may arise, this is the social responsibility the company has undertaken in assisting the neighbouring communities in challenging the youth unemployment*" (interview, IR manager, 12 February 2020). According to Railways Africa (2019), the robotics welding stations by its nature are

automated, and designed to operate with minimal human intervention, once programmed, they can operate autonomously according to the set parameters, reducing the need for manual labour. As a result of that old workers got retrenched with the introduction of robotic welding technologies.

The changes brought by MES were received by mixed reactions from workers, according to the shop stewards there was an acceptance of the removal of supervisors because they were regarded as the source of conflict that normally takes place in the line of production. The negativity of the MES, it monitors movements, and shop stewards indicate that it violates the privacy of an individual. However, for management, it was well received; according to the IR manager interviewed, *the organisation has considered the impact and actively involved workers in the process. There was open communication, training programs and support approach to ensure workers adapt to shop-floor changes".* He went further to argue that there is negative acceptance of change from some of the workforce (interview, IR manager, 12 February 2020).

5.3.1.3 Numsas' Response to Workplace Restructuring in Alstom Ubunye

Consultation in the South African labour space is a cornerstone of labour relations, emphasizing collaboration, transparency and mutual respect between consulting parties. For shop stewards interviewed, consultation gives workers a voice in matters that impact them directly and empowers them to find solutions to any challenges which may prevail. They highlighted that there needed to be proper consultation on the modernization projects, as opposed to involving the union towards the end. There were no proper consultations on the effect of the new technologies and training, shop stewards argue that this has always been the case, even when the plant was assembling Gautrain in 2008. Shopstewards bemoans that '*Employees were only notified after management had already made decisions'* (Focus group discussions, 10 January 2020).

The shop stewards believe that the union strategy must develop shop stewards' capabilities to independently engage management and seek any information before new technology gets introduced or any transformation in the workplace. This was going to assist them as the union officials who were meant to handle the consultation process were not always available as they claimed that they had other prior commitments, while on the other hand, the company did not treat the union with mutual respect. The workers' representatives were not happy with how the union handled the process (Interview focus group, 10 January 2020). The same was also echoed

by Hlatshwayo (2017), that the trade union strategy should ensure that the involvement of workers in a workplace requires workers to acquire skills and a necessary resource to participate.

NUMSA has long resolved how to handle processes or workplace reorganization, but the challenge remains with the implementation. The union, in its 1996 national congress, resolved on re-organization at the shop-floor level, at that point.

> *1. "Employers must negotiate with unions on work re-organisation by giving information and discussing their strategic plans with the union.*
>
> *6. A company must give six months' notice of the introduction of new technology. This notice period must be before the decision to purchase the machinery occurs."* (NUMSA NC 1996)

The Metal and Engineering Sector Coordinator, Zenani, during the interview, highlighted that no effort was put in place by the union to deal with restructuring; for instance, the union resolved to set up a restructuring forum, and more needs to be done. He accepted that companies within the same sectors are not the same; there are multinational companies, foundries, smelters, and many more. According to Hartford in Forrest (2011:316), "*the union lacks the capacity to address transformation issues, they rather focus on where they can control and do it piece by piece*". He suggested that rigorous training of shop stewards and officials should be prioritized.

As expressed by Bophelo Mapi, the head of OCCB, during the interview session indicated that '*section 33 of the MEIBC collective agreement forces consultation and the setting up of the econometrics team'*. According to the OCCB head, this has not happened, employers do not consult and there is no framework (interview, 26 February 2020). The importance of the egonometrics team will be able to detect work that will be eliminated during the introduction of new technology. The team will take care of the work process, maintenance of the machine, security and privacy. He was concerned "that even in the bargaining conference, there is no mention of the proactive approach on the 4IR, no demands of 4IR, *only monetary demands. The union always responds after employers have introduced new technology*". Bophelo Mapi, the OCCB head, mentioned that '*there is no technology agreement from unions, only section 33/35 exists, and it comes with its limitations'* (interview, 26 February 2020). He suggests that the framework is necessary to guide the process flow.

Hlatshwayo (2017) critiques manufacturing unions as being rearguards, responding to technological change after new technology had been introduced by management. Technological innovation in NUMSAs' plants is a site of struggle with a limited level of participation by the union. Workers can only be consulted when management has already decided to introduce new technology, and this, as a result, limits the opportunity to bring forth proposals to mitigate the effects of technological changes (Hlatshwayo 2017). Klay (1987) provides a framework for how Japanese unions respond to technological innovations. The unions emphasized the importance of pre-decision consultation and consensus-building at all levels. Their aim was to ensure that the introduction of new technology serves the interests of social and economic progress and contributes to the overall welfare of society. Furthermore, this was done to make sure that the benefits of technology were fully shared this was carried out to ensure that the advantages of technology were equitably distributed among workers and that its implementation wouldn't exacerbate disparities among them. (Klay 1987).

The difficulty confronting workers in Alstom Ubunye was to push through their position to the other side of management. Various reasons are attributed to the lack of power to influence decisions by trade unions at the participatory platforms. The shop stewards highlighted that while they do take part in management-initiated platforms as outlined in the recognition agreement, such as PERC, which discusses any issues, shop stewards, team leaders, and foreman sits, there is also ERC, for managers and shop stewards, steering committee and strategic platform for executives and the office of the general secretary of the union participates. Shop stewards are concerned that the general secretary seldom attends, and even when he attends, they do not normally get any feedback. In all these platforms, workers feel disempowered because management still makes decisions (Focus Group discussions, 10 January 2020). This led to pseudo-participation and gave credence to management to legitimize their decisions; similar views were echoed by workers in VWSA (Bischoff et al.2018). Shop stewards lack capacity and institutional support from the union, which makes them unable to engage meaningfully.

What seems to be the trend in the contemporary conjuncture is that trade unions in South Africa have lost their strategic influence post the dawn of democracy. The poor economic performance and effects of globalisation have weakened labour power. Labour appears to be losing power in participatory forums. According to Buhlungu (1999), trade unions lost their sets of

capabilities to exercise power structurally, organizationally, strategically, administratively, or otherwise.

5.3.2 The Case Study of BMW

5.3.2.1 Brief History of BMW Rosslyn Plant

The BMW (Bayerische Motoren Werke) plant is situated in Rosslyn, an industrial suburb located in the north of Tshwane, South Africa. The establishment of the BMW plant in Rosslyn, South Africa, in 1973 was driven by a combination of factors, including international market expansion, strategic geographic location which provided access to key markets in key in Africa as well as its proximity to shipping routes to other continents (BMW). Over the years, the Rosslyn plant has produced various BMW models, including "*Legendary vehicles",* the BMW 3 series, the 333i(E30), 325iS, known as *Gusheshe,* the car used for local racing, the 525i the BMW M1, BMW X3, and many more. The 3 series have been a flagship model for the Rosslyn plant, according to the company blog (April 2018) the plant has produced a total of 1191604, for the local SA market and exported to other markets around the world. BMW blog April 2018).

The Rosslyn plant currently employs about 2500 workforce and prides itself in providing employment opportunities, skills development and to the local economy across its value chain. The plant employs about 2500 workforce of both skilled and semi-skilled workers in various roles including production line workers, engineers, administration and managers. Additionally, the plant's operations create indirect employment opportunities through its supply chain and support services (BMW blog June 2023). Through its academy, the plant can train 300 apprentices per year, development and empowerment of workers has been its priority since its inception.

5.3.2.2 Digital Colonialism of the New Unit

The BMW Group has made significant investments by modernising the facility to enhance its efficiency and increase production capacity for the site to remain competitive and relevant to the BMW global manufacturing network (BMW 2016). The SA automotive industry is primarily focused on manufacturing and distribution, although it does have some presence of research and development facilities or collaboration with local research and institutions (interview, BMW representative, Simone, 27 August 2021). According to Matthews, the auto Sector Coordinator (interview, 21 January 2020) the design, research and development (R&D)

are concentrated in several major centres of the developed world, protected by barriers to entry, and intellectual property (IP) rights. The *WEF 2020 Global Competitive Report* encourages companies to drive innovation and offer better products so that they are competitive, relevant and resilient in today's dynamic business environment (WEF 2020).

Once the R& D process is concluded, the manufacturer; OEMs prefer to locate the assembly of the new unit to facilities close to major markets to reduce transportation costs and lead times. Countries with large domestic markets or strategic access to regional or global markets are more appealing (Bounajm 2015). The countries also compete for the manufacturing of the new unit; governments normally offer incentive packages to entice investment from multinational automotive corporations (Yates & Lewchuk 2016). BMW CEO of SA and Sub-Saharan Africa, Peter van Binsbergen (2021) posits that "*the production of the BMW X3 SUV Rosslyn plant is a vote of confidence in the country and in the BMW Group South Africa's associates*" The company has secured R6.2bn investment to prepare for its production. The former minister of trade and industry, Rob Davis, applauds the SA industrial policy that can incentivize the automobile sector through the Automobile Production and Development Program (APDP) to attract more investment in the country (BMW 2018).

The auto sector coordinator, Matthews, went further to highlight *that "whenever the new unit is introduced, it comes with its own design, plant layout, specification, and technology already decided by the mother country"* (interview, 21 January 2020). Ndlovu, the Head of Research refers to this as "*digital colonialism"*. He argues that decisions have already been taken at the global strategic level where South Africa is not represented whenever consultation processes start (interview, 13 January 2020). There is a geographical difference; the developers of technology from the Global North own the patent rights, and the Global South only assemble the unit. Furthermore, he explained the importance of control of technology because he argues that these technologies are introducing surveillance, and the union should fight over who owns technology. Similar views were echoed by Shop stewards in Alstom Ubunye, who have indicated that people in France can monitor their movements through the MES login system and they are able to tell the time spent on and off the system.

In 2018, the plant started to manufacture a BMW X3 Sport Utility Vehicle (SUV), with an annual capacity of 76,000 units per annum. The first BMW X3 was dispatched in May 2018 for export to Europe via Durban Port (BMW May 2018). The X3 was meant to replace the 3

series sedan allocated to other plants within the global BMW production network (BMW 2016).

5.3.2.3 Digital Technology and the BMW X3 Labour Process

In preparation for the unit, changes were introduced in the production processes. The BMW X3 SUV model came with dimensions, different to that of a 3 series, the length and height are not the same. The BMW 3 series is slightly shorter and narrower than the BMW X3 SUV. Certain plant layout infrastructure was changed, including reorganising workstations; the body shop, paint shop and assembly plants were upgraded to accommodate the new model. The plant introduced nearly 300 robots, making the plant 95% automated (interview, BMW representative, Simone, 27 August 2021).

Robotics At BMW Picture By Timothy Rangongo (News24)

The beginning of the manufacturing process is automated with high-speed servo pressers. The body shop introduced modern robots doing welding, glueing and screwing. The company argued that modern robots are capable of performing complex work with maximum precision operated by highly skilled employees. The facility employed about 400 workforces to oversee the robots, working three shift systems, five days a week (Edward Makwana BMW Blog, 2021).

Among other robots introduced, there was also the "*robotic manipulator*" which performs tasks that manual labour is unable to do. (BMW Blog 2019). During the optimization phase, certain roles were merged, shop stewards were concerned that "*certain roles were merged, and workers ended up being overloaded. For example, where the total workload was at 80 percent after optimization it was increased to 120 percent because other* roles became redundant" Management argues that optimization helps to improve efficiency, reduce costs and enhance overall productivity. On the other side, workers were complaining that overloading causes

fatigue and they ended up taking excessive sick leaves and there is continuous absenteeism (interview, BMW representative, Simone, 27 August 2021)

The BMW Rosslyn plant prides itself on its own in that 25-30 percent of its electricity requirement is generated from renewable sources. The source is biogas which comes from organic waste such as cattle manure, food and abattoir waste, fruits and vegetable waste. The 4.4 MW supply is from the Bronkhorstspruit Biogas plant.

5.3.2.4 The Union Response to Changes in the Workplace

The shop stewards interviewed highlighted that whenever the new unit gets introduced, the company will always move with speed and the union will be lagging (Focus group discussions, 13 July 2021). They went further to mention that *'according to the NBF collective agreement, plant bargaining should focus on matters concerning productivity and employee benefits'* (focus group, 13 July 2021). BMW at the group level always plan on the new product to be manufactured and decides on the country to take the unit depending on the country's competitive advantage. NUMSA is not represented in that platform, once the decision is taken, the union through its plant chairperson and the secretary are invited to attend the Euro Works annual workshop which takes place in Germany, where information gets shared on a wide range of issues. According to the Shop steward, this platform is a pseudo-participation because both management and the union from a particular country represent a country, and they agree on issues to be raised as country representatives. The union has been able to negotiate for a cash component benefit of R10 000 known as the "*ramp up*" only (Focus group discussions, 13 July 2021).

At the plant level, twelve months before the introduction of the new units the shop steward committee is consulted through management-initiated platforms to raise concerns ranging from job preservations, health and safety concerns, etc. However, it came out that during the operationalizing process, management ignored proposals from the union. They failed to conduct trial runs in collaboration with workers, which would have assisted in considering inputs from workers, especially on the settings of the manipulator. Workers feel disempowered because of the increased workload and its impact, and they put more pressure on the union through their shop stewards. only (Focus group discussions, 13 July 2021).

NUMSA, in their 1996 congress, resolved that they reject any management technique which will make them compete against fellow workers for competitiveness (NUMSA NC 1996).

However, when the auto manufacturing company decides to invest in a particular country. Workers are participating in management-initiated programs which make their plant to be the preferred choice to manufacture new units. The Shop stewards, with the lack of capacity to engage in work reorganization and not getting enough support from the union, agreed with management to allow a thirty per cent threshold of temporary workers instead of allowing the company to follow the new amendments in the Labour Relations Act of 1996, which regulate temporary work. Although the union has adopted guidelines on how to deal with new production and management systems, twenty-two years later, shop stewards are still complaining that the union does not capacitate them in handling workplace reorganization.

Workers felt neglected by the union, especially at the national level, according to the shop stewards, when the company failed to conduct an ergonometric study before the X3 SUV unit was manufactured. Workers felt overloaded, shop stewards were writing letters of concern to management and their concerns were not addressed. The union at the local level requested assistance from the health and safety coordinator to force the company to prioritize the safety of workers. The request fell on deaf ears; workers were not happy about their union (Focus Group discussions, 13 July 2021). According to the shop stewards, there were no negative impacts on jobs; the redundant roles did not lead to any job losses, instead, workers were redeployed to other departments.

5.3.2.5 Limits and Consequences of NUMSAs' Response

Technological advancement has shifted power dynamics and levels of control in both workplaces. In both case studies, automation and digitisation have changed the nature of work where the routine of tasks is being automated, and control is in the hands of management. NUMSA's limitation is the lack of empowerment of workers to engage and wrestle control in the workplace. The post-Fordism, as the only strategy last adopted by the union in 1996, does not empower workers to push for regulations that safeguard workers' agency and autonomy in the midst of technological changes.

It is the responsibility of a trade union in the workplace to ensure that advancements in technology are accompanied by fair and equitable treatment for all workers in the workplace. The union must ensure that there is fair labour practice in the changes brought by automation and digitisation and workers are not exploited. This may include fighting for laws, policies and guidelines for social equity for the use of technology. The union is not using collective bargaining processes to advance measures to maintain workers' agency and decision-making

power as technology impacts the nature of work. Hlatshwayo (2017) shows that the unions focus more on wages in their national bargaining conference and, most of the time do not even discuss the impact of technological changes in the workplace. I have confirmed this in my study.

The education and awareness to empower workers about their rights and how to navigate potential challenges is lacking. The union has not developed monitoring and oversight mechanisms to identify potential threats to workers' rights and autonomy, workers are left to navigate for themselves. This can be achieved through collaboration with researchers to conduct studies and gather data to develop regulations that address emerging issues and ensure that workers are protected when technological changes are introduced in the workplace.

5.3.3 Initiatives by the Union to Rebuild Itself: Developing a New Bargaining Strategy.

In 2019, NUMSA after assessing the union's impact in organizing the shop floor and collective bargaining attempted to review its approach by starting the "*Regaining Workplace Power in the Metals & Engineering Industry"* project. The project intends to use the power resources approach, such as institutional power, associational power and societal power to regain structural power on the shop floor and within the labour market (Numsa workshop 2019). The "*Regaining Power Project"* (RPP) was meant to be a participatory strategy development initiative where shop stewards and officials work together to develop strategies on how to regain workplace power. Using the *"Each One Teach One"* methodology and techniques of sharing experiences, the project aimed to create:

a) A common and comprehensive understanding of the challenges facing the sector of the union as well as strategies to overcome the use of power resources that the union possesses.
b) A bargaining strategy that builds workplace power.
c) An understanding of how industrial policy is a crucial tool to defend jobs and accumulate workplace power (Numsa workshop 2019).

Unfortunately, the project was abandoned, according to the national researcher and the engineering sector coordinator the initiative could not get any support from the national leadership. The failure of the union not to go beyond its 1996 Post-Fordism strategy does not realize that most shop stewards lack the experience and capacity to advance control in workplace processes; decisions are taken by management. Workers feel disempowered in the

work reorganization processes. The manufacturing of the BMW X3 SUV at the BMW Rosslyn plant bears the testimony of Hampson and Morgan (1999) that the post-Fordism increased work intensification and worsened conditions of workers instead of improvement for workers. Workers become victims of the changes in the labour process and do not get proper service from their union.

CHAPTER 6

CONCLUSION

6.1 Conclusion

Recent changes in automation and digitisation call for trade unions to bargain and contest space to protect workers' rights and fight against any displacement, and precarious jobs. The voice of labour is essential for ensuring a fair and balanced labour market. This study has given an account of NUMSA's strategy for work reorganization. Evidence has demonstrated that the union's strategy towards technological changes is a work in progress. The post-Fordism approach was last adopted by the 1993 Bargaining Conference and endorsed in the 1996 national congress. The union, from time to time, goes to the bargaining conference, and the focus is on bread-and-butter issues only to the detriment of challenges confronting workers.

The study examined the impact of work reorganization using a Marxist approach to the labour process and the effect on workers and their agency. In the capitalist mode of production, workers are expected to bow down to the command, direction and supervision of capital control. For Marx, in as much as the capitalist labour process weakens the working class but it also strengthens workers in the political struggle- workers must organise themselves as a class for itself to challenge capitalist relations of production. Marx believes that workers have agency and autonomy to challenge their oppressors actively. Braverman acknowledges that once workers sign the contract of employment, they give control to management who takes away the expertise of a worker by separating hands from brains in a hostile and less human way. Burawoy brings a sociological work where workers consent to give away their power by playing through the rules of the game.

The study has shown that generally digital advancement exacerbates existing inequalities in developing countries where access to technology is limited, and protection of privacy and security remains a challenge. Digital technology introduced flexibility of employment, work from home arrangement which overstretch work and affects family time, precarious work and displacement of both skilled and unskilled workers. The relevance of trade unions in the digital world of work is questioned in South Africa since 77 percent of workers are unorganized and an inability to attract young and educated workers. Evidence from this study suggests that amid challenges confronted by labour movements, trade unions will continue to play an essential role as principal agents of working-class mobilization. However, for them to remain relevant

they must put measures in place that will contribute towards the future of workers. Both case studies have demonstrated the limits and consequences of NUMSAs' post-Fordism strategy in dealing with work reorganization as a result of new technology.

The research has shown that the post-Fordism approach as argued by its proponents that it brings a win-win approach to the labour process between labour and management, it encourages innovations, brings high skills by allowing continuous training of workers, and a balance to the delegation of power to the shopfloor, teamwork and worker involvement. One of the most significant findings from this study is that the strategy has not been successful. This confirms what Hunter (2000) would have argued that post-Fordism is not addressing SA realities; it was imposed from Australia.SA has its unique challenges with workplaces which still reflect the Apartheid state where workers are still policed and trade unions have less power and influence, lack of experience and capacity to advance control in workplace labour processes.

The evidence from the study suggests that unions in SA lost strategic influence post the dawn of democracy. NUMSA having been a social movement union during apartheid, has now weakened labour power in participatory forums. The union's orientation of political unionism has weakened the unions' ability to address immediate workplace concerns, and this has made workers vulnerable during technological changes in the workplace. The findings from both case studies suggest that NUMSA has limitations in the empowerment of workers to wrestle control of the labour process; the post-Fordism strategy does not equip workers with the capacity to push for their agency and autonomy during workplace restructuring. The union is not using collective bargaining processes effectively to increase the decision-making power of workers to address issues which affect the labour processes. There are no monitoring and oversight mechanisms put in place by the union to identify potential threats to workers' rights, workers are left to navigate for themselves.

APPENDIX A: PARTICIPANT INFORMATION SHEET

Participant Information Sheet
Researcher: Mamolaba Ruth Ntlokotse

Participants Information Sheet

A researcher project investigating Labour-Led Strategy to The Fourth Industrial Revolution: A Critical appraisal of Numsa's approach to worker control.

Introduction

I would like to invite you to participate in this project which is concerned with how labour has responded to the shift towards digitisation and automation.

Why am I doing this project?

The project will be used for my Master's Thesis and possibly wider publication. I am currently a Masters Student at University of Witwatersrand Johannesburg. This project will offer a great opportunity to get input from various participants with a different background., we need to look at work reorganisation as a result of technology and what are the strategies applied by labour in response to the effects of displacement.

What will you have to do if you agree to take part?

There will be one or more interviews with me during which I will ask you questions related to your direct experience. The interview will not take more than an hour.

Will your participants in the project remain confidential?

If you agree to take part, your name will not be recorded except if you request to use your real name. Should you grant permission you will be audio-recorded. I will only take notes should you not agree. The information we discuss will be confidential except in various publications where you remain anonymous. Your participation is voluntary, and you may stop at any point during the interview.

Researcher

Ruth Mamolaba Ntlokotse, Masters GLU student, Department of Sociology, University of Witwatersrand. Contacts: ruth.ntlokotse@gmail.com, 060453 3042.

Supervisor

Prof. Vishwas Satgar, University of Witwatersrand Johannesburg- Vishwas.satgar@wits.ac.za

APPENDIX B: PARTICIPANTS CONSENT FORM

Title of Project: Labour-Led Strategy to the Fourth Industrial Revolution: A Critical Appraisal of Numsas' Approach to Worker Control

Name of Researcher:

I _____ agree to participate in this research project. The research has been explained to me and I understand what my participation will involve.

- I have read the participant information sheet and understand the information it contains and had the opportunity to ask questions. **YES NO**
- I agree that my participation will remain identifiable **YES NO**
- I agree that the researcher may use anonymous quotes in his research report. **YES. NO**
- I agree that the interview may be audio recorded **YES NO**
- I agree that the information I provide may be used anonymously following this study. **YES NO**

Name of Participants----------

Signature----------

Date: ----------

APPENDIX C INTERVIEW GUIDE

Questions for participants: NUMSA Officials and Shop-stewards.

The questions as formulated allowed participants to respond in open ended type of engagement. There were follow-up questions based on the responses of the participants. The questions are framed to ensure neutrality and allow open discussions between the interviewer and the participant.

1. What do you think of the topic?
    a. Do you think that we are already in the Fourth Industrial Revolution?
    b. Is it worth to be embraced and celebrated?
2. How did the plant prepare for work re-organisation due to the technological changes?
    a. What was the involvement/ role of all stakeholders?
    b. What were the processes put in place, do they feel part of the processes?
3. What was the role of NUMSA in work reorganisation
    a. Was there any worker's bargaining power?
    b. Is the union addressing workers' concerns sufficiently?
    c. Was the strategy of the union of any assistance?
4. How has the labour process changed
    a. Were there any changes to the layout?
    b. The productive activity: for the good or bad.
5. Who controls work?
6. What does this mean for the future of work?
    a. Were there any job losses when new technology introduced
    b. Are there any changes to the skills requirements?
7. Any recommendations

Questions to the company representatives

1. What do you think of the topic
2. How did the company prepare for automation and digitisation?
3. Were there any changes to the production processes?
4. Are worker's concerns addressed?
5. Were changes beneficial for workers?
6. What does this mean for the future of work?
7. Any recommendations for labour?

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c. NUMSA Engineering Sector Coordinator, Pseudo name, Zenani [Interview] -13 January 2020.

d. NUMSA Head of Research, Pseudo name, Ndlovu: [Interview] -13 January 2020.

e. NUMSA Auto Sector Coordinator, Pseudo name, Matthews: [Interview]-21 January 2020.

f. NUMSA Head of OCCB, Pseudo name, Bophelo Mapi: [Interview]- 26 February 2020

g. BMW Shop Stewards: [focus group]-13 July 2021

h. Regional Organizer: [Interview]- 26 February 2020

i. Alstom Ubunye Industrial Manager, Pseudo name, Liale: [Interview]- 12 February 2020

j. BMW Company representative, Pseudo name; Simone [Interview]- 27 August 2021

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